The Future of Nursing: Leading Change, Advancing Health

Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing,at the Institute of Medicine; Institute of Medicine

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The Future of Nursing:

LEADING CHANGE, ADVANCING HEALTH

Committee on the Robert Wood Johnson Foundation
Initiative on the Future of Nursing,
at the Institute of Medicine

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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Willing is not enough; we must do."
—Goethe

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Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by **Kristine Gebbie,** School of Nursing, Hunter College City University of New York and **Mark R. Cullen,** Stanford University. Appointed by the National Research Council and Institute of Medicine, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

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Foreword

The founding documents of the Institute of Medicine (IOM) call for experts to discuss, debate, and examine possible solutions for the multitude of complex health concerns that face the United States and the world. Equally important is the timely implementation of those solutions in a way that improves health. The United States is at an important crossroads as health care reforms are being carried out and the system begins to change. The possibility of strengthening the largest component of the health care workforce—nurses—to become partners and leaders in improving the delivery of care and the health care system as a whole inspired the IOM to partner with The Robert Wood Johnson Foundation (RWJF) in creating the RWJF Initiative on the Future of Nursing at the IOM. In this partnership, the IOM and RWJF were in agreement that accessible, high-quality care cannot be achieved without exceptional nursing care and leadership. By working together, the two organizations sought to bring more credibility and visibility to the topic than either could by working alone. The organizations merged staff and resources in an unprecedented partnership to explore challenges central to the future of the nursing profession.

To support this collaborative effort, the IOM welcomed staff from RWJF, as loaned employees, to provide specific content expertise in nursing, research, and communications. Combining staff from two different organizations was an experiment that integrated best practices from both organizations and inspired us to think in fresh ways about how we conduct our work. We are indebted to RWJF for the leadership, support, and partnership that made this endeavor possible.

I am deeply grateful to the committee, chaired by former Department of Health and Human Services Secretary Donna Shalala, and to the staff, especially Susan Hassmiller, Adrienne Stith Butler, Andrea Schultz, and Katharine Bothner, who produced this report. Their work will serve as a blueprint for how the nursing profession can transform itself into an ever more potent and relevant force for lasting solutions to enhance the quality and value of U.S. health care in ways that will meet the future health needs of diverse populations. The report calls on nurses, individually and as a profession, to embrace changes needed to promote health, prevent illness, and care for people in all settings across the lifespan. The nursing profession cannot make these changes on its own, however. The report calls for multisector support and interprofessional collaboration. In this sense, it calls on all health professionals and health care decision makers to work with nurses to make the changes needed for a more accessible, cost-effective, and high-quality health care system.

Since its foundation 40 years ago, the IOM has produced many reports echoing the theme of high-quality, safe, effective, evidence-based, and patient-centered care. The present report expands on this theme by addressing the critical role of nursing. It demonstrates that achieving a successful health care system in the future rests on the future of nursing.

Harvey V. Fineberg, M.D., Ph.D.
President, Institute of Medicine

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Preface

This report is being published at a time of great opportunity in health care. Legislation passed in March 2010 will provide access to health care for 32 million more Americans. The implications of this new demand on the nation's health care system are significant. How can the system accommodate the increased demand while improving the quality of health care services provided to the American public?

Nursing represents the largest sector of the health professions, with more than 3 million registered nurses in the United States. The question presented to the committee that produced this report was: What roles can nursing assume to address the increasing demand for safe, high-quality, and effective health care services? In the near term, the new health care laws identify great challenges in the management of chronic conditions, primary care (including care coordination and transitional care), prevention and wellness, and the prevention of adverse events (such as hospital-acquired infections). The demand for better provision of mental health services, school health services, long-term care, and palliative care (including end-of-life care) is increasing as well. Whether improvements in all these areas of care will slow the rate of growth in health care expenditures remains to be seen; however, experts believe they will result in better health outcomes.

What nursing brings to the future is a steadfast commitment to patient care, improved safety and quality, and better outcomes. Most of the near-term challenges identified in the health care reform legislation speak to traditional and current strengths of the nursing profession in such areas as care coordination, health promotion, and quality improvement. How well nurses are trained and do their jobs is inextricably tied to every health care quality measure that has been targeted for improvement over the past few years. Thus for nursing, health care reform provides an opportunity for the profession to meet the demand for safe, high-quality, patient-centered, and equitable health care services. We believe nurses have key roles to play as team members and leaders for a reformed and better-integrated, patient-centered health care system.

This report begins with the assumption that nursing can fill such new and expanded roles in a redesigned health care system. To take advantage of these opportunities, however, nurses must be allowed to practice in accordance with their professional training, and the education they receive must better prepare them to deliver patient-centered, equitable, safe, high-quality health care services; engage with physicians and other health care professionals to deliver efficient and effective care; and assume leadership roles in the redesign of the health care system. In particular, we believe the search for an expanded workforce to serve the millions who will now have access to health insurance for the first time will require changes in nursing scopes of practice, advances in the education of nurses across all levels, improvements in the practice of nursing across the continuum of care, transformation in the utilization of nurses across settings, and leadership at all levels so nurses can be deployed effectively and appropriately as partners in the health care team.

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In 2008, The Robert Wood Johnson Foundation (RWJF) approached the Institute of Medicine (IOM) to propose a partnership between the two organizations to assess and respond to the need to transform the nursing profession to meet these challenges. The resulting collaborative partnership created a unique blend of organizational expertise and content expertise, drawing on the IOM's mission to serve as adviser to the nation to improve health and RWJF's long-standing commitment to ensuring that the nursing workforce has the necessary capacity, in terms of numbers, skills, and competence, to meet the present and future health care needs of the public. Recognizing that the nursing profession faces the challenges outlined above, RWJF and the IOM established a 2-year Initiative on the Future of Nursing. The cornerstone of the initiative is the work of this IOM committee. The Committee on The Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine was tasked with producing a report containing recommendations for an action-oriented blueprint for the future of nursing, including changes in public and institutional policies at the national, state, and local levels. The specific charge to the committee is presented in Box P-1.

BOX P-1
Committee Charge

An ad hoc committee will examine the capacity of the nursing workforce to meet the demands of a reformed health care and public health system. It will develop a set of bold national recommendations, including ones that address the delivery of nursing services in a shortage environment and the capacity of the nursing education system. In its report, the committee will define a clear agenda and blueprint for action including changes in public and institutional policies at the national, state and local levels. Its recommendations would address a range of system changes, including innovative ways to solve the nursing shortage in the United States.

The committee may examine and produce recommendations related to the following issues, with the goal of identifying vital roles for nurses in designing and implementing a more effective and efficient health care system:

- Reconceptualizing the role of nurses within the context of the entire workforce, the shortage, societal issues, and current and future technology;
- Expanding nursing faculty, increasing the capacity of nursing schools, and redesigning nursing education to assure that it can produce an adequate number of well prepared nurses able to meet current and future health care demands;
- Examining innovative solutions related to care delivery and health professional education by focusing on nursing and the delivery of nursing services; and
- Attracting and retaining well prepared nurses in multiple care settings, including acute, ambulatory, primary care, long term care, community and public health.

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The committee held five meetings, which included three technical workshops held to gather information on topics related to the study charge. In addition to these meetings, the committee hosted three public forums on the future of nursing that focused on acute care; care in the community, with emphasis on community health, public health, primary care, and long-term care; and nursing education. Summaries of these forums have been published separately, are available at www.iom.edu/nursing, and are included on the CD-ROM in the back of this report. The committee also conducted a series of site visits in conjunction with each public forum to learn how nurses function in various health care and educational settings. In addition to the workshops, forums, and site visits, the committee collected testimony and welcomed public input throughout the study process, conducted a literature review, and commissioned a series of papers from a research network of esteemed colleagues.

For this committee, the IOM assembled an extraordinary group of professionals, including health experts from business, universities, and nonprofits and health care organizations. The team brought diverse perspectives to the table that went well outside the nursing profession. Most of the members did not have a degree in nursing and were not involved in nursing education, practice, research, or governance. We are grateful to these committee members and to the exceptionally talented staff of the IOM and RWJF, all of whom worked hard with enthusiasm, great skill, flexibility, clarity, and drive.

Donna E. Shalala, Ph.D., FAAN
Chair

Linda Burnes Bolton, Dr.P.H., R.N., FAAN
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To begin, the committee would like to thank the sponsor of this study. Funds for the committee's work were provided by the Robert Wood Johnson Foundation.

Numerous individuals and organizations made important contributions to the study process and this report. The committee wishes to express its gratitude for each of these contributions, although space does not permit identifying all of them here. Appendix A lists the individuals who provided valuable information at the committee's open workshops and its three forums on the future of nursing. In conjunction with each of the forums, the committee also visited several clinical sites to gather information on the role of nurses in various settings; these visits helped the committee understand the experiences of nurses and other health professionals and administrators. The committee greatly appreciates the time and information provided by all of these individuals.

The committee also gratefully acknowledges the contributions of the many individuals who provided data and research support. The RWJF Nursing Research Network, led by Lori Melichar and coordinated by Patricia (Polly) Pittman with the assistance of Emily Bass of AcademyHealth, created a series of research products that synthesized, translated, and disseminated information to inform the committee's deliberations. Research products from this network were managed by Linda Aiken, University of Pennsylvania; Peter Buerhaus, Vanderbilt University; Christine Kovner, New York University; and Joanne Spetz, University of California, San Francisco.

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* Appendixes F–J are not printed in this report but can be found on the CD-ROM in the back of this book.

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Acronyms and Abbreviations

AACN	American Association of Colleges of Nursing
AAI	Arkansas Aging Initiative
AAMC	Association of American Medical Colleges
AARP	American Association of Retired Persons
ACA	Affordable Care Act
ACO	accountable care organization
ADN	associate's degree in nursing
AIDS	acquired immune deficiency syndrome
AMA	American Medical Association
ANCC	American Nurses Credentialing Center
AONE	American Organization of Nurse Executives
APRN	advanced practice registered nurse
BSN	bachelor's of science in nursing
CBO	Congressional Budget Office
CHC	community health center
CMA	California Medical Association
CMS	Centers for Medicare and Medicaid Services
CNA	certified nursing assistant
CNL	clinical nurse leader
CNM	certified nurse midwife
CNO	chief nursing officer
CNS	clinical nurse specialist
CRNA	certified registered nurse anesthetist
CSA	California Society of Anesthesiologists
DEU	dedicated education unit
DNP	doctor of nursing practice
DRG	diagnosis-related group
FHBC	Family Health and Birth Center
FQHC	federally qualified health center
FTE	full-time equivalents
GAO	Government Accountability Office
GCHSSC	Gulf Coast Health Services Steering Committee
HealthSTAT	Health Students Taking Action Together
HEET	Hospital Employee Education and Training

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HHS	Health and Human Services
HIT	health information technology
HIV	human immunodeficiency virus
HNC	Harambee Nursing Center
HRSA	Health Resources and Services Administration
ICU	Intensive Care Unit
IHI	Institute for Healthcare Improvement
INLP	Integrated Nurse Leadership Program
INQRI	Interdisciplinary Nursing Quality Research Initiative
IOM	Institute of Medicine
LIFE	Living Independently for Life
LPN/LVN	licensed practical/vocational nurse
MD	medical doctor
MedPAC	Medicare Payment Advisory Commission
MSN	master's of science in nursing
NA	nursing assistant
NAQC	Nursing Alliance for Quality Care
NASA	National Aeronautics and Space Administration
NASN	National Association of School Nurses
NCEMNA	National Coalition of Ethnic Minority Nurse Associations
NCLEX-RN	National Council Licensure Examination for Registered Nurses
NCQA	National Committee for Quality Assurance
NCSBN	National Council of State Boards of Nursing
NFP	Nurse–Family Partnership
NHIT	national health care information technology
NHWC	National Health Workforce Commission
NLN	National League for Nursing
NMHC	nurse-managed health clinic
NNCC	National Nursing Centers Consortium
NP	nurse practitioner
NQF	National Quality Forum
NRN	Nursing Research Network
NSNA	National Student Nurses Association
NSSRN	National Sample Survey of Registered Nurses
OCNE	Oregon Consortium for Nursing Education
OHSU	Oregon Health and Science University
PACE	Program of All-Inclusive Care for the Elderly
PCMH	Patient-Centered Medical Home™
PhD	doctor of philosophy in nursing

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RN	registered nurse
RWJF	Robert Wood Johnson Foundation
SAMHSA	Substance Abuse and Mental Health Services Administration
SEIU	Service Employees International Union
SOPP	Scope of Practice Partnership
TCAB	Transforming Care at the Bedside
TCM	Transitional Care Model
TIGER	Technology Informatics Guiding Education Reform
TWU	Texas Woman's University
UAMS	University of Arkansas for Medical Sciences
UHC	University HealthSystem Consortium
UP	University of Portland
UPMC	University of Pittsburgh Medical Center
USF	University of South Florida
UTH	University of Texas Health Science Center at Houston School of Nursing
VA	Department of Veterans Affairs
VANA	Veterans Affairs Nursing Academy
VNACJ	Visiting Nurse Association of Central Jersey
VNSNY	Visiting Nurse Service of New York

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Summary[1]

The United States has the opportunity to transform its health care system to provide seamless, affordable, quality care that is accessible to all, patient centered, and evidence based and leads to improved health outcomes. Achieving this transformation will require remodeling many aspects of the health care system. This is especially true for the nursing profession, the largest segment of the health care workforce. This report offers recommendations that collectively serve as a blueprint to (1) ensure that nurses can practice to the full extent of their education and training, (2) improve nursing education, (3) provide opportunities for nurses to assume leadership positions and to serve as full partners in health care redesign and improvement efforts, and (4) improve data collection for workforce planning and policy making.

A VISION FOR HEALTH CARE

In 2010, Congress passed and the President signed into law comprehensive health care legislation. With the enactment of these laws, collectively referred to in this report as the Affordable Care Act (ACA), the United States has an opportunity to transform its health care system to provide higher-quality, safer, more affordable, and more accessible care. During the course of its work, the Committee on The Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine developed a vision for a transformed health care system. The committee envisions a future system that makes quality care accessible to the diverse populations of the United States, intentionally promotes wellness and disease prevention, reliably improves health outcomes, and provides compassionate care across the lifespan. In this envisioned future, primary care and prevention are central drivers of the health care system. Interprofessional collaboration and coordination are the norm. Payment for health care services rewards value, not volume of services, and quality care is provided at a price that is affordable for both individuals and society. The rate of growth of health care expenditures slows. In all these areas, the health care system consistently demonstrates that it is responsive to individuals' needs and desires through the delivery of truly patient-centered care.

The ACA represents the broadest changes to the health care system since the 1965 creation of the Medicare and Medicaid programs and is expected to provide insurance coverage for an additional 32 million previously uninsured Americans. Although passage of the ACA is historic, realizing the vision outlined above will require a transformation of many aspects of the health care system. This is especially true for the nursing profession, which, with more than 3 million members, represents the largest segment of the health care workforce.

[1] This summary does not include references. Citations for the findings presented in the summary appear in the subsequent report chapters.

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STUDY CHARGE

In 2008, The Robert Wood Johnson Foundation (RWJF) approached the Institute of Medicine (IOM) to propose a partnership to assess and respond to the need to transform the nursing profession. Recognizing that the nursing profession faces several challenges in fulfilling the promise of a reformed health care system and meeting the nation's health needs, RWJF and the IOM established a 2-year Initiative on the Future of Nursing. The cornerstone of the initiative is this committee, which was tasked with producing a report containing recommendations for an action-oriented blueprint for the future of nursing, including changes in public and institutional policies at the national, state, and local levels (Box S-1). Following the report's release, the IOM and RWJF will host a national conference on November 30 and December 1, 2010, to begin a dialogue on how the report's recommendations can be translated into action. The report will also serve as the basis for an extensive implementation phase to be facilitated by RWJF.

BOX S-1
Committee Charge

An ad hoc committee will examine the capacity of the nursing workforce to meet the demands of a reformed health care and public health system. It will develop a set of bold national recommendations, including ones that address the delivery of nursing services in a shortage environment and the capacity of the nursing education system. In its report, the committee will define a clear agenda and blueprint for action including changes in public and institutional policies at the national, state and local levels. Its recommendations would address a range of system changes, including innovative ways to solve the nursing shortage in the United States.

The committee may examine and produce recommendations related to the following issues, with the goal of identifying vital roles for nurses in designing and implementing a more effective and efficient health care system:

- Reconceptualizing the role of nurses within the context of the entire workforce, the shortage, societal issues, and current and future technology;
- Expanding nursing faculty, increasing the capacity of nursing schools, and redesigning nursing education to assure that it can produce an adequate number of well prepared nurses able to meet current and future health care demands;
- Examining innovative solutions related to care delivery and health professional education by focusing on nursing and the delivery of nursing services; and
- Attracting and retaining well prepared nurses in multiple care settings, including acute, ambulatory, primary care, long term care, community and public health.

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THE ROLE OF NURSES IN REALIZING A TRANSFORMED HEALTH CARE SYSTEM

By virtue of its numbers and adaptive capacity, the nursing profession has the potential to effect wide-reaching changes in the health care system. Nurses' regular, close proximity to patients and scientific understanding of care processes across the continuum of care give them a unique ability to act as partners with other health professionals and to lead in the improvement and redesign of the health care system and its many practice environments, including hospitals, schools, homes, retail health clinics, long-term care facilities, battlefields, and community and public health centers. Nurses thus are poised to help bridge the gap between coverage and access, to coordinate increasingly complex care for a wide range of patients, to fulfill their potential as primary care providers to the full extent of their education and training, and to enable the full economic value of their contributions across practice settings to be realized. In addition, a promising field of evidence links nursing care to high quality of care for patients, including protecting their safety. Nurses are crucial in preventing medication errors, reducing rates of infection, and even facilitating patients' transition from hospital to home.

Nursing practice covers a broad continuum from health promotion, to disease prevention, to coordination of care, to cure—when possible—and to palliative care when cure is not possible. While this continuum of practice is well matched to the needs of the American population, the nursing profession has its challenges. It is not as diverse as it needs to be—with respect to race, ethnicity, gender, and age—to provide culturally relevant care to all populations. Many members of the profession require more education and preparation to adopt new roles quickly in response to rapidly changing health care settings and an evolving health care system. Restrictions on scope of practice, policy- and reimbursement-related limitations, and professional tensions have undermined the nursing profession's ability to provide and improve both general and advanced care. Producing a health care system that delivers the right care—quality care that is patient centered, accessible, evidence based, and sustainable—at the right time will require transforming the work environment, scope of practice, education, and numbers of America's nurses.

KEY MESSAGES

As a result of its deliberations, the committee formulated four key messages that structure the discussion and recommendations presented in this report:

1. Nurses should practice to the full extent of their education and training.
2. Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.
3. Nurses should be full partners, with physicians and other health professionals, in redesigning health care in the United States.
4. Effective workforce planning and policy making require better data collection and an improved information infrastructure.

The recommendations offered in this report focus on the critical intersection between the health needs of diverse populations across the lifespan and the actions of the nursing workforce. They are intended to support efforts to improve the health of the U.S. population through the

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contributions nurses can make to the delivery of care. But they are not necessarily about achieving what is most comfortable, convenient, or easy for the nursing profession.

Key Message #1: Nurses Should Practice to the Full Extent of Their Education and Training (Chapter 3)

Nurses have great potential to lead innovative strategies to improve the health care system. However, a variety of historical, regulatory, and policy barriers have limited nurses' ability to generate widespread transformation. Other barriers include fragmentation of the health care system, high rates of turnover among nurses, difficulties for nurses transitioning from school to practice, and an aging workforce and other demographic challenges. Many of these barriers have developed as a result of structural flaws in the U.S. health care system; others reflect limitations in the present work environment or the capacity and demographic makeup of the nursing workforce itself. Regulatory barriers are particularly problematic.

Regulations defining scope-of-practice limitations vary widely by state. Some are highly detailed, while others contain vague provisions that are open to interpretation. Some states have kept pace with the evolution of the health care system by changing their scope-of-practice regulations to allow nurse practitioners to see patients and prescribe medications without a physician's supervision or collaboration. However, the majority of state laws lag behind in this regard. As a result, what nurse practitioners are able to do once they graduate varies widely for reasons that are related not to their ability, education or training, or safety concerns, but to the political decisions of the state in which they work. Depending on the state, restrictions on the scope of practice of an advanced practice registered nurse may limit or deny altogether the authority to prescribe medications, admit patients to the hospital, assess patient conditions, and order and evaluate tests.

Because many of the problems related to varied scopes of practice are the result of a patchwork of state regulatory regimes, the federal government is especially well situated to promote effective reforms by collecting and disseminating best practices from across the country and incentivizing their adoption. Specifically, the Federal Trade Commission (FTC) has a long history of targeting anticompetitive conduct in the health care market, including restrictions on the business practices of health care providers, as well as policies that could act as a barrier to the entry of new competitors in the market. As a payer and administrator of health insurance coverage for federal employees, the Office of Personnel Management and the Federal Employees Health Benefits Program have a responsibility to promote and ensure the access of employees/subscribers to the widest choice of competent, cost-effective health care providers. Principles of equity would suggest that this subscriber choice should be promoted by policies ensuring that full, evidence-based practice is permitted to all providers regardless of geographic location. Finally, the Centers for Medicare and Medicaid Services has the responsibility to promulgate rules and policies that promote Medicare and Medicaid beneficiaries' access to appropriate care, and therefore can ensure that its rules and polices reflect the evolving practice abilities of licensed providers.

In addition to barriers related to scope of practice, high turnover rates among newly graduated nurses highlight the need for a greater focus on managing the transition from school to practice. In 2002, the Joint Commission recommended the development of nurse residency programs—planned, comprehensive periods of time during which nursing graduates can acquire the knowledge and skills to deliver safe, quality care that meets defined (organization or professional society) standards of practice. Residency programs are supported predominantly in

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hospitals and larger health systems, with a focus on acute care. This has been the area of greatest need since most new graduates gain employment in acute care settings, and the proportion of new hires (and nursing staff) that are new graduates is rapidly increasing. It is essential, however, that residency programs outside of acute care settings be developed and evaluated. Much of the evidence supporting the success of residencies has been produced through self-evaluations by the residency programs themselves. For example, one organization, Versant,[2] has demonstrated a profound reduction in turnover rates for new graduate registered nurses—from 35 to 6 percent at 12 months and from 55 to 11 percent at 24 months—compared with new graduate registered nurse control groups hired at a facility prior to implementation of the residency program.

Key Message #2: Nurses Should Achieve Higher Levels of Education and Training Through an Improved Education System That Promotes Seamless Academic Progression (Chapter 4)

Major changes in the U.S. health care system and practice environment will require equally profound changes in the education of nurses both before and after they receive their license. An improved education system is necessary to ensure that the current and future generations of nurses can deliver safe, quality, patient-centered care across all settings, especially in such areas as primary care and community and public health.

Nursing is unique among the health professions in the United States in that it has multiple educational pathways leading to an entry-level license to practice. The qualifications and level of education required for entry into the nursing profession have been widely debated by nurses, nursing organizations, academics, and a host of other stakeholders for more than 40 years. During that time, competencies needed to practice have expanded, especially in the domains of community and public health, geriatrics, leadership, health policy, system improvement and change, research and evidence-based practice, and teamwork and collaboration. These new competencies have placed increased pressures on the education system and its curricula.

Care within hospital and community settings also has become more complex. In hospitals, nurses must make critical decisions associated with care for sicker, frailer patients and work with sophisticated, life-saving technology. Nurses are being called upon to fill primary care roles and to help patients manage chronic illnesses, thereby preventing acute care episodes and disease progression. They are expected to use a variety of technological tools and complex information management systems that require skills in analysis and synthesis to improve the quality and effectiveness of care. Across settings, nurses are being called upon to coordinate care and collaborate with a variety of health professionals, including physicians, social workers, physical and occupational therapists, and pharmacists, most of whom hold master's or doctoral degrees. Shortages of nurses in the positions of primary care providers, faculty, and researchers continue to be a barrier to advancing the profession and improving the delivery of care to patients.

To respond to these demands of an evolving health care system and meet the changing needs of patients, nurses must achieve higher levels of education and training. One step in realizing this goal is for a greater number of nurses to enter the workforce with a baccalaureate degree or progress to this degree early in their career. Moreover, to alleviate shortages of nurse faculty, primary care providers, and researchers, a cadre of qualified nurses needs to be ready to advance

[2] Versant is a nonprofit organization that provides, supervises, and evaluates nurse transition-to-practice residency programs for children's and general acute care hospitals. See http://www.versant.org/item.asp?id=35.

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to the master's and doctoral levels. Nursing education should therefore include opportunities for seamless transition to higher degree programs—from licensed practical nurse (LPN)/licensed vocational nurse (LVN) degrees, to the associate's degree in nursing (ADN) and bachelor's of science in nursing (BSN), to master's of science in nursing (MSN), and to the PhD and doctor of nursing practice (DNP). Further, nursing education should serve as a platform for continued lifelong learning. Nurses also should be educated with physicians and other health professionals as students and throughout their careers. Finally, as efforts are made to improve the education system, greater emphasis must be placed on increasing the diversity of the workforce, including in the areas of gender and race/ethnicity, as well as ensuring that nurses are able to provide culturally relevant care.

While the capacity of the education system will need to expand, and the focus of curricula will need to be updated to ensure that nurses have the right competencies, a variety of traditional and innovative strategies already are being used across the country to achieve these aims. Examples include the use of technologies such as online education and simulation, consortium programs that create a seamless pathway from the ADN to the BSN, and ADN-to-MSN programs that provide a direct link to graduate education. Collectively, these strategies can be scaled up and refined to effect the needed transformation of nursing education.

Key Message #3: Nurses Should Be Full Partners, with Physicians and Other Health Professionals, in Redesigning Health Care in the United States (Chapter 5)

Strong leadership is critical if the vision of a transformed health care system is to be realized. To play an active role in achieving this vision, the nursing profession must produce leaders throughout the system, from the bedside to the boardroom. These leaders must act as full partners with physicians and other health professionals, and must be accountable for their own contributions to delivering high-quality care while working collaboratively with leaders from other health professions.

Being a full partner transcends all levels of the nursing profession and requires leadership skills and competencies that must be applied within the profession and in collaboration with other health professionals. In care environments, being a full partner involves taking responsibility for identifying problems and areas of waste, devising and implementing a plan for improvement, tracking improvement over time, and making necessary adjustments to realize established goals. Moreover, being a full partner translates more broadly to the health policy arena. To be effective in reconceptualized roles, nurses must see policy as something they can shape rather than something that happens to them. Nurses should have a voice in health policy decision making and be engaged in implementation efforts related to health care reform. Nurses also should serve actively on advisory committees, commissions, and boards where policy decisions are made to advance health systems to improve patient care.

Strong leadership on the part of nurses, physicians, and others will be required to devise and implement the changes necessary to increase quality, access, and value and deliver patient-centered care. While not all nurses begin their career with thoughts of becoming a leader, leadership is fundamental to advancing the profession. To ensure that nurses are ready to assume leadership roles, leadership-related competencies need to be embedded throughout nursing education, leadership development and mentoring programs need to be made available for nurses at all levels, and a culture that promotes and values leadership needs to be fostered. Equally important, all nurses—from students, to bedside and community nurses, to chief nursing officers and members of nursing organizations, to researchers—must take responsibility for their

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personal and professional growth by developing leadership competencies. They must exercise these competencies in a collaborative environment in all settings, including hospitals, communities, schools, boards, and political and business arenas, both within nursing and across the health professions. And in doing so, they must not only mentor others along the way, but develop partnerships and gain allies both within and beyond the health care environment.

Key Message #4: Effective Workforce Planning and Policy Making Require Better Data Collection and an Improved Information Infrastructure (Chapter 6)

Achieving a transformation of the health care system and the practice environment will require a balance of skills and perspectives among physicians, nurses, and other health professionals. However, strategic health care workforce planning to achieve this balance is hampered by the lack of sufficiently reliable and granular data on, for example, the numbers and types of health professionals currently employed, where they are employed and in what roles, and what types of activities they perform. These data are required to determine regional health care workforce needs and to establish regional targets and plans for appropriately increasing the supply of health professionals. Additionally, understanding of the impact of innovations such as bundled payments, medical homes, accountable care organizations, health information technology, and comparative effectiveness will be incomplete without information on and analysis of the necessary contributions of the various types of health professionals. Data collection and analysis across the health professions will also be essential because of the overlap in scopes of practice for primary care providers such as physicians, physician assistants, and nurse practitioners and the increasing shift toward team-based care. In the specific context of this study, planning for fundamental, wide-ranging changes in the education and deployment of the nursing workforce will require comprehensive data on the numbers and types of nurses currently available and required to meet future needs. Once an infrastructure for collecting and analyzing workforce data is in place, systematic assessment and projection of nursing workforce requirements by role, skill mix, region, and demographics will be needed to inform necessary changes in nursing practice and education.

The ACA mandates the creation of a National Health Care Workforce Commission whose mission is, among other things, to "[develop] and [commission] evaluations of education and training activities to determine whether the demand for health care workers is being met," and to "[identify] barriers to improved coordination at the Federal, State, and local levels and recommend ways to address such barriers."[3] The ACA also authorizes a National Center for Workforce Analysis, as well as state and regional workforce centers, and provides funding for workforce data collection and studies. A priority for these new structures and resources should be systematic monitoring of the supply of health care workers across profession, review of the data and methods needed to develop accurate predictions of future workforce needs, and coordination of the collection of data on the health care workforce at the state and regional levels. To be most useful, the data and information gathered must be timely and publicly accessible.

[3] *Patient Protection and Affordable Care Act*, H.R. 3590 § 5101, 111th Congress.

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RECOMMENDATIONS

Recommendation 1: Remove scope-of-practice barriers. *Advanced practice registered nurses should be able to practice to the full extent of their education and training. To achieve this goal, the committee recommends the following actions.*

For the Congress:

- Expand the Medicare program to include coverage of advanced practice registered nurse services that are within the scope of practice under applicable state law, just as physician services are now covered.
- Amend the Medicare program to authorize advanced practice registered nurses to perform admission assessments, as well as certification of patients for home health care services and for admission to hospice and skilled nursing facilities.
- Extend the increase in Medicaid reimbursement rates for primary care physicians included in the ACA to advanced practice registered nurses providing similar primary care services.
- Limit federal funding for nursing education programs to programs in states that have adopted the National Council of State Boards of Nursing advanced practice registered nurse model rules and regulations (Article XVIII, Chapter 18).

For state legislatures:

- Reform scope-of-practice regulations to conform to the National Council of State Boards of Nursing advanced practice registered nurse model rules and regulations (Article XVIII, Chapter 18).
- Require third-party payers that participate in fee-for-service payment arrangements to provide direct reimbursement to advanced practice registered nurses who are practicing within their scope of practice under state law.

For the Centers for Medicare and Medicaid Services:

- Amend or clarify the requirements for hospital participation in the Medicare program to ensure that advanced practice registered nurses are eligible for clinical privileges, admitting privileges, and membership on medical staff.

For the Office of Personnel Management:

- Require insurers participating in the Federal Employees Health Benefits Program to include coverage of those services of advanced practice registered nurses that are within their scope of practice under applicable state law.

For the Federal Trade Commission and the Antitrust Division of the Department of Justice:

- Review existing and proposed state regulations concerning advanced practice registered nurses to identify those that have anticompetitive effects without contributing to the

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health and safety of the public. States with unduly restrictive regulations should be urged to amend them to allow advanced practice registered nurses to provide care to patients in all circumstances in which they are qualified to do so.

Recommendation 2: Expand opportunities for nurses to lead and diffuse collaborative improvement efforts. *Private and public funders, health care organizations, nursing education programs, and nursing associations should expand opportunities for nurses to lead and manage collaborative efforts with physicians and other members of the health care team to conduct research and to redesign and improve practice environments and health systems. These entities should also provide opportunities for nurses to diffuse successful practices.*

To this end:

- The Center for Medicare and Medicaid Innovation should support the development and evaluation of models of payment and care delivery that use nurses in an expanded and leadership capacity to improve health outcomes and reduce costs. Performance measures should be developed and implemented expeditiously where best practices are evident to reflect the contributions of nurses and ensure better-quality care.
- Private and public funders should collaborate, and when possible pool funds, to advance research on models of care and innovative solutions, including technology, that will enable nurses to contribute to improved health and health care.
- Health care organizations should support and help nurses in taking the lead in developing and adopting innovative, patient-centered care models.
- Health care organizations should engage nurses and other front-line staff to work with developers and manufacturers in the design, development, purchase, implementation, and evaluation of medical and health devices and health information technology products.
- Nursing education programs and nursing associations should provide entrepreneurial professional development that will enable nurses to initiate programs and businesses that will contribute to improved health and health care.

Recommendation 3: Implement nurse residency programs. *State boards of nursing, accrediting bodies, the federal government, and health care organizations should take actions to support nurses' completion of a transition-to-practice program (nurse residency) after they have completed a prelicensure or advanced practice degree program or when they are transitioning into new clinical practice areas.*

The following actions should be taken to implement and support nurse residency programs:

- State boards of nursing, in collaboration with accrediting bodies such as the Joint Commission and the Community Health Accreditation Program, should support nurses' completion of a residency program after they have completed a prelicensure or advanced practice degree program or when they are transitioning into new clinical practice areas.

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- The Secretary of Health and Human Services should redirect all graduate medical education funding from diploma nursing programs to support the implementation of nurse residency programs in rural and critical access areas.
- Health care organizations, the Health Resources and Services Administration and Centers for Medicare and Medicaid Services, and philanthropic organizations should fund the development and implementation of nurse residency programs across all practice settings.
- Health care organizations that offer nurse residency programs and foundations should evaluate the effectiveness of the residency programs in improving the retention of nurses, expanding competencies, and improving patient outcomes.

Recommendation 4: Increase the proportion of nurses with a baccalaureate degree to 80 percent by 2020. *Academic nurse leaders across all schools of nursing should work together to increase the proportion of nurses with a baccalaureate degree from 50 to 80 percent by 2020. These leaders should partner with education accrediting bodies, private and public funders, and employers to ensure funding, monitor progress, and increase the diversity of students to create a workforce prepared to meet the demands of diverse populations across the lifespan.*

- The Commission on Collegiate Nursing Education, working in collaboration with the National League for Nursing Accrediting Commission, should require all nursing schools to offer defined academic pathways, beyond articulation agreements, that promote seamless access for nurses to higher levels of education.
- Health care organizations should encourage nurses with associate's and diploma degrees to enter baccalaureate nursing programs within 5 years of graduation by offering tuition reimbursement, creating a culture that fosters continuing education, and providing a salary differential and promotion.
- Private and public funders should collaborate, and when possible pool funds, to expand baccalaureate programs to enroll more students by offering scholarships and loan forgiveness, hiring more faculty, expanding clinical instruction through new clinical partnerships, and using technology to augment instruction. These efforts should take into consideration strategies to increase the diversity of the nursing workforce in terms of race/ethnicity, gender, and geographic distribution.
- The U.S. Secretary of Education, other federal agencies including the Health Resources and Services Administration, and state and private funders should expand loans and grants for second-degree nursing students.
- Schools of nursing, in collaboration with other health professional schools, should design and implement early and continuous interprofessional collaboration through joint classroom and clinical training opportunities.
- Academic nurse leaders should partner with health care organizations, leaders from primary and secondary school systems, and other community organizations to recruit and advance diverse nursing students.

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Recommendation 5: Double the number of nurses with a doctorate by 2020. *Schools of nursing, with support from private and public funders, academic administrators and university trustees, and accrediting bodies, should double the number of nurses with a doctorate by 2020 to add to the cadre of nurse faculty and researchers, with attention to increasing diversity.*

- The Commission on Collegiate Nursing Education and the National League for Nursing Accrediting Commission should monitor the progress of each accredited nursing school to ensure that at least 10 percent of all baccalaureate graduates matriculate into a master's or doctoral program within 5 years of graduation.
- Private and public funders, including the Health Resources and Services Administration and the Department of Labor, should expand funding for programs offering accelerated graduate degrees for nurses to increase the production of master's and doctoral nurse graduates and to increase the diversity of nurse faculty, scientists, and researchers.
- Academic administrators and university trustees should create salary and benefit packages that are market competitive to recruit and retain highly qualified academic and clinical nurse faculty.

Recommendation 6: Ensure that nurses engage in lifelong learning. *Accrediting bodies, schools of nursing, health care organizations, and continuing competency educators from multiple health professions should collaborate to ensure that nurses and nursing students and faculty continue their education and engage in lifelong learning to gain the competencies needed to provide care for diverse populations across the lifespan.*

- Faculty should partner with health care organizations to develop and prioritize competencies so curricula can be updated regularly to ensure that graduates at all levels are prepared to meet the current and future health needs of the population.
- The Commission on Collegiate Nursing Education and the National League for Nursing Accrediting Commission should require that all nursing students demonstrate a comprehensive set of clinical performance competencies that encompass the knowledge and skills needed to provide care across settings and the lifespan.
- Academic administrators should require all faculty to participate in continuing professional development and to perform with cutting-edge competence in practice, teaching, and research.
- All health care organizations and schools of nursing should foster a culture of lifelong learning and provide resources for interprofessional continuing competency programs.
- Health care organizations and other organizations that offer continuing competency programs should regularly evaluate their programs for adaptability, flexibility, accessibility, and impact on clinical outcomes and update the programs accordingly.

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Recommendation 7: Prepare and enable nurses to lead change to advance health. *Nurses, nursing education programs, and nursing associations should prepare the nursing workforce to assume leadership positions across all levels, while public, private, and governmental health care decision makers should ensure that leadership positions are available to and filled by nurses.*

- Nurses should take responsibility for their personal and professional growth by continuing their education and seeking opportunities to develop and exercise their leadership skills.
- Nursing associations should provide leadership development, mentoring programs, and opportunities to lead for all their members.
- Nursing education programs should integrate leadership theory and business practices across the curriculum, including clinical practice.
- Public, private, and governmental health care decision makers at every level should include representation from nursing on boards, on executive management teams, and in other key leadership positions.

Recommendation 8: Build an infrastructure for the collection and analysis of interprofessional health care workforce data. *The National Health Care Workforce Commission, with oversight from the Government Accountability Office and the Health Resources and Services Administration, should lead a collaborative effort to improve research and the collection and analysis of data on health care workforce requirements. The Workforce Commission and the Health Resources and Services Administration should collaborate with state licensing boards, state nursing workforce centers, and the Department of Labor in this effort to ensure that the data are timely and publicly accessible.*

- The Workforce Commission and the Health Resources and Services Administration should coordinate with state licensing boards, including those for nursing, medicine, dentistry, and pharmacy, to develop and promulgate a standardized minimum data set across states and professions that can be used to assess health care workforce needs by demographics, numbers, skill mix, and geographic distribution.
- The Workforce Commission and the Health Resources and Services Administration should set standards for the collection of the minimum data set by state licensing boards; oversee, coordinate, and house the data; and make the data publicly accessible.
- The Workforce Commission and the Health Resources and Services Administration should retain, but bolster, the Health Resources and Services Administration's registered nurse sample survey by increasing the sample size, fielding the survey every other year, expanding the data collected on advanced practice registered nurses, and releasing survey results more quickly.
- The Workforce Commission and the Health Resources and Services Administration should establish a monitoring system that uses the most current analytic approaches and data from the minimum data set to systematically measure and project nursing workforce requirements by role, skill mix, region, and demographics.
- The Workforce Commission and the Health Resources and Services Administration should coordinate workforce research efforts with the Department of Labor, state and

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regional educators, employers, and state nursing workforce centers to identify regional health care workforce needs, and establish regional targets and plans for appropriately increasing the supply of health professionals.
- The Government Accountability Office should ensure that the Workforce Commission membership includes adequate nursing expertise.

CONCLUSIONS

Nurses are already committed to delivering high-quality care under current regulatory, business, and organizational conditions. But the power to change those conditions to deliver better care does not rest primarily with nurses, regardless of how ably led or educated they are; it also lies with governments, businesses, health care institutions, professional organizations and other health professionals, and the insurance industry. The recommendations presented in this report are directed to individual policy makers; national, state, and local government leaders; payers; health care researchers; executives; and professionals—including nurses and others—as well as to larger groups such as licensing bodies, educational institutions, and philanthropic and advocacy organizations, especially those advocating for consumers. Together, these groups have the power to transform the health care system to provide seamless, affordable, quality care that is accessible to all, patient centered, and evidence based and leads to improved health outcomes.

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Overview of the Report

This report is organized into three parts. Part I presents the report's key messages and important contextual information for the study. Chapter 1 offers the committee's vision for health care in the United States, explains why nurses have an essential role in realizing this vision and why a fundamental transformation of the nursing profession is needed if they are to fulfill this role, and details four key messages that structure the discussion and recommendations in Parts II and III. As context for the remainder of the report, Chapter 2 describes how the U.S. health care system is evolving and sets forth principles the committee believes should guide that evolution.

Part II details the fundamental transformation of the nursing profession that is needed to achieve the improved health care system described in Chapter 1. This transformation needs to occur in three broad areas: practice (Chapter 3), education (Chapter 4), and leadership (Chapter 5). This part of the report also addresses the crucial need for better data on the health care workforce to inform this transformation and that of the overall health care system (Chapter 6).

Chapters 2 through 6 include a series of case studies and profiles illustrating the work of nurses and innovative models that either were developed by nurses or feature nurses in a leadership role. These case studies and profiles not only provide texture to the report, but also offer real-life examples of nurses working in reconceptualized roles and directly affecting the quality, accessibility, and value of health care. Cumulatively, these case studies and profiles offer a glimpse into what the future of nursing could be.

Finally, Part III offers the committee's blueprint for action in the form of recommendations and related research priorities (Chapter 7).

In addition, the report includes ten appendixes. Appendix A describes the study methods and information sources used to inform the committee's deliberations; Appendix B contains biographical sketches of the committee members; Appendix C offers highlights from the three public forums held by the committee on the future of nursing in the areas of acute care, care in the community, and education; Appendix D contains the consensus model for advanced practice registered nurse (APRN) regulation that is referenced in Chapter 3 and in recommendation 1 in Chapter 7; and Appendix E provides a brief description of undergraduate nursing education in the United States. Appendixes F–J are not printed in this report but can be found on the CD-ROM in the back of this book and contain papers commissioned by the committee on the following topics: matching nursing practice and skills to future needs; transformational models of nursing across different care settings; federal options for maximizing the value of APRNs in providing quality, cost-effective health care; the future of nursing education; and international models of nursing.

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Part I

Key Messages and Study Context

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Key Messages of the Report

The U.S. health care system is characterized by a high degree of fragmentation across many sectors, which raises substantial barriers to providing accessible, quality care at an affordable price. In part, the fragmentation in the system comes from disconnects between public and private services, between providers and patients, between what patients need and how providers are trained, between the health needs of the nation and the services that are offered, and between those with insurance and those without (Stevens, 1999). Communication between providers is difficult, and much care is redundant because there is no way of sharing results.

This report is being published at an opportune time. In 2010, Congress passed and the President signed into law comprehensive health care legislation. These laws, the Patient Protection and Affordable Care Act (Public Law 111-148) and the Health Care and Education Affordability Reconciliation Act (Public Law 111-152), are collectively referred to throughout this report as the Affordable Care Act (ACA). The ACA represents the broadest changes to the health care system since the 1965 creation of the Medicare and Medicaid programs and is expected to provide insurance coverage for an additional 32 million previously uninsured Americans. The need to improve the health care system is becoming increasingly evident as challenges related to both the quality and costs of care persist.

As discussed in the preface, this study was undertaken to explore how the nursing profession can be transformed to help exploit these opportunities and contribute to building a health care system that will meet the demand for safe, quality, patient-centered, accessible, and affordable care. This chapter presents the key messages that emerged from the study committee's deliberations. It begins by describing a vision for a transformed system that can meet the health needs of the U.S. population in the 21st century. The chapter then delineates the roles of nurses in realizing this vision. The third section explains why a fundamental transformation of the nursing profession will be required if nurses are to assume these roles. The final section presents conclusions.

A VISION FOR HEALTH CARE

During the course of its work, the Committee on The Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine developed a vision for a transformed health care system, while recognizing the demands and limitations of the current health care system outlined above. The committee envisions a future system that makes quality care accessible to the diverse populations of the United States, intentionally promotes wellness and disease prevention, reliably improves health outcomes, and provides compassionate care across the lifespan. In this envisioned future, primary care and prevention are central drivers of the health care system. Interprofessional collaboration and coordination are the norm. Payment for health care services rewards value, not volume of services, and quality care is provided at a price that is affordable for both individuals and society. The rate of growth of health care expenditures slows. In all these areas, the health care system consistently demonstrates that it is

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responsive to individuals' needs and desires through the delivery of truly patient-centered care. Annex 1-1 lists the committee's definitions for three core terms related to its vision: health, health care, and the health care system.

THE ROLE OF NURSES IN REALIZING THIS VISION

The ACA provides a call to action for nurses, and several sections of the legislation are directly relevant to their work.[1] For example, sections 5501 through 5509 are aimed at substantially strengthening the provision of primary care—a need generally recognized by health professionals and policy experts; section 2717 calls for "ensuring the quality of care"; and section 2718 emphasizes "bringing down the cost of health care coverage." Enactment of the ACA offers a myriad of opportunities for the nursing profession to facilitate improvements to the health care system and the mechanisms by which care is delivered across various settings. Systemwide changes are needed that capture the full economic value of nurses and take into account the growing body of evidence that links nursing practice to improvements in the safety and quality of care. Advanced practice registered nurses (APRNs) should be called upon to fulfill and expand their potential as primary care providers across practice settings based on their education and competency. Nursing initiatives and programs should be scaled up to help bridge the gap between insurance coverage and access to care.

The nursing profession has the potential capacity to implement wide-reaching changes in the health care system. With more than 3 million members, the profession has nearly doubled since 1980 and represents the largest segment of the U.S. health care workforce (HRSA, 2010; U.S. Census Bureau, 2009). By virtue of their regular, close proximity to patients and their scientific understanding of care processes across the continuum of care, nurses have a considerable opportunity to act as full partners with other health professionals and to lead in the improvement and redesign of the health care system and its practice environment.

Nurses practice in many settings, including hospitals, schools, homes, retail health clinics, long-term care facilities, battlefields, and community and public health centers. They have varying levels of education and competencies—from licensed practical nurses, who now provide the majority of direct patient care in nursing homes, to nurse scientists, who research and evaluate more effective ways of caring for patients and promoting health. As described in Annex 1-1 at the end of this chapter, most nurses are registered nurses (RNs), who "complete a program of study at a community college, diploma school of nursing, or a four-year college or university and are required to pass a nationally standardized licensing exam in the state in which they begin practice" (AARP, 2010). Figure 1-1 shows that of the many settings where RNs practice, the majority practice in hospitals; Figure 1-2 shows the employment settings of nurses by highest nursing or nursing-related education. More than a quarter of a million nurses are APRNs (HRSA, 2010), who hold master's or doctoral degrees and pass national certification exams. APRNs deliver primary and other types of health care services. For example, they teach and counsel patients to understand their health problems and what they can do to get better, they coordinate care and advocate for patients in the complex health care system, and they refer patients to physicians and other health care providers. APRNs include nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, and certified nurse midwives (see

[1] For a list of nursing-related provisions included in the ACA, see http://championnursing.org/sites/default/files/nursingandhealthreformlawable.pdf.

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Table 1-1). Annex 1-1 provides more detailed descriptions of the preparation and roles of nurses, pathways in nursing education, and numbers of nurses.

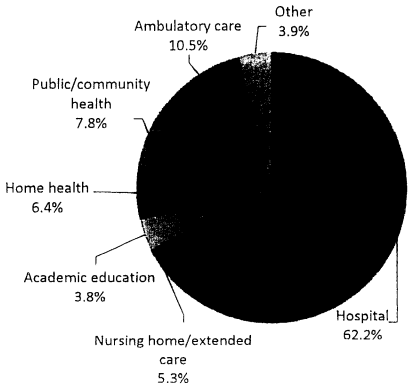

FIGURE 1-1 Employment settings of registered nurses.
NOTES: The totals may not add to 100 percent because of the effect of rounding. Only RNs for whom information on setting was available are included in the calculations used for this chart.
Public/community health includes school and occupational health. Ambulatory care includes medical/physician practices, health centers and clinics, and other types of nonhospital clinical settings. Other includes insurance, benefits, and utilization review.
SOURCE: HRSA, 2010.

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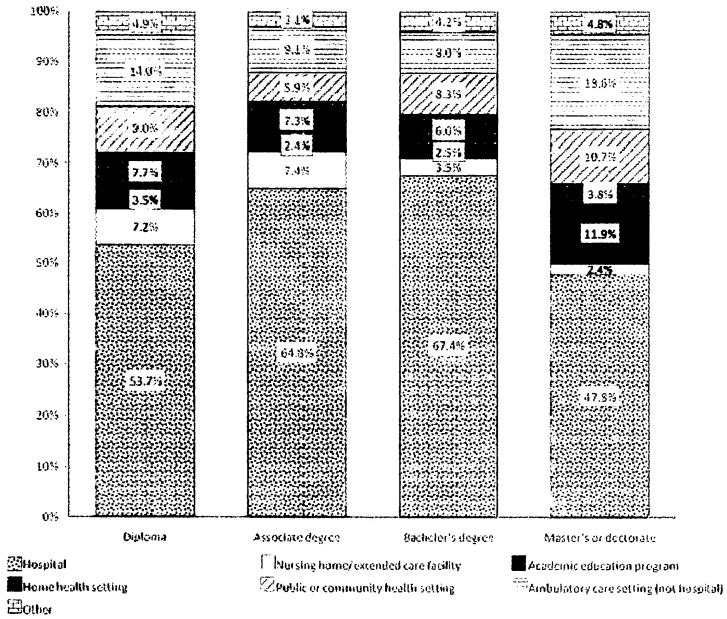

FIGURE 1-2 Employment settings of RNs, by highest nursing or nursing-related education
NOTES: The total percent by setting may not equal the estimated total of all registered nurses due to incomplete information provided by respondents and the effect of rounding. Public/community health includes school health, occupational health, and home health. Other includes insurance, benefits, and utilization review.
SOURCE: HRSA, 2010.

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TABLE 1-1 Types of Advanced Practice Registered Nurses (APRNs)

Who Are They?	How Many in United States?	What Do They Do?
Nurse Practitioners (NPs)	153,348	Take health histories and provide complete physical exams; diagnose and treat acute and chronic illnesses; provide immunizations; prescribe and manage medications and other therapies; order and interpret lab tests and x-rays; provide health teaching and supportive counseling.
Clinical Nurse Specialists (CNSs)	59,242*	Provide advanced nursing care in hospitals and other clinical sites; provide acute and chronic care management; develop quality improvement programs; serve as mentors, educators, researchers, and consultants.
Certified Registered Nurse Anesthetists (CRNAs)	34,821	Administer anesthesia and provide related care before and after surgical, therapeutic, diagnostic, and obstetrical procedures, as well as pain management. Settings include operating rooms, outpatient surgical centers, and dental offices. CRNAs deliver more than 65% of all anesthetics to patients in the United States.
Certified Nurse Midwives (CNMs)	18,492	Provide primary care to women, including gynecological exams, family planning advice, prenatal care, management of low-risk labor and delivery, and neonatal care. Practice settings include hospitals, birthing centers, community clinics, and patient homes.

*APRNs are identified by their responses to the National Sample Survey of Registered Nurses, and this number may not reflect the true population of CNSs.
SOURCE: AARP, 2010. Courtesy of AARP. All Rights Reserved.

Nursing practice covers a broad continuum from health promotion, to disease prevention, to coordination of care, to cure—when possible—and to palliative care when cure is not possible. This continuum of practice is well matched to the current and future needs of the American population (see Chapter 2). Nurses have a direct effect on patient care. They provide the majority of patient assessments, evaluations, and care in hospitals, nursing homes, clinics, schools, workplaces, and ambulatory settings. They are at the front lines in ensuring that care is delivered safely, effectively, and compassionately. Additionally, nurses attend to patients and their families in a holistic way that often goes beyond physical health needs to recognize and respond to social, mental, and spiritual needs. Given their education, experience, and unique perspectives and the centrality of their role in providing care, nurses will play a significant role in the transformation of the health care system. Likewise, while changes in the health care system will have profound effects on all providers, this will be undoubtedly true for nurses.

Traditional nursing competencies such as care management and coordination, patient education, public health intervention, and transitional care are likely to dominate in a reformed health care system as it inevitably moves toward an emphasis on prevention and management rather than acute care (O'Neil, 2009). Nurses have also begun developing new competencies for the future to help bridge the gap between coverage and access, to coordinate increasingly complex care for a wide range of patients, to fulfill their potential as primary care providers to the full extent of their education and training, to implement systemwide changes that take into

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account the growing body of evidence linking nursing practice to fundamental improvements in the safety and quality of care, and to capture the full economic value of their contributions across practice settings.

At the same time, the nursing profession has its challenges. While there are concerns regarding the number of nurses available to meet the demands of the health care system and the needs of patients, and there is reason to view as a priority replacing at least 900,000 nurses over the age of 50 (BLS, 2009), the composition of the workforce is turning out to be an even greater challenge for the future of the profession. The workforce is generally not as diverse as it needs to be—with respect to race and ethnicity (just 16.8 percent of the workforce is non-white), gender (approximately 7 percent of employed nurses are male), or age (the median age of nurses is 46, compared to 38 in 1988)—to provide culturally relevant care to all populations (HRSA, 2010). Many members of the profession lack the education and preparation necessary to adapt to new roles quickly in response to rapidly changing health care settings and an evolving health care system. Restrictions on scope of practice and professional tensions have undermined the nursing profession's ability to provide and improve both general and advanced care. Producing a health care system that delivers the right care—quality care that is patient centered, accessible, evidence-based, and sustainable—at the right time will require transforming the work environment, scope of practice, education, and numbers and composition of America's nurses. The remainder of this section examines the role of the nursing profession in health care reform according to the same three parameters by which all other health care reform initiatives are evaluated—quality, access, and value.

Nurses and Quality

Although it is difficult to prove causation, an emerging body of literature suggests that quality of care depends to a large degree on nurses (Kane et al., 2007; Lacey and Cox, 2009; Landon et al., 2006; Sales et al., 2008). The Joint Commission, the leading independent accrediting body for health care organizations, believes that "the future state of nursing is inextricably linked to the strides in patient care quality and safety that are critical to the success of America's health care system, today and tomorrow" (Joint Commission, 2010). While quality measures have historically focused on conditions or diseases, many of the quality measures used over the past few years address how well nurses are able to do their jobs (Kurtzman and Buerhaus, 2008).

In 2004, the National Quality Forum (NQF) endorsed the first set of nationally standardized performance measures, the National Voluntary Consensus Standards for Nursing-Sensitive Care, initially designed to assess the quality of care provided by nurses who work in hospitals (National Quality Forum, 2004). The NQF measures include prevalence of pressure ulcers and falls; nursing-centered interventions, such as smoking cessation counseling; and system-centered measures, such as voluntary turnover and nursing care hours per patient day. These measures have helped nurses and the organizations where they work identify targets for improvements in care delivery.

Another important vehicle for tracking and improving quality is the National Database of Nursing Quality Indicators, the nation's largest nursing registry. This database, which meets the new reporting requirement by the Centers for Medicare and Medicaid Services (CMS) for

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nursing-sensitive care, is supported by the American Nurses Association.[2] More than 25 percent of hospitals participate in the database, which documents more than 21 measures of hospital performance linked to the availability and quality of nursing services in acute care settings. Participating facilities are able to obtain unit-level comparative data, including patient and staffing outcomes, to use for quality improvement purposes. Comparison data are publicly reported, which provides an incentive to improve the quality of care on a continuous basis. This database is now maintained at the University of Kansas School of Nursing and is available to researchers interested in improving health care quality.

Nurses and Access

Evidence suggests that access to quality care can be greatly expanded by increasing the use of RNs and APRNs in primary, chronic, and transitional care (Bodenheimer et al., 2005; Craven and Ober, 2009; Naylor et al., 2004; Rendell, 2007). For example, nurses serving in special roles created to increase access to care, such as care coordinators and primary care clinicians, have led to significant reductions in hospitalization and rehospitalization rates for elderly patients (Kane et al., 2003; Naylor et al., 2004). It stands to reason that one way to improve access to patient-centered care would be to allow nurses to make more care decisions at the point of care. Yet in many cases, outdated regulations, biases, and policies prevent nurses, particularly APRNs, from practicing to the full extent of their education, skills, and competencies (Hansen-Turton et al., 2008; Ritter and Hansen-Turton, 2008; Safriet, 2010). Chapter 3 examines these barriers in greater depth.

Nurses also make significant contributions to access by delivering care where people live, work, and play. Examples include school nurses, occupational health nurses, public health nurses, and those working at so-called retail clinics in busy shopping centers. Nurses also work in migrant health clinics and nurse-managed health centers, organizations known for serving the most underserved populations. Additionally, nurses are often at the front lines serving as primary providers for individuals and families affected by natural or man-made disasters, delivering care in homes and designated community shelters.

Nurses and Value

"Value in health care is expressed as the physical health and sense of well-being achieved relative to the cost" (IOM Roundtable on Evidence-Based Medicine, 2008). Compared with support for the role of nurses in improving quality and access, there is somewhat less evidence that expanding the care provided by nurses will result in cost savings to society at large while also improving outcomes and ensuring quality. However, the evidence base in favor of such a conclusion is growing. Compared with other models of prenatal care, for example, pregnant women who receive care led by certified nurse midwives are less likely to experience antenatal hospitalization, and their babies are more likely to have a shorter hospital stay (Hatem et al., 2008) (see Chapter 2 for a case study of care provided by certified nurse midwives at the Family Health and Birth Center in Washington, DC). Another study examining the impact of nurse staffing on value suggests that increasing the proportion of nursing hours provided by RNs without increasing total nursing hours was associated with 1.5 million fewer hospital days,

[2] For more information, see http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/PatientSafetyQuality/ Research-Measurement/The-National-Database.aspx.

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nearly 60,000 fewer inpatient complications, and a 0.5 percent net reduction in costs (Needleman et al., 2006). Chapter 2 includes a case study of the Nurse–Family Partnership Program, in which front-line RNs make home visits to high-risk young mothers over a 2.5-year period. This program has demonstrated significant value, resulting in a net savings of $34,148 per family served. The program has also reduced pregnancy-induced hypertension by 32 percent, child abuse and neglect by 50 percent, emergency room visits by 35 percent, and language-related delays by 50 percent (AAN, 2010).

THE NEED FOR A FUNDAMENTAL TRANSFORMATION OF THE NURSING PROFESSION

Given the crucial role of nurses with respect to the quality, accessibility, and value of care, the nursing profession itself must undergo a fundamental transformation if the committee's vision for health care is to be realized. As this report argues, the ways in which nurses were educated and practiced during the 20th century are no longer adequate for dealing with the realities of health care in the 21st century. Outdated regulations, attitudes, policies, and habits continue to restrict the innovations the nursing profession can bring to health care at a time of tremendous complexity and change.

In the course of its deliberations, the committee formulated four key messages that inform the discussion in Chapters 3–6 and structure its recommendations for transforming the nursing profession:

1. Nurses should practice to the full extent of their education and training.
2. Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.
3. Nurses should be full partners, with physicians and other health professionals, in redesigning health care in the United States.
4. Effective workforce planning and policy making require better data collection and an improved information infrastructure.

These key messages speak to the need to transform the nursing profession in three crucial areas—practice, education, and leadership—as well as to collect better data on the health care workforce to inform planning for the necessary changes to the nursing profession and the overall health care system.

The Need to Transform Practice

Key Message #1: Nurses should practice to the full extent of their education and training.

To ensure that all Americans have access to needed health care services and that nurses' unique contributions to the health care team are maximized, federal and state actions are required to update and standardize scope-of-practice regulations to take advantage of the full capacity and education of APRNs. States and insurance companies must follow through with specific regulatory, policy, and financial changes that give patients the freedom to choose from a range of providers, including APRNs, to best meet

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their health needs. Removing regulatory, policy, and financial barriers to promote patient choice and patient-centered care should be foundational in the building of a reformed health care system.

Additionally, to the extent that the nursing profession envisions its future as confined to acute care settings, such as inpatient hospitals, its ability to help shape the future U.S. health care system will be greatly limited. As noted earlier, care in the future is likely to shift from the hospital to the community setting (O'Neil, 2009). Yet the majority of nurses still work in acute care settings; according to recent findings from the 2008 National Sample Survey of Registered Nurses, just over 62 percent of working RNs were employed in hospitals in 2008—up from approximately 57 percent in 2004 (HRSA, 2010). Nurses must create, serve in, and disseminate reconceptualized roles to bridge whatever gaps remain between coverage and access to care. More must become health coaches, care coordinators, informaticians, primary care providers, and health team leaders in a greater variety of settings, including primary care medical homes and accountable care organizations. In some respects, such a transformation would return the nursing profession to its roots in the public health movement of the early 20th century.

At the same time, new systems and technologies appear to be pushing nurses ever farther away from patients. This appears to be especially true in the acute care setting. Studies show that nurses on medical–surgical units spend only 31 to 44 percent of their time in direct patient activities (Tucker and Spear, 2006). A separate study of medical–surgical nurses found they walked nearly a mile longer while on than off duty in obtaining the supplies and equipment needed to perform their tasks. In general, less than 20 percent of nursing practice time was devoted specifically to patient care activities, the majority being consumed by documentation, medication administration, and communication regarding the patient (Hendrich et al., 2008). Several health care organizations, professional organizations, and consumer groups have endorsed a Proclamation for Change aimed at redressing inefficiencies in hospital design, organization, and technology infrastructure through a focus on patient-centered design; the implementation of systemwide, integrated technology; the creation of seamless workplace environments; and the promotion of vendor partnerships (Hendrich et al., 2009). Realizing the vision presented earlier in this chapter will require a practice environment that is fundamentally transformed so that nurses are efficiently employed—whether in the hospital or in the community—to the full extent of their education, skills, and competencies.

Chapter 3 examines these issues in greater depth.

The Need to Transform Education

Key Message #2: Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.

Major changes in the U.S. health care system and practice environment will require equally profound changes in the education of nurses both before and after they receive their licenses. An improved education system is necessary to ensure that the current and future generations of nurses can deliver safe, quality, patient-centered care across all settings, especially in such areas as primary care and community and public health.

Interest in the nursing profession has grown rapidly in recent years, in part as a result of the economic downturn and the relative stability the health care sector offers. The number of applications to entry-level baccalaureate programs increased by more than 70 percent in just 5

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years—from 122,000 applications in 2004 to 208,000 applications in 2009 (AACN, 2010). While nursing schools across the country have responded to this influx of interest, there are constraints, such as insufficient numbers of nurse faculty and clinical placements, that limit the capacity of nursing schools to accommodate all the qualified applicants. Thus, thousands of qualified students are turned away each year (Kovner and Djukic, 2009)

A variety of challenges limit the ability to ensure a well-educated nurse workforce. As noted, there is a shortage of faculty to teach nurses at all levels (Allan and Aldebron, 2008). Also, the ways in which nurses during the 20th century taught each other to care for people and learned to practice and make clinical decisions are no longer adequate for delivering care in the 21st century. Many nursing schools have dealt with the explosion of research and knowledge needed to provide health care in an increasingly complex system by adding layers of content that requires more instruction (Ironside, 2004). A fundamental rethinking of this approach is needed (Benner et al., 2009; Erickson, 2002; IOM, 2003, 2009; Lasater and Nielsen, 2009; Mitchell et al., 2006; Orsolini-Hain and Waters, 2009; Tanner et al., 2008). Additionally, nurses at all levels have few incentives to pursue further education, and face active disincentives to advanced education. Nurses and physicians—not to mention pharmacists and social workers—typically are not educated together, yet they are increasingly required to cooperate and collaborate more closely in the delivery of care.

The education system should provide nurses with the tools needed to evaluate and improve standards of patient care and the quality and safety of care while preserving fundamental elements of nursing education, such as ethics and integrity and holistic, compassionate approaches to care. The system should ensure nurses' ability to adapt and be flexible in response to changes in science, technology, and population demographics that shape the delivery of care. Nursing education at all levels needs to impart a better understanding of ways to work in the context of and lead change within health care delivery systems, methods for quality improvement and system redesign, methods for designing effective care delivery models and reducing patient risk, and care management and other roles involving expanded authority and responsibility. The nursing profession must adopt a framework of continuous, lifelong learning that includes basic education, residency programs, and continuing competence. More nurses must receive a solid education in how to manage complex conditions and coordinate care with multiple health professionals. They must demonstrate new competencies in systems thinking, quality improvement, and care management and a basic understanding of health policy and research. Graduate-level nurses must develop even greater competencies and deeper understanding in all of these areas. Innovative new programs to attract nurse faculty and provide a wider range of clinical education placements must clear long-standing bottlenecks in nursing education. Accrediting and certifying organizations must mandate demonstrated mastery of clinical skills, managerial competencies, and professional development at all levels to complement the completion of degree programs and written board examinations. Milestones for mandated skills, competencies, and professional development must be updated more frequently to keep pace with the rapidly changing demands of health care. And all health professionals should receive more of their education in concert with students from other disciplines. Interprofessional team training of nurses, physicians, and other health care providers should begin when they are students and proceed throughout their careers. Successful interprofessional education can be achieved only through committed partnerships across professions.

Nurses should move seamlessly through the education system to higher levels of education, including graduate degrees. Nurses with graduate degrees will be able to replenish the nurse

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faculty pool; advance nursing science and contribute to the knowledge base on how nurses can provide up-to-date, safe patient care; participate in health care decisions; and provide the leadership needed to establish nurses as full partners in health care redesign efforts (see the section on leadership below).

The Need to Transform Leadership

Key Message #3: Nurses should be full partners, with physicians and other health professionals, in redesigning health care in the United States.

Not all nurses begin their career with thoughts of becoming a leader. Yet strong leadership will be required to transform the U.S. health care system. A transformed system will need nurses with the adaptive capacity to take on reconceptualized roles in new settings, educating and reeducating themselves along the way—indispensible characteristics of effective leadership.

Whether on the front lines, in education, or in administrative positions and health policy roles, nurses have the well-grounded knowledge base, experience, and perspective needed to serve as full partners in health care redesign. Nurses' unique perspectives are derived from their experiences in providing direct, hands-on patient care; communicating with patients and their families about health status, medications, and care plans; and ensuring the linkage between a prescribed course of treatment and the desired outcome. In care environments, being a full partner involves taking responsibility for identifying problems and areas of waste, devising and implementing a plan for improvement, tracking improvement over time, and making necessary adjustments to realize established goals.

Being a full partner translates more broadly to the health policy arena. To be effective in reconceptualized roles, nurses must see policy as something they can shape rather than something that happens to them. Nurses should have a voice in health policy decision making, as well as being engaged in implementation efforts related to health care reform. Nurses also should serve actively on advisory committees, commissions, and boards where policy decisions are made to advance health systems to improve patient care. Yet a number of barriers prevent nurses from serving as full partners. Examples that are discussed later in the report include laws and regulations (Chapter 3), professional resistance and bias (Chapter 3), a lack of foundational competence (Chapter 5), and exclusion from decision-making bodies and boards (Chapter 5). If nurses are to serve as full partners, a culture change will be needed whereby health professionals hold each other accountable for improving care and setting health policy in a context of mutual respect and collaboration.

Finally, the health care system is widely understood to be a complex system, one in which responses to internal and external actions are sometimes predictable and sometimes not. Health care experts repeatedly encourage health professionals to understand the system's dynamics so they can be more effective in their individual jobs and help shape the larger system's ability to adapt successfully to changes and improve outcomes. In a field as intensively knowledge driven as health care, however, no one individual, group, or discipline can have all the answers. A growing body of research has begun to highlight the potential for collaboration among teams of diverse individuals to generate successful solutions in complex, knowledge-driven systems (Paulus and Nijstad, 2003; Pisano and Verganti, 2008; Singh and Fleming, 2010; Wuchty et al., 2007). Nurses must cultivate new allies in health care, government, and business and develop new partnerships with other clinicians, business owners, and philanthropists to help realize the vision of a transformed health care system. Many nurses have heard this call to develop new

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partnerships in a culture of collaboration and cooperation. However, the committee found no evidence that these initiatives have achieved the scale necessary to have an impact throughout the health care system. More intentional, large-scale initiatives of this sort are needed. These efforts must be supported by research that addresses such questions as what new models of leadership are needed for the increasingly knowledge-intensive health care environment and when collaboration is most appropriate (Singh and Fleming, 2010).

Chapter 5 further examines the need for expanded leadership opportunities in the nursing workforce.

The Need for Better Data on the Health Care Workforce

Key Message #4: Effective workforce planning and policy making require better data collection and an improved information infrastructure.

Key messages 1, 2, and 3 speak to the need to transform the nursing profession to achieve the vision of health care set forth at the beginning of this chapter. At the same time, nurses do not function in a vacuum, but in the context of the skills and perspectives of physicians and other health professionals. Planning for the fundamental changes required to achieve a reformed health care system cannot be accomplished without a clear understanding of the necessary contributions of these various professionals and the numbers and composition of the health care workforce. That understanding in turn cannot be obtained without reliable, sufficiently granular data on the current workforce and projections of future workforce needs. Yet major gaps exist in the currently available workforce data. These gaps hamper the ability to identify and implement the necessary changes to the preparation and practice of nurses and to the overall health care system. Chapter 6 explores these issues in greater detail.

CONCLUSIONS

Most of the near-term challenges identified in the ACA speak to traditional and current strengths of the nursing profession in care coordination, health promotion, and quality improvement, among other things. Nurses are committed to improving the care they deliver by responding to health care challenges. If their full potential is to be realized, however, the nursing profession itself will have to undergo a fundamental transformation in the areas of practice, education, and leadership. During the course of this study, the committee formulated four key messages it believes must guide that transformation: (1) nurses should practice to the full extent of their education and training; (2) nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression; (3) nurses should be full partners, with physicians and other health professionals, in redesigning health care in the United States; and (4) effective workforce planning and policy making require better data collection and an improved information infrastructure.

At the same time, the power to deliver better care—quality care that is accessible and sustainable—does not rest solely with nurses, regardless of how ably led or educated they are; it also lies with other health professionals, consumers, governments, businesses, health care institutions, professional organizations, and the insurance industry. The recommendations presented in Chapter 7 target individual policy makers; national, state, and local government leaders; payers; and health care researchers, executives, and professionals—including nurses and

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others—as well as larger groups such as licensing bodies, educational institutions, and philanthropic and advocacy and consumer organizations. Together, these groups have the power to transform the health care system to achieve the vision set forth at the beginning of this chapter.

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Annex 1-1
Key Terms and Facts about the Nursing Workforce

DEFINITIONS FOR CORE TERMS

Throughout the report, the committee uses three terms—health, health care, and health care system—that are used routinely by policy makers, legislators, health care organizations, health professionals, the media, and the public. While these terms are commonly used, the definitions can vary and are often nuanced. In this section, the committee offers its definitions for these three core terms. In addition to the terms discussed below, other important terms are defined throughout the report in conjunction with relevant discussion. For example, value and primary care are defined and discussed in Chapter 2.

Health

In a previous Institute of Medicine (IOM) report, "health" is defined as "a state of well-being and the capability to function in the face of changing circumstances." It is "a positive concept emphasizing social and personal resources as well as physical capabilities" (IOM, 1997). Improving health is a shared responsibility of society, communities, health care providers, family, and individuals. Certain social determinants of health—such as income, education, family, and community—play a greater role than mere access to biomedical care in improving health outcomes for large populations (Commission on Social Determinants of Health, 2008; IOM, 1997). However, access to primary care, in contrast to specialty care, is associated with better population health outcomes (Starfield et al., 2005).

Health Care

"Health care" can be defined as the prevention, diagnosis, treatment, and management of disease and illness through a wide range of services provided by health professionals. These services are supplemented by the efforts of private individuals (patients), their families, and communities to achieve optimal mental and physical health and wellness throughout life. The committee considers the full range of services to be encompassed by the term "health care," including prevention and health promotion, mental and behavioral health, and primary care services; public health; acute care; chronic disease management; transitional care; long-term care; palliative care; end-of-life care; and other specialty health care services.

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Health Care System

The term "health care system" refers to the organization, financing, payment, and delivery of health care. As described in greater detail in the IOM report *Crossing the Quality Chasm: A New Health System for the 21st Century* (IOM, 2001), the U.S. health care system is a complex, adaptive system (as opposed to a simple mechanical system). As a result, its many parts (including human beings and organizations) have the "freedom and ability to respond to stimuli in many different and fundamentally unpredictable ways." In addition, the system has many linkages so that changes in one part of the system often change the context for other parts (IOM, 2001). Throughout this report, the committee highlights what it believes to be one of the strongest linkages that has emerged within the U.S. health care system: that between health reform and the future of nursing. As the report emphasizes, the future of nursing—how it is shaped and the directions it takes—will have a major impact on the future of health care reform in the United States.

PREPARATION AND ROLES OF NURSING CARE PROVIDERS IN AMERICA[1]

The range of nursing care providers described below work in a variety of settings including ambulatory care, hospitals, community health centers, public health agencies, long-term care facilities, mental health facilities, war zones, prisons, and schools of nursing, as well as patients' homes, schools, places of worship, and workplaces. Basically anywhere there are health care needs, nurses can usually be found. Types of nursing care providers include:

Nursing Assistants/Certified Nursing Assistants (NA/CNAs) provide basic patient care under the direction of licensed nurses: they feed, bathe, dress, groom, and move patients, change linens and may assume other delegated responsibilities. The greatest prevalence of these providers is in home care and in long-term care facilities. Training time varies from on-the-job training to 75 hours of state approved training for certification (CNA).

Licensed Practical /Licensed Vocational Nurses (LPN/LVNs) provide basic nursing care including monitoring vital signs, performing dressing changes and other ordered treatments, and dispense medications in most states. LPNs work under the supervision of a physician or registered nurse. While there is declining demand for LPNs in hospitals, demand is high in long-term care facilities and to a lesser degree in out-patient settings, such as physicians' offices. They complete a 12–18 month education program at a vocational/technical school or community college and are required to pass a nationally standardized licensing exam in the state in which they begin practice. LPNs may become RNs by bridging into an Associate Degree or in some cases, Baccalaureate Nursing Program.

Registered Nurses (RNs) typically complete a program of study at a community college, diploma school of nursing or a four-year college or university and are required to pass a nationally standardized licensing exam in the state in which they begin practice. The essential

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core of their nursing practice is to deliver holistic, patient-centered care that includes assessment and monitoring, administering a variety of treatments and medications, patient and family education and serving as a member of an interdisciplinary team. Nurses care for individuals and families in all phases of the health and wellness continuum as well as provide leadership in health care delivery systems and in academic settings. There are over 57 RN specialty associations in nursing and others newly emerging. Many RNs practice in medical-surgical areas; some other common specialties among registered nurses, many of which offer specialty certification options, include:

Critical Care Nurses provide care to patients with serious, complex, and acute illnesses or injuries that require very close monitoring and extensive medication protocols and therapies. Critical care nurses most often work in intensive care units of hospitals; however, nurses also provide highly acute and complex care in emergency rooms.

Public Health Nurses work to promote and protect the health of populations based on knowledge from nursing, social, and public health sciences. Public Health Nurses most often work in municipal and State Health Departments.

Home Health/Hospice Nurses provide a variety of nursing services for both acute, but stable and chronically ill patients and their caregivers in the home, including end-of-life care.

Occupational/Employee Health Nurses provide health screening, wellness programs and other health teaching, minor treatments, and disease/medication management services to people in the workplace. The focus is on promotion and restoration of health, prevention of illness and injury, and protection from work related and environmental hazards.

Oncology Nurses care for patients with various types of cancer, administering chemotherapy, and providing follow-up care, teaching and monitoring. Oncology nurses work in hospitals, out-patient clinics and patients' homes.

Perioperative/Operating Room Nurses provide preoperative and postoperative care to patients undergoing anesthesia, or assist with surgical procedures by selecting and handling instruments, controlling bleeding, and suturing incisions. These nurses work in hospitals and out-patient surgical centers.

Rehabilitation Nurses care for patients with temporary and permanent disabilities within institutions and out-patient settings such as clinics and home health care.

Psychiatric/Mental Health Nurses specialize in the prevention of mental and behavioral health problems and the nursing care of persons with psychiatric disorders. Psychiatric nurses work in hospitals, out-patient clinics, and private offices.

School Nurses provide health assessment, intervention, and follow-up to maintain school compliance with healthcare policies and ensure the health and safety of staff and students. They refer students for additional services when hearing, vision, obesity, and other issues become inhibitors to successful learning.

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Other common specialty areas are derived from a life span approach across healthcare settings and include maternal-child, neonatal, pediatric, and gerontological nursing.

There are several entry points as well as progression points for registered nurses:

Associate Degree in Nursing (ADN) or Diploma in Nursing prepared RNs provide direct patient care in various health care settings. The two to three years of education required is received primarily in community colleges and hospital-based nursing schools and graduates may bridge into a baccalaureate or higher degree program.

Baccalaureate Degree in Nursing (BSN) prepared RNs provide an additional focus on leadership, translating research for nursing practice, and population health; they practice across all healthcare settings. A BSN is often required for military nursing, case management, public health nursing, and school-based nursing services. Four-year BSN programs are offered primarily in a university setting. The BSN is the most common entry point into graduate education.

Master's Degrees in Nursing (MSN/Other) prepare RNs primarily for roles in nursing administration and clinical leadership, faculty, and for advanced practice in a nursing specialty area. The up to two years of education typically occurs in a university setting. Advanced Practice Registered Nurses (APRNs) receive advanced clinical preparation, (generally a Master's degree and/or post Master's Certificate, although the Doctor of Nursing Practice degree is increasingly being granted). Specific titles and credentials vary by state approval processes, formal recognition and scope of practice as well as by board certification. APRNs fall into four broad categories: Nurse Practitioner, Clinical Nurse Specialist, Nurse Anesthetist, and Nurse Midwife:

Nurse Practitioners (NPs) are Advanced Practice RNs who provide a wide range of healthcare services across healthcare settings. NPs take health histories and provide complete physical examinations; diagnose and treat many common acute and chronic problems; interpret laboratory results and X-rays; prescribe and manage medications and other therapies; provide health teaching and supportive counseling with an emphasis on prevention of illness and health maintenance; and refer patients to other health professionals as needed. Broad NP specialty areas include: Acute Care, Adult Health, Family Health, Geriatrics, Neonatal, Pediatric, Psychiatric/Mental Health, School Health, and Women's Health.

Clinical Nurse Specialists (CNS) practice in a variety of health care environments and participate in mentoring other nurses, case management, research, designing and conducting quality improvement programs, and serving as educators and consultants. Specialty areas include but are not limited to: Adult Health, Community Health, Geriatrics, Home Health, Pediatrics, Psychiatric/Mental Health, School Health and Women's Health. There are also many sub-specialties.

Certified Registered Nurse Anesthetists (CRNAs) administer anesthesia and related care before and after surgical, therapeutic, diagnostic and obstetrical procedures, as well

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as pain management and emergency services, such as airway management. Practice settings include operating rooms, dental offices and outpatient surgical centers. CRNAs deliver more than 65% of all anesthetics to patients in the United States.

Certified Nurse Midwives (CNMs) provide primary care to women, including gynecological exams, family planning advice, prenatal care, management of low risk labor and delivery, and neonatal care. Practice settings include hospitals, birthing centers, community clinics and patient homes.

Doctoral Degrees in Nursing include the Doctor of Philosophy in Nursing (PhD)[2] and the Doctor of Nursing Practice (DNP). PhD-prepared nurses typically teach in a university setting and conduct research, but are also employed increasingly in clinical settings. DNP programs prepare graduates for advanced practice and clinical leadership roles. A number of DNPs are employed in academic settings as well.

[2] There are also a very small number of Doctor of Nursing Science (DNS, DNSc) programs still in existence today. A significant number of doctorally-prepared RNs hold doctoral degrees in related fields.

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TABLE 1-A1 Providers of Nursing Care: Numbers, Preparation/Training, and Roles

Type of Nursing Care Provider	Type of Degree	Preparation Time	Roles and Responsibilities	Salaries
Registered Nurses	Doctor of Philosophy (PhD) or Doctor of Nursing Practice (DNP) Degrees	4 to 6 years beyond baccalaureate degree	Serve as health system executives, educators, deans, clinical experts/Advanced Practice Registered Nurses (APRNs), researchers, and senior policy analysts.	Mean faculty salaries range from $58,051.00 to $96,021.00 Administrators' and other non-faculty salaries not available but are generally higher
	Master's Degree (MSN/MS)	Typically up to 2 years beyond baccalaureate degree	Serve as educators, clinical leaders, administrators or APRNs certified as a Nurse Practitioner (NP), Clinical Nurse Specialist (CNS), Certified Nurse Midwife (CNM), or Certified Registered Nurse Anesthetist (CRNA).	Median salaries for APRNs range from $81,708.00 to $144,174.00 Mean Master's prepared instructor salary $54,426.00
	Baccalaureate Degree (BSN)	4 years	Provide direct patient care, nursing leadership, and translating research into nursing practice across all health care settings.	Mean salary $66,316
	Associate Degree (ADN) or a Diploma in Nursing	2 to 3 years	Provide direct patient care in various health care settings.	ADN mean salary $60,890 Diploma mean salary $65,349
Other Nursing Care Providers	Licensed Practical Nurse/Licensed Vocational Nurse (LPN/LVN)	12 to 18 months	Provide basic nursing care primarily in long-term-care or ambulatory settings under the supervision of the Registered Nurse or Physician.	Mean salary $40,110.00
	Nursing Assistant (NA)	Up to 75 hours training	Provide basic care to patients most commonly in nursing care facilities and patient homes.	Mean salary $26,110.00

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TABLE 1-A2 Pathways in Nursing Education

Type of Degree	Description of Program
Doctor of Philosophy in Nursing (PhD) and Doctor of Nursing Practice (DNP)	PhD programs are research-focused, and graduates typically teach and conduct research, although roles are expanding. DNP programs are practice-focused and graduates typically serve in Advanced Practice Registered Nurse (APRN) roles and other advanced positions, including faculty positions. *Time to completion: 3–5 years. BSN or MSN to nursing doctorate options available.*
Masters Degree in Nursing (MSN/MS)	Prepares Advanced Practice Registered Nurses (APRNs), Nurse Practitioners, Clinical Nurse Specialists, Nurse-Midwives, and Nurse Anesthetists, as well as Clinical Nurse Leaders, nurse educators and administrators. *Time to completion: 18–24 months. Three years for ADN to MSN option.*
Accelerated BSN or Masters Degree in Nursing	Designed for students with baccalaureate degree in another field. *Time to completion: 12–18 months for BSN and three years for MSN depending on prerequisite requirements.*
Bachelor of Science in Nursing (BSN) Registered Nurse (RN)	Educates nurses to practice the full scope of professional nursing responsibilities across all health care settings. Curriculum provides additional content in physical and social sciences, leadership, research and public health. *Time to completion: Four years or up to two years for ADN/Diploma RNs and three years for LPNs depending on prerequisite requirements.*
Associate Degree (ADN) in Nursing (RN) and Diploma in Nursing (RN)	Prepares nurses to provide direct patient care and practice within the legal scope of professional nursing responsibilities in a variety of health care settings. Offered through community colleges and hospitals. *Time to completion: Two to three years for ADN (less in the case of LPN-entry) and three years for diploma (all hospital-based training programs) depending on prerequisite requirements.*
Licensed Practical Nurse (LPN)/Licensed Vocational Nurse (LVN)	Trains nurses to provide basic care, e.g. take vital signs, administer medications, monitor catheters and apply dressings. LPN/LVNs work under the supervision of physicians and registered nurses. Offered by technical/vocational schools and community colleges. *Time to completion: 12–18 months.*

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2
Study Context

This chapter presents essential context for the remainder of the report, addressing in turn the evolving challenges faced by the health care system, which drive the need for a reformed system and the concomitant transformation of the nursing profession; the three primary concerns targeted by health care reform—quality, access, and value; and the principles the committee determined must guide any reform efforts. The final section summarizes the committee's conclusions about the implications of this discussion for the role of nurses in transforming the health care system.

EVOLVING HEALTH CARE CHALLENGES

For decades, the major focus of the U.S. health care system has been on treating acute illnesses and injuries, the predominant health challenges of the early 20th century. In the 21st century, the health challenges facing the nation have shifted dramatically:

- **Chronic conditions**—While acute injuries and illnesses will never disappear, most health care today relates to chronic conditions, such as diabetes, hypertension, arthritis, cardiovascular disease, and mental health conditions, which in 2005 affected nearly one of every two Americans (CDC, 2010a). This shift can be traced in part to the increased capabilities of the health care system to treat these conditions and in part to the health challenges of an aging population, as the prevalence[1] of chronic conditions increases with age. Dramatic increases in the prevalence of many of these conditions since 1970 are expected to continue (DeVol et al., 2007). Increasing obesity levels in the United States have compounded the problem, as obesity is related to many chronic conditions.
- **An aging population**—According to the most recent census projections, the proportion of the U.S. population aged 65 or older is expected to rise from 12.7 percent in 2008 to 19.3 percent in 2030 (U.S. Census Bureau, 2008), in part as a result of increases in life expectancy and the aging of the Baby Boom generation. As the population continues to age, a dramatic growth in demand for health care services will be seen (IOM, 2008).
- **A more diverse population**—Minority groups, which currently make up about a third of the U.S. population, are projected to become the majority by 2042 and 54 percent of the total population by 2050 (U.S. Census Bureau, 2008). Diversity exists not only among but also within various ethnic and racial groups with respect to country of origin, primary language, immigrant status and generation, socioeconomic status, history, and other cultural features.

[1] Prevalence defines the total number of individuals with a condition, and incidence refers to the number of new cases reported in a given year.

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- **Health disparities**—Health disparities are inequities in the burden of disease, injury, or death experienced by socially disadvantaged groups relative to either whites or the general population. Such groups may be categorized by race, ethnicity, gender, sexual orientation, and/or income. Health disparities among these groups are driven in part by deleterious socioenvironmental conditions and behavioral risk factors, and in part by systematic biases that often result in unequal, inferior treatment (IOM, 2003b).
- **Limited English proficiency**—The number of people living in the United States with limited English proficiency is increasing (U.S. Census Bureau, 2003). To be effective, care and health information must be accessible and offered in a manner that is understandable, as well as culturally relevant (IOM, 2004a; Joint Commission, 2007). While there are national standards for linguistically and culturally relevant health care services, the rapid growth of diverse populations with limited English proficiency and varying cultural and health practices is emerging as an increasingly complex challenge that few health care providers and organizations are currently prepared to handle (HHS Office of Minority Health, 2007).

PRIMARY CONCERNS IN HEALTH CARE REFORM: QUALITY, ACCESS, AND VALUE

In the search for solutions to improve the health care system, experts target three primary concerns: quality, access, and cost or value (Goldman and McGlynn, 2005). Substantial reforms designed to reshape and realign the major features of the entire health care system are needed to redress deficiencies in these three areas.

Quality

Despite unsustainable growth in health care spending in the United States (discussed below), the care received by individuals can often be too much, too little, too late, or too haphazard. Moreover, substantial geographic variations exist in the intensity of care provided across the nation, with attendant differences in quality, as well as cost (Fisher et al., 2009). The quality improvement movement in health care has grown significantly since the publication of two IOM reports: *To Err Is Human: Building a Safer Health System* and *Crossing the Quality Chasm: A New Health System for the 21st Century* (IOM, 2000, 2001). These reports helped shift discussions about quality away from assigning all responsibility and accountability to individual health professionals. They showed that improving quality requires an understanding of how such elements as systems and processes of care, equipment design, and organizational structure can fundamentally enhance or detract from the quality of care. Researchers also have emphasized the importance of building interprofessional teams and establishing collaborative cultures to identify and sustain continuous improvements in the quality of care (Kim et al., 2010; Knaus et al., 1986; Pronovost et al., 2008).

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Access

Although the Affordable Care Act (ACA) provides insurance coverage for an additional 32 million Americans, millions of Americans will still lack coverage in 2019 (CBO, 2010). Even for those with insurance, out-of-pocket expenses, such as deductibles and copays, as well as limited coverage for necessary services and medications, create financial burdens that can limit access to care (Doty et al., 2005; Himmelstein et al., 2009). Other significant barriers to access include a lack of providers who are accepting new patients, especially those covered by Medicaid; a lack of providers who offer appointments outside of typical business hours; and for some a lack of transportation to and from appointments. Also hindering access is the above-discussed rapid growth of populations with limited English proficiency (U.S. Census Bureau, 2010), as well as limited health literacy among fluent English speakers.

Value

The term "value" has different meanings in different contexts. For the purposes of this report, the committee uses the following definition: "value in health care is expressed as the physical health and sense of well-being achieved relative to the cost" (IOM Roundtable on Evidence-Based Medicine, 2008). As one of the major components of value—quality—is discussed above, this section focuses on cost.

The United States spends more than any other nation—16.2 percent of gross domestic product in 2008—on health care (CMS, 2010a). Yet this investment is not matched by superlative health care outcomes (OECD, 2010), indicating deficiencies in the value of some aspects of the health care system. Moreover, while the United States spends too much on certain aspects of health care, such as hospital services and diagnostic tests, spending on other aspects is disproportionately low. For example, public health represents less than 3 percent of health care spending (CMS, 2010b).

Health care spending is responsible for large, and ultimately unsustainable, structural deficits in the federal budget (Dodaro, 2008), and many economists believe that rising health care costs are a principal reason why wages have increased so little in recent years (Emanuel and Fuchs, 2008). However, establishing and sustaining legislated cost controls and health care savings has proven elusive. Challenges with regard to costs and spending make achieving value within the health care system difficult.

Throughout its deliberations, the committee found it useful to focus on ensuring that the health care system delivers good value rather than focusing solely on cost. Accordingly, the committee paid particular attention to high-value innovations in nursing care that provide quality, patient-centered care at a lower price. Three specific examples are featured as case studies later in this chapter.

PRINCIPLES FOR CHANGE

The challenges faced by the U.S. health care system have been described and documented in recent years by many government agencies, researchers, policy analysts, and health professionals. From this work, a consensus has begun to emerge regarding some of the fundamental principles that should guide changes to meet these challenges. Broadly, the consensus is that care in the United States must become more patient centered; primary care and

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prevention must play a greater role relative to specialty care; care must be delivered more often within the community setting and even in people's homes; and care needs to be coordinated and provided seamlessly across health conditions, settings, and providers. It is also important that all providers practice to the fullest extent allowed by their education, training, and competencies and collaborate so that improvements can be achieved in both their own and each other's performance. This section provides an overview of these shifts in thinking and practice that a growing number of health care experts believe should be at the core of any proposed health care solutions.

The Need for Patient-Centered Care

Health care research is demonstrating the benefits of reorganizing the delivery of health care services around what makes the most sense for patients (Delbanco et al., 2001; Hibbard, 2004; Sepucha et al., 2004). As outlined in *Crossing the Quality Chasm*, patient-centered care is built on the principle that individuals should be the final arbiters in deciding what type of treatment and care they receive (IOM, 2001). Yet practice still is usually organized around what is most convenient for the provider, the payer, or the health care organization and not for the patient. Patients are repeatedly asked, for example, to change their expectations and schedules to fit the needs of the system. They are required to provide the same information to multiple caregivers or in sequential visits to the same provider. Primary care appointments typically are not available outside of work hours. The counseling, education, and coaching needed to help patients make informed decisions have historically been given insufficient attention (Hibbard, 2004). Additionally, patients' insurance policies often limit their choice of provider, especially if the provider is not a physician (Craven and Ober, 2009). Box 2-1 presents an example of how one health system, the University of Pittsburgh Medical Center, has implemented a truly patient-centered program.

How Patient-Centered Care Improves Quality, Access, and Value

A number of studies have linked patient-centered and quality care (Sepucha et al., 2004). For example, studies that compared surgery with watchful waiting for patients with benign prostatic hyperplasia showed how strong a role patient preference played in determining quality of life (Barry et al., 1988; Fowler et al., 1988; Wennberg et al., 1988). Likewise, involving patients more directly in the management of their own condition was found to result in significant improvements in health outcomes for individuals with insulin-dependent diabetes mellitus (Diabetes Control and Complications Trial Research Group, 1993). By 2001, so many different studies had found similar results that *Crossing the Quality Chasm* identified patient-centered care as one of six pillars on which a 21st-century health care system should be built (the others being safety, effectiveness, timeliness, efficiency, and equity) (IOM, 2001).

One of the hallmarks of patient-centered care is improving access to care, a key component of which is access to information. For example, a growing number of patients have greater access to their own laboratory results and diagnostic writeups about their procedures through such electronic forums as personal health records and patient portals. Many people participate in online communities to learn more about or even how to manage their own conditions. Improving access also requires delivering care in a culturally relevant and appropriate manner so that patients can contribute positively to their own care.

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BOX 2-1
When Patients and Families Call a Code

THE UNIVERSITY OF PITTSBURGH MEDICAL CENTER IS TRANSFORMING CARE AT THE BEDSIDE

As we've always known, when you give power and authority to patients, they treat it with great respect.
—Tami Minnier, MSN, RN, FACHE, chief quality officer, University of Pittsburgh Medical Center

In 2001, 18-month-old Josie King was hospitalized at Johns Hopkins Children's Center with burns she had sustained in a bathtub accident. Josie responded well to treatment at first, but her condition quickly deteriorated. When her mother, Sorrel King, expressed concern, the staff nurses and physicians repeatedly dismissed them, and 2 days before her scheduled discharge Josie died. The cause was dehydration and a wrongly administered opioid—the result of a series of errors the hospital acknowledged.

Ms. King has since devoted herself to the elimination of medical errors, founding the Josie King Foundation (www.josieking.org) and addressing clinicians, policy makers, and consumers on the importance of creating a "culture of safety." And the need is pressing. According to a 2000 Institute of Medicine report, up to 98,000 people die from medical errors each year (IOM, 2000); nearly 10 years after that report's publication, despite improved patient-safety systems, a 2009 report gave a grade of C+ to efforts to empower patients to prevent errors (Wachter, 2009).

Tami Minnier, MSN, RN, FACHE, heard Ms. King speak in 2005, and the message was clear: if the staff had listened to her mother's concerns, Josie would have lived. "When I came back to work the following Monday," said Ms. Minnier, at the time chief nursing officer at the University of Pittsburgh Medical Center (UPMC) at Shadyside, "I told my chief medical officer, 'We're going to let patients and families call a rapid-response team'—a group of staff who are designated by the hospital to respond immediately to other staff's requests for help with critical or emergency patient situations. He thought I was insane."

Shadyside had been one of the first three hospitals to participate in Transforming Care at the Bedside (TCAB), an initiative of the Institute for Healthcare Improvement (IHI) and The Robert Wood Johnson Foundation, enabling front-line nurses to test their ideas for improving the safety and quality of care. Ms. Minnier called on Sorrel King to work with the nurses in Shadyside's TCAB unit in creating what they called Condition H (or Condition Help). They interviewed patients and families about when and why they might call for a rapid-response team, consisting of a nurse administrator, a physician, a staff nurse, and a patient advocate who would convene immediately in response to a patient's or visitor's call. They held drills with staff, and within 6 months, Condition H went live in the hospital's TCAB unit.

While some staff feared that patients would abuse the hotline, that concern was not borne out. Today, patients and families throughout UPMC's 13 acute care hospitals can use Condition H. They receive information on how to make the call (dial 3131 and say, "Condition H") during admission and through posters, a video, and stickers placed on patients' phones.

Ms. Minnier is now chief quality officer at UPMC and monitors the use of Condition H. At Shadyside, a 500-bed hospital, two or three calls are made each month, and only a few patients have called twice during the same admission. An analysis of the 45 calls made in the first 17 months showed that inadequately managed pain was the most frequent impetus for calls, and more than 60 percent of the calls led to interventions that were deemed instrumental in preventing a patient-safety event.

Condition H is spreading and serves as one example of the changes hospitals have adopted using TCAB methods. Reports on TCAB have shown that it generates improved outcomes, greater patient and family satisfaction, and reduced turnover of nurses (Hassmiller, 2009).

Sorrel King addressed medical and nursing students at an IHI-sponsored event in 2009 and spoke strongly in favor of Condition H. "Had I been able to push a button for a rapid-response team, that team would have come, they would have assessed Josie and...said one thing: the child is thirsty," Ms. King said. "They would have given her a drink, and she never would have died" (King, 2009).

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Fewer studies have examined the economic value of patient-centered care. One such study found that offering a nurse advice phone number and a pediatric after-hours clinic resulted in a 17 percent decrease in emergency department visits (Wilson, 2005). Yet there is no reason to believe that enhancing patient-centered care will or even should always lead to lower costs. For example, truly patient-centered approaches to care may require new programs or additional services that go beyond current standards of practice.

Nurses and Patient-Centered Care

Nurses have long emphasized patient-centered care. The case study in Box 2-2 provides but one example—the patient-centered approach of midwifery care at the Family Health and Birth Center (FHBC) in Washington, DC. Through the FHBC, mothers-to-be who often have little control over their own lives develop a sense of control over one very important part of their lives. From such modest beginnings, many more hopeful futures have been launched.

BOX 2-2
Nurse Midwives and Birth Centers

THE MIDWIFERY MODEL OF MATERNITY CARE GIVES MOTHERS CONTROL AND IMPROVES OUTCOMES

Midwifery teaches you that the woman is the most important person in the relationship and that's why you should listen to her and try to give her what she wants and what she needs.
—Ruth Watson Lubic, EdD, CNM, FAAN, founder, Family Health and Birth Center

When Wendy Pugh delivered her first child at age 30 in a Washington, DC, hospital in 1999, her labor was induced—not out of medical necessity, she said, but because "there was a scheduling issue with the doctor." She didn't question the obstetrician's decision at the time, but when she got pregnant again, she polled her friends and discovered that many had had cesarean sections. When she asked why, few gave medical reasons. She decided she wanted "a more organic process."

Seven months into her second pregnancy, Ms. Pugh arrived at the Family Health and Birth Center (FHBC) in northeast Washington, DC (www.yourfhbc.org), where certified nurse midwives provide pre- and postnatal care and assist with labor and delivery with little technological intervention. Delivery takes place at a homelike freestanding birth center or at a nearby hospital, depending on the woman's choice, her health, and such factors as whether she is homeless. The FHBC accepts Medicaid and private insurance and offers a sliding-scale fee for those ineligible for Medicaid. No one is turned away.

Ruth Watson Lubic, EdD, CNM, opened the FHBC in 2000 in response to the disproportionately high rates of infant and maternal death, cesarean section, and premature birth among poor and minority women in Washington, DC. In 2009 the infant mortality rate in the city was 12.22 per 1,000 live births, far exceeding that of any state in the nation (Heron et al., 2007). Nationwide, nearly four times as many black as white infants die as a result of premature birth or low birth weight (HRSA, 2006). Dr. Lubic had already founded the first freestanding birth center in the country (in 1975 in New York City) and has dedicated her career to reducing disparities in birth outcomes. "We're hoping to serve as a model for the whole country," Dr. Lubic said. There are now 195 such centers in the United States.

Ms. Pugh's case highlights the differences between the midwifery model of care, which promotes maternal and infant health, and the obstetrics model, which anticipates complications. During the hospital delivery of her first child, Ms. Pugh received pitocin to induce labor, saw her newborn for just a few moments before the child was taken away, and did not breastfeed until the second day. In contrast, during the delivery of her third child—her second delivery at the FHBC—she received assistance during labor from a doula, a trained volunteer who provided coaching and massage; her newborn was placed on her chest immediately after the birth; mother and child went home within hours of delivery; and when the infant showed difficulties with breastfeeding, a peer lactation counselor went to their home.

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Two systematic reviews have found that women given midwifery care are more likely to have shorter labors, spontaneous vaginal births without hospitalization, less perineal trauma, higher breastfeeding rates, and greater satisfaction with their births (Hatem et al., 2008; Hodnett et al., 2007). Unpublished FHBC data show that, compared with all African American women giving birth in Washington, DC, women giving birth at the center have almost half the rate of cesarean sections, one-third the rate of births at less than 37 weeks' gestation, and half the rate of low-birth-weight newborns. The lower rates of complications added up to an estimated $1,231,000 in savings in 2005—more than the cost of operating the center that year. The FHBC reports a 100 percent breastfeeding rate among women giving birth at the center.

Obstacles to widespread use of the FHBC model include the fact that Medicaid does not always pay midwives at birth centers at the rate paid to obstetricians for vaginal deliveries. Also, the high cost of malpractice insurance has forced some such centers to close, although nurse midwives have shown a lower risk of malpractice suits than that among obstetricians (Xu et al., 2008a, 2008b).

At age 83 Dr. Lubic has faced opposition to the midwifery model for decades. "There's this hangover from the days when midwives functioned on their own in communities," she said. Even so, the enthusiasm of the FHBC's midwives is unflagging. Among the benefits of midwifery care, Lisa Betina Uncles, MSN, CNM, who attended Ms. Pugh's two births at the FHBC, highlighted one that cannot be easily measured. "A lot of our moms in the neighborhood don't have much control over their lives," she said. "This is something they have control over." Ms. Pugh agreed. "It was kind of a partnership," she said of her two FHBC births, "but they also let me guide the ship."

The Need for Stronger Primary Care Services

Consensus is also strong on the need to make primary (rather than specialty) care a greater part of the health care system. Despite steps taken by the ACA to support the provision of primary care, however, the shortage of primary care providers is projected to worsen in the United States in the coming years (Bodenheimer and Pham, 2010; Doherty, 2010).

Primary care has been described in many ways. The IOM has defined it as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community" (IOM, 1996). Starfield and colleagues identify the functions of primary care as "first-contact access for each new need; long-term person- (not disease) focused care; comprehensive care for most health needs; and coordinated care when it must be sought elsewhere" (Starfield et al., 2005). Similarly, the Government Accountability Office (GAO) has cited the following hallmarks of primary care: preventive care, care coordination for chronic illnesses, and continuity of care (Steinwald, 2008). Thus primary care is closely tied to two of the principles for change discussed below—the need to deliver more care in the community and the need for seamless, coordinated care.

How Primary Care Improves Quality, Access, and Value

Countries that build their health care systems on the cornerstone of primary care have better health outcomes and more equitable access to care than those that do not (Starfield et al., 2005). However, primary care plays a less central role in the U.S. health care system than many health policy experts believe it should (Bodenheimer, 2006; Cronenwett and Dzau, 2010; IOM, 1996; Starfield et al., 2005; Steinwald, 2008). Geographic variations nationwide illustrate the importance of primary care. Regions of the United States with a higher ratio of generalists to specialists provide more effective care at lower cost (Baicker and Chandra, 2004), and studies have shown that those states with a greater ratio of primary care providers to the general population experience lower mortality rates for all causes of death (Shi, 1992, 1994). The

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positive effect is more pronounced among African Americans who have access to primary care than among whites, thus indicating that this is a promising approach to decreasing health disparities (Starfield et al., 2005). Yet primary care services have been so difficult to access in parts of the United States that one in five adults has sought nonurgent care at an emergency department (IOM, 2009).

Nurses and Primary Care

Nurses with varying levels of education and preparation play important roles in primary care. Health promotion, education, and assessment are essential components of primary care that are also traditional strengths of the nursing profession; these services may be provided by either registered nurses (RNs) or advanced practice registered nurses (APRNs). RNs provide primary care services across the spectrum of health care settings—from acute care to home care to public health and community care. As visiting or home health nurses, RNs are positioned to identify new health problems or needs, such as medication education, prevention services, or nutrition counseling. In public health clinics, they may provide community assessments, developmental screenings, or disease surveillance. RNs in acute care settings may identify new health care problems and needs as they care for patients and their families. The range of possibilities for RNs providing primary care is significant, and their capacity for filling these roles is not always recognized.

APRNs, especially nurse practitioners (NPs), also provide primary care services across all levels of the health care system. In many situations, NPs provide care that is comparable in scope to that provided by primary care physicians. As discussed in Chapter 3, in many situations, APRNs are qualified to diagnose potential and actual health problems, develop treatment plans, in some case prescribe medication, and create teams of providers to help manage the needs and care of patients and their families. APRNs are educated to refer patients to physicians or other providers when necessary.

Box 2-3 illustrates how one NP provides primary care both in a school, where she is required by the school district regulations to do less than she is trained to do, and in a low-cost clinic, where she may practice to the full extent of her training and licensure. Chapter 3 examines in detail why NPs, and more broadly APRNs, are often limited by regulations in the extent of the health services they may provide.

The Need to Deliver More Care in the Community

Care in the community—defined as those places where individuals live, work, play, and study—encompasses care that is provided in such settings as community and public health centers, long-term care and assisted-living facilities, retail clinics, homes, schools, and community centers. While acute care medical facilities will always be needed, the delivery of primary care and other health services in the community must grow significantly if the U.S. health care system is to be both widely accessible and sustainable (Dodaro, 2008; Steinwald, 2008).

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BOX 2-3
Nurse Profile: Carolina Sandoval

A School Nurse Acts as Advocate for a California Latino Community

Some of these kids—especially those without insurance in underserved areas—they have nobody. The school nurse is the only person they may see who can guide them and tell them where to go for resources for their health needs. So we are a good investment for the school district and community.
—Carolina Sandoval, MSN, PNP, RN, school nurse, Chino Hills, California

"Did you eat breakfast?" This is often the first question school nurse Carolina Sandoval, MSN, PNP, RN, asks a student who comes to her office complaining of a stomachache. Usually, the child says no, and Ms. Sandoval takes the opportunity to discuss the value of a nutritious breakfast. "I give them a little speech," she said, "and then I give them a little snack."

What might sound like a simple interaction is anything but simplistic. Ms. Sandoval's work at a junior high school and an elementary school in Chino Hills, California, draws on her graduate education and incorporates many aspects of nursing: patient and community education, child advocacy, public health, infectious disease monitoring, trauma care, chronic illness management, nutritional counseling, reproductive health, and medication management, among others.

School nurses may be among the unsung heroes of health care, but occasionally they take the spotlight. "Hero," in fact, was how many described Mary Pappas, BSN, RN, the school nurse who first alerted infectious disease authorities to the outbreak of influenza A (H1N1)—swine flu—at her New York City high school in April 2009 (Jacobson, 2009). Not only did Ms. Pappas's decisive action protect the thousands of children in her charge, but within days she had prompted a worldwide alert for what would soon be declared a pandemic.

Yet even the smallest gesture, such as giving "a little snack," corresponds to the National Association of School Nurses (NASN) definition of school nursing: "nursing that advances the well-being, academic success and life-long achievement and health of students." At the same time, Ms. Sandoval does not sugar coat the fact that most school districts, including her own, fail to meet the NASN and Healthy People 2010 recommendation of one nurse for every 750 healthy children. She is responsible for 2,000 children and works part time at each of the two schools.

Indeed, California is 42nd on NASN's list of states ranked by student-to-registered nurse (RN) ratios, with 2,187 students for every school nurse (Vermont is first and Michigan is last, with 311 and 4,836 students per RN, respectively) (NASN, 2010). To fill the gap, some school districts hire non-nurse technicians, a move Ms. Sandoval said does not benefit students. She pointed out that nurses' skills in assessment and critical thinking come into play constantly in handling the conditions that affect students' ability to learn: obesity and chronic illness, vision deficits, behavioral problems, allergies, and asthma, to name the most common.

Having moved to Southern California at age 15 from Mexico, where, she said, a school nurse would have been an unthinkable luxury, Ms. Sandoval has a particular appreciation of the school nurse's role as child advocate. She now acts as a spokesperson for NASN's Voices of Meningitis Campaign (www.voicesofmeningitis.org), sponsored by Sanofi Pasteur, a vaccine manufacturer. Preteens and teens are at the greatest risk for meningococcal meningitis, a preventable infection that can rapidly be fatal and is spread through utensil sharing or kissing. Through radio, television, and other venues, Ms. Sandoval teaches parents and children, in Spanish, about prevention, symptoms, and treatment.

School district regulations do not permit Ms. Sandoval to use all of her skills as a nurse practitioner. She cannot diagnose or prescribe in the school, for example, even when children have symptoms of conjunctivitis or otitis media; she must refer them to other providers outside of the school. And because many of the children she sees come from uninsured families that may not have access to affordable care, she often refers families to a low-cost clinic where she works one evening a week as a nurse practitioner and can practice to the full extent of her training and licensure.

Ms. Sandoval tells the story of another routine intervention, involving a seventh-grader who was falling behind in his classes. She met with the boy and checked his vision; it was quite poor, and she gave his parents a certificate for a discounted eye exam and glasses. "We cannot change the whole world," she said. "But maybe we can change one student. And someday that student is going to go to college, and he'll remember the school nurse who took the time to look at his eyes."

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Along with an emphasis on primary care, a key component of providing care in the community is a strong public health infrastructure to ensure the availability of a range of services that includes prevention, education, communication, and surveillance. The public health infrastructure and workforce are vulnerable and perpetually face fiscal and political barriers. As a 2002 IOM report notes, "public health infrastructure has suffered from political neglect and from the pressure of political agendas and public opinion that frequently override empirical evidence" (IOM, 2002). The public health workforce, including public health nurses, is aging rapidly. Between 20 and 50 percent of public health workers at the local, state, and national levels are eligible to retire in the next few years (ASPH, 2008; ASTHO, 2004; Perlino, 2006). Between 2008 and 2009, health departments at the local level lost 23,000 jobs—or approximately 15 percent of their total workforce—to recession-related layoffs and attrition in 2008 and 2009 (NACCHO, 2010). The number of nurses employed in public and community health settings underwent a marked decline from 18.3 percent of the RN workforce in 2000 to 15.2 percent in 2004 to 14.2 percent in 2008 (HRSA, 2010). The case study in Box 2-4 illustrates the value of nurses working in the public health sector, where many more nurses are needed.

BOX 2-4
Nurse Profile: Lisa Ayers

A Public Health Nurse in Schenectady, New York, Making Neighborhoods Healthier

When I make home visits, I offer information on breastfeeding, nutrition, and lead poisoning, and I do environmental assessments. It's definitely public health and nursing combined.
—Lisa Ayers, BSN, RN, public health nurse, Schenectady County Public Health Services, Schenectady, New York

Lisa Ayers, BSN, RN, could tell from her initial inspection of the apartment, with its chipped paint, exposed electrical wires, and mice, that the situation was serious. As a public health nurse with Schenectady County Public Health Services near Albany, New York, she also quickly discerned that the deteriorating structure was not the only issue in need of her attention.

Ms. Ayers' patient, a pregnant woman whose toddlers had high blood lead levels, learned about the link between asthma and cigarette smoke, the dangers of a broken electrical plate, and the importance of testing her smoke detectors. Ms. Ayers also talked with the woman about prenatal care, scheduled a lead inspection of the home, reported the mice and electrical hazards to the city, and mailed a notice of the lead inspection to the landlord.

"It was a wonderful visit," Ms. Ayers said. "Very productive." A lifelong Schenectady native, she and her husband have reared three children there, and she has worked for 22 years as a public health nurse for the city and county health departments. She started out, as most nurses do, as a medical–surgical nurse, but after switching to home health care, she found it difficult to balance work and family demands and applied for a public health nursing position with the city. "It was the best decision I ever made," she said.

When she started in 1988, she and her 20 registered nurse (RN) coworkers cared for homebound older adults, pregnant women and infants, and patients with infectious diseases. In 1991 the health department expanded to cover the county, and her work in the years since has encompassed well-infant care, primary care pediatrics, and environmental health. For seven years, she investigated communicable diseases in the community.

Now, as one of the first nurses in the state to be certified as a lead risk inspector, she weaves environmental health into her practice. She assesses homes for sources of lead; works with landlords to fix problems; and supplies families with carbon monoxide detectors, cabinet locks, nightlights, buckets, mops—in short, anything they need to minimize hazards in their homes. At the same time, she is assessing the psychosocial aspects of families' health and helping them reduce tobacco use and prevent or control asthma. Ms. Ayers said, "Being a nurse, I can answer a lot more questions about asthma, medications, and inhalers than somebody who may not be a nurse." And she continues to take her turn as a home visitation nurse on weekends, seeing a child with leukemia, helping a new mother with breastfeeding, or checking on a newborn who is losing instead of gaining weight.

Usually, the health department will ask a landlord for permission to inspect a home only if a child has a blood lead level of at least 15 mcg/dL. But that requirement is waived for Healthy Neighborhoods, an initiative aimed at reducing environmental hazards in two zip codes—12307 and 12304—that have had high lead-poisoning rates. Anyone living in these zip codes can request a free home assessment of air quality, asthma triggers, fire safety, and other health issues, and the assessment can be done without the landlord's permission.

Ms. Ayers spends about 40 percent of her time on Healthy Neighborhoods and 60 percent on lead-poisoning prevention, and she finds ways to combine the work of the two programs. "When I'm out there doing prevention for air quality with Healthy Neighborhoods, I also do a visual lead inspection in the home," she said. And she teaches families measures such as handwashing; letting water run from lead-soldered pipes before drinking; and eating foods high in iron and calcium and low in fat, which prevents lead absorption.

The county has tracked cases of elevated blood lead levels in zip code 12307 for more than two decades. Since a peak of 34 cases in 1992, the number dropped to five or fewer annually from 2006 to 2009, according to unpublished data.

Nurses' contributions to these outcomes are not lost on Richard Daines, MD, New York State's health commissioner, who shadowed Ms. Ayers shortly after he took office. "He was very excited [by what he saw]," said Ms. Ayers. "I think they have recognized—all the way up to the commissioner level—what a nurse can bring to this position."

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Providing effective care in the community will require improvements in community infrastructures, resources, and the workforce. Health care providers, including nurses, will need to form new partnerships with community leaders and have strong community care–oriented competencies, such as the ability to develop, implement, and assess culturally relevant interventions.

How Care in the Community Improves Quality, Access, and Value

In the 1990s, the state of New York pioneered quality assessment and improvement in the management of HIV/AIDS in community health clinics, drug treatment centers, and hospitals (New York State Department of Health AIDS Institute, 2003). The program proved so successful that it soon became the model for a national effort at assessing and improving treatment and care for people with HIV (IOM, 2004b). Similarly, studies have found that improving nurse-to-student ratios in public schools results in higher immunization rates, increased vision screenings and more effective follow-up, and significant gains in identifying asthma and life-threatening conditions. As more care moves from the acute to the community setting, quality measurement must expand to ensure that quality care is maintained throughout the transition.

Investments in community care can improve access and value as well. In the 1990s, the Department of Veterans Affairs (VA) began shifting its programs from the acute care to the community setting, dramatically increasing the number of veterans who were able to access care (CBO, 2009; VA, 2003) while improving health outcomes and lowering costs per patient (Asch et al., 2004; CBO, 2009; Jha et al., 2003; Kerr et al., 2004). Likewise, community health centers and nurse-managed health centers have provided quality, high-value care in many socially disadvantaged neighborhoods.

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Nurses and Care in the Community

Providing care for underserved populations in community settings has long been a major goal of the nursing profession. Box 2-4 illustrates how one public health nurse provides infant care, primary care, environmental health services, and care to individuals with infectious diseases in the community. In another example, Lilian Wald founded the Visiting Nurse Service of New York (VNSNY) in 1893 to help improve the health and social outcomes of those with lesser means. Today, VNSNY is the largest nonprofit home health care agency in the United States (IOM, 2010).

A growing number of nurses are embracing technology to expand care in the community. A study conducted in Florida showed that telehealth services brought directly to patients' communities and provided by nurses may increase access to care for children with special health care needs in rural, medically underserved parts of the state at no additional cost (Hooshmand, 2010). The alternative for these patients was to travel many miles, usually to an academic health center, to the site of a doctor's office.

The Need for Seamless, Coordinated Care

One of the major challenges facing the U.S. health care system is its high degree of fragmentation. Nowhere is this fragmentation more evident than in the transitions patients must undergo among multiple providers or different services for a single health problem. When care is seamless, these multiple aspects of care are coordinated to enhance the quality of care and the patient's experience of care. The ACA contains provisions that address coordination of care, but these initiatives are just the beginning of what is needed.

How Seamless, Coordinated Care Improves Quality, Access, and Value

In 2003, the IOM singled out coordination of care as indispensible to improving the quality of health care in the United States (IOM, 2003a). Likewise, the ACA highlights coordination of services as one of the required measures for reporting on the quality of care. The Medicare Payment Advisory Commission (MedPAC) also concluded that better coordination clearly improved the quality of beneficiaries' care. Proof that care coordination saves money was less apparent in part because measuring cost savings is so difficult. Investments in care coordination for a group of people with diabetes, for example, may take a long time to demonstrate cost savings because it can take years for poor glucose control to manifest itself as stroke, myocardial infarction, and other severe complications. However, the value of preventing these outcomes, from both a quality-of-life and financial perspective, is clear.

One particularly compelling example of the multiple benefits of seamless care is the On Lok program—an initiative that began in California in the 1970s (On Lok PACEpartners, 2006). Its successes inspired a new model of care—the Program of All-Inclusive Care for the Elderly (PACE), which now serves 19,000 frail older individuals in 31 states.[2] On Lok and the PACE programs that it inspired demonstrate that innovative programs that integrate care across the continuum can lead to synergistic improvements in quality, access, and value. The creativity and willingness to look beyond traditional solutions that animate these programs need to be adapted to other health care settings.

[2] Personal communication, Shawn Bloom, President and CEO, National PACE Association, February 3, 2010.

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Nurses and Seamless, Coordinated Care

Coordinating care is one of the traditional strengths of the nursing profession, whether in the community or the acute care setting. For example, an interprofessional research team funded by The Robert Wood Johnson Foundation, called the Interprofessional Nursing Quality Research Initiative (INQRI), developed a Staff Nurse Care Coordination model that features six nurse care coordination activities regularly performed by staff nurses in hospital settings as part of their daily activities—mobilizing, exchanging, checking, organizing, assisting, and backfilling. Box 2-5 describes a program in the community setting called Living Independently for Life (LIFE), a PACE program in Pennsylvania that is led by nurse practitioners and provides interprofessional health services to low-income, frail, chronically ill older adults who are eligible for nursing home care (LIFE, 2010).

BOX 2-5
Living Independently for Elders (LIFE)

NURSES SUPPORTING OLDER ADULTS TO STAY IN THE COMMUNITY

The nurses are picking up subtle signs that could lead to deteriorating health—a slight fever or fluid retention—and because they're seeing the patient two or three times a week, they act on it quickly and prevent a further problem.

—Eileen M. Sullivan-Marx, PhD, FAAN, RN, associate dean for practice and community affairs, University of Pennsylvania School of Nursing

In 2002, when Lillie Mashore was in her late 50s, she was diagnosed with multiple sclerosis. Just a year later her diabetes was so severe she had to be placed in intensive care. Too ill in December 2003 to return to the West Philadelphia home she shared with her husband, who had cancer, she entered a nursing home. She was greeted there with the words, "You're going to leave here in a body bag."

But Ms. Mashore defied that prediction. In April 2005 she went home and spent the last year of her husband's life with him. With the support of the Living Independently for Elders (LIFE) program, she is still at home, receiving help twice a day from visiting nurses and aides and attending LIFE's adult day care center 3 days a week.

"I'm limited to certain things," Ms. Mashore, now age 66, said of her recovered independence. "But I can wash dishes. I didn't think I could do that. I was so proud when I washed those dishes."

Ms. Mashore is one of the nearly 700 elderly Philadelphians eligible for nursing home admission who have stayed in their homes with the help of LIFE—a program that provides all primary and specialty care services to low-income, frail, chronically ill older adults (age 55 or older). About 95 percent of members are African American. Nurse practitioner–led teams include nurses, physicians, social workers, physical and occupational therapists, dieticians, nurses' aides, and drivers.

Although home care is available for LIFE members like Ms. Mashore who need help managing household tasks or medications, it is not the primary focus. Many services are provided at the LIFE adult day care center, and groups take outings, such as to Phillies baseball games or a nearby Dave and Buster's restaurant. (Roughly 20 bed-bound members receive all LIFE services at home.) Also available are respite care for family caregivers, transportation to the center, and a "circle of care" for people with dementia. About 185 members are at the center each day.

As for outcomes, LIFE keeps nearly 90 percent of its members out of nursing homes, according to unpublished data. LIFE also reports reduced rates of falls, pressure ulcers, preventable hospitalizations, and emergency room visits among members (LIFE, 2010).

LIFE is one of 72 programs in 31 states that are part of the Program for All-Inclusive Care for Elders (PACE)—a model of care begun in San Francisco in the 1970s that is now a national network offering services to elderly Medicare and Medicaid beneficiaries—and it is the only PACE program to be affiliated with a school of nursing, the University of Pennsylvania's. (See the websites of LIFE [www.lifeupenn.org]

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and PACE [www.npaonline.org] for more information.) And because PACE programs receive capitated payments—per member, rather than per service provided—from government and private insurers, LIFE is both provider and payer for specific services, said Mary Austin, MSN, RN, NHA, LIFE's chief nursing officer and chief operating officer. "If members go to the hospital or a nursing home, we pay for all of that care as well," she said. The team makes all care decisions, including some that might seem unconventional, such as buying an air conditioner for a member with asthma.

Despite potential financial barriers—some might deem the $2 million required to start a PACE program prohibitive, and some private insurers do not cover PACE services—LIFE is fiscally sound. "We operate on a shoestring, to a degree. But we operate responsibly, and we get the money we need to run the program," said Eileen M. Sullivan-Marx, PhD, RN, FAAN, associate dean for practice and community affairs at the University of Pennsylvania School of Nursing. She also said that the state saves 15 cents on every dollar spent on LIFE members who would otherwise be in nursing homes. The program makes up about 41 percent of the nursing school's operating budget (Sullivan-Marx et al., 2009).

Ms. Mashore is quite clear that the program has strengthened her ability to care for herself. When a nurse suggested that she not use her electric wheelchair because using a manual one would strengthen her arms, Ms. Mashore was angry at first. "But I see what she's saying," Ms. Mashore said. "My arms are very strong. I pull my own self up in the bed. I can do things that I couldn't do when I was in the nursing home."

In acute care settings, care coordination is showing particular promise in efforts to reduce rehospitalizations. All 15 demonstration program sites under the Medicare Coordinated Care Demonstration program, for example, adopted interventions that relied on nurses as care coordinators (Peikes et al., 2009). Box 2-6 provides an in-depth look at the Transitional Care Model, developed by nursing researcher Mary Naylor. This model was designed to facilitate patients' transitions within and across settings and to break the cycle of acute flare-ups of chronic illness. The protocol goes beyond usual case management and home care by employing an APRN who is proficient in comprehensive in-hospital assessment, evaluation of medications, coordination of complex care, and in-home follow-up. By collaborating with the patient, family caregivers, specialists, primary care providers, and others, this nurse works to improve the management of multiple complex chronic conditions and thus reduce readmissions.

The Need for Reconceptualized Roles for Health Professionals

Many of the roles health professionals are being called upon to fill in the evolving U.S. health care system are not technically new. Nurses, physicians, and pharmacists, for example, have educated patients, helped coordinate care, and collaborated with other clinicians for decades. What is new is the extent and the centrality of these roles. Previous IOM studies have found that systemwide changes are necessary to meet higher standards for quality care, the growing requirements of an aging population, and the need to deliver more care in the community setting. *Crossing the Quality Chasm* introduced the idea of the advisability of expanding the scope of practice for many health workers (IOM, 2001). *Retooling for an Aging America* advised that meeting the needs of the growing geriatric population would require expanding the roles of health professionals "beyond the traditional scope of practice" (IOM, 2008).

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BOX 2-6
The Transitional Care Model

EASING TRANSITIONS, FOSTERING FREEDOM: THE TRANSITIONAL CARE MODEL "SPEAKS TO WHAT NURSES REALLY DO"

We have not, as a health care system, figured out how best to respond to the needs of people with multiple chronic conditions. The Transitional Care Model is one approach to change the system to be more responsive to their needs.
—Mary D. Naylor, PhD, RN, FAAN, developer of the TCM

Mary Manley was accustomed to her independence. Having lived for many years on her own in North Philadelphia, worked until age 74, and cared for her infant great-granddaughter in her early 80s, she was undaunted by a diagnosis of diabetes in late 2007. "I didn't have to go to doctors too much," she said. "I was perfectly healthy, doing anything I wanted to do—"until 2009, that is, when 'the sickness' came."

"The sickness" was, in fact, many chronic conditions (among them hypertension, mild cognitive impairment, coronary artery disease, and chronic obstructive pulmonary disease) and two life-threatening acute conditions. The latter conditions—pneumonia and pancolitis, an intestinal inflammation caused by *Clostridium difficile*, a "superbug" that is often resistant to treatment—required hospitalization.

Ms. Manley received vancomycin intravenously for the *C. difficile* for two weeks as an inpatient. She was discharged on a Thursday afternoon with a prescription for oral vancomycin that her niece dropped off at a neighborhood pharmacy. But on Friday the pharmacy claimed not to have received the order and refused to dispense the drug.

While hospitalized, Ms. Manley had met a transitional care nurse, Ellen McPartland, MSN, APRN, BC, who made a home visit on Friday. When she heard about the potentially grave delay in antibiotic therapy, she called the pharmacy immediately, demanding to speak with a supervisor. The pharmacy dispensed enough medication to get Ms. Manley through the weekend at home until the full amount could be obtained on Monday—an outcome that prevented immediate rehospitalization and may have saved Ms. Manley's life.

According to a recent study, 20 percent of hospitalized Medicare beneficiaries are readmitted within 30 days of discharge and 34 percent within 90 days, at an estimated cost in 2004 of "$17.4 billion of the $102.6 billion in hospital payments from Medicare" (Jencks et al., 2009). Among innovations aimed at reducing rehospitalization rates, the Transitional Care Model (TCM) relies on an advanced practice registered nurse (APRN), like Ms. McPartland, who meets with the patient and family caregivers during a hospitalization to devise a plan for managing chronic illnesses (see www.transitionalcare.info).

But the model involves more than discharge planning and home care, said TCM developer Mary D. Naylor, PhD, RN, FAAN, a professor of gerontology and director of the NewCourtland Center for Transitions and Health at the University of Pennsylvania. The first step is for the APRN to help the patient and family set goals during hospitalization. The nurse identifies the reasons for the patient's instability, designs a plan of care that addresses them, and coordinates various care providers and services.

The APRN then visits the home within 48 hours of discharge and provides telephone and in-person support as often as needed for up to 3 months. Assessing and counseling patients and accompanying them to medical appointments are aimed at helping patients and caregivers to learn the early signs of an acute problem that might require immediate help and to better manage patients' health care. Also essential is ensuring the presence of a primary care provider. "Patients might have six or seven specialists, but nobody who's taking care of the big picture," Dr. Naylor said.

In three randomized controlled trials of Medicare beneficiaries with multiple chronic illnesses, use of the TCM lengthened the period between hospital discharge and readmission or death and resulted in a reduction in the number of rehospitalizations (Naylor, 1994; Naylor et al., 1999, 2004). The average annual savings was $5,000 per patient.

Until now, transitional care has not been covered by Medicare and private insurers. But the Affordable Care Act sets aside $500 million to fund pilot projects on transitional care services for "high-risk" Medicare beneficiaries (such as those with multiple chronic conditions and hospital readmissions) at certain hospitals and community organizations over a 5-year period. The secretary of the Department of Health

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and Human Services is authorized to remove the pilot status of this program if it demonstrates cost savings.

Now age 85, Ms. Manley takes eight medications regularly, and with the help of Ms. McPartland and a new primary care team is spending more time with family and attending church again. Said Ms. McPartland, "Of all the roles I have had in nursing, this brings it all together. To see them going from so sick to back home and stable—the Transitional Care Model speaks to what nurses really do."

In light of these considerations, the committee concludes that nurses, in concert with other health professionals, need to adopt reconceptualized roles as care coordinators, health coaches, and system innovators. This chapter has already provided examples of nurses working as care coordinators; the following subsections elaborate on what the committee means by health coaches and system innovators. Filling these roles, whether in entry-level nursing or advanced practice, will require that nurses receive greater education and preparation in leadership, care management, quality improvement processes, and systems thinking—a subject discussed in Chapter 4.

Nurses as Health Coaches

The committee envisions a health care system in which all individuals have a health coach who helps stay them healthy. The coach ensures that they understand why their primary care provider—whether a physician, physician assistant, or NP—has recommended a particular course of treatment. He/she coordinates patients' care with multiple providers so that, for example, an elderly grandfather with diabetes, arthritis, and heart disease can continue to live at home and avoid costly hospitalizations. The role of health coach has much in common with case management services, but it goes even further. The coach educates family, friends, and other informal caregivers about how they can help, addressing not just physical needs but also social, environmental, mental, and emotional factors that may promote or interfere with the maintenance of health. The coach helps overcome features in the health care system that may lead to inequities in care delivery. He/she also stays involved with patients if they enter the hospital and coordinates transitional services with APRNs and other care providers after discharge. Given all these job requirements, the health coach most often will be an RN. Box 2-7 presents a case study in which baccalaureate-trained RNs serve as health coaches for women who are first-time mothers and may be at risk of abusing or neglecting their children.

Nurses as System Innovators[3]

One of the fundamental insights of the quality improvement movement is that all health professionals should both perform their current work well and continuously look for ways to make their performance and that of the larger system better. Or as one nurse told a physician 20 years ago in a course on health care improvement, "I see. You're saying that I have two jobs: doing my job and making my job better" (Berwick, 2010).

[3] This section draws on a paper commissioned by the committee on "Preparing Nurses for Participation in and Leadership of Continual Improvement," by Donald M. Berwick, Institute for Healthcare Improvement (see Appendix I on CD-ROM).

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BOX 2-7
The Nurse–Family Partnership

NURSES VISIT THE HOMES OF FIRST-TIME AT-RISK MOTHERS, AND THE RESULTS ARE WIDE-RANGING

When [the Nurse–Family Partnership nurse] came along, I was really down and out. I wouldn't get out of the house at all. She's helped me to be strong, to know that I can actually make it by myself and be a very good mom.

—Crystalon Rodrigue, 21-year-old Louisiana client of the Nurse–Family Partnership

In 2007 Crystalon Rodrigue, a recent high school graduate living in St. James, Louisiana, had an adverse reaction to an injectable contraceptive. She discontinued it and soon got pregnant. She was 19 years old and unemployed and living with her mother, and her relationship with her boyfriend was faltering. She turned to the state department of health; was referred to the Nurse–Family Partnership (NFP); and met "Miss Tina," a nurse who visited her at home.

"In the beginning of my pregnancy, and maybe all throughout, I was a little stressed out," the 21-year-old Ms. Rodrigue said recently. "I was depressed because I was having relationship problems with my child's father. Miss Tina helped me...." Ms. Rodrigue was interrupted by the chatter of her 19-month-old daughter, Nalayia, who was learning to read, her mother said with pride. Then she continued, "Miss Tina helped me to think about myself."

It was a quiet, almost offhand remark, but it represents the kind of shift in attitude that the NFP has helped foster among young women for more than 30 years. Now active in 375 counties in 29 states, the NFP sends registered nurses (RNs), usually with baccalaureate degrees, into the homes of at-risk, low-income, first-time mothers for 64 planned visits over the course of a pregnancy and the child's first 2 years.

Improving the lives of children is the chief aim of the NFP, yet the interventions target mothers. The nurse discusses options for the mother's continued education and economic self-sufficiency; supports her in reducing or quitting smoking or drinking; teaches her about child development, nonviolent discipline, and breastfeeding; and helps her make decisions about family planning. The nurse does this by engaging the mother in a relationship that provides a model for interactions with others. The child's father and other family members are encouraged to participate.

"We don't look for the great big change," said Luwana Marts, BSN, RN, regional nurse consultant for the NFP in Louisiana. "A part of the model is that only a small change is necessary. So if a client never quits smoking but she doesn't smoke in the presence of her child, that's a plus."

In case-controlled, longitudinal trials conducted among racially and ethnically diverse populations—beginning in 1977 in Elmira, New York, and continuing in Memphis, Tennessee, and Denver, Colorado—the NFP has shown reductions in unintended second pregnancies and increases in mothers' employment. Children of mothers visited by nurses are less likely to be abused and by age 15 to be arrested. (For links to these and other studies of the NFP, visit www.nursefamilypartnership.org/proven-results/published-research.) The per-child cost is $9,118; for the highest-risk children, a return of $5.70 per dollar spent is realized (Karoly et al., 2005).

Several models of home visitation are in use, but the NFP relies on trained RNs for its interventions. A 2002 study compared home visits by untrained "paraprofessionals" and nurses. On almost all measures, the nurses produced far stronger outcomes (Olds et al., 2002). "People trust nurses," said Ruth A. O'Brien, PhD, RN, FAAN, professor of nursing at the University of Colorado in Denver and an author of the study. "Low-income, minority people who have not had a lot of trust in the health care system might be willing to let a nurse in the door."

Barriers to implementation include the fact that states use various sources to fund the NFP, and in some the funding is limited. The Affordable Care Act mandates that $1.5 billion be spent over 5 years on home visitation programs for at-risk mothers and infants—substantially less than the $8.5 billion over 10 years that President Obama requested in his 2010 budget (OMB, 2010). While the act establishes a federal agency to oversee such home visitation programs, it does not specify that nurses provide the care. Also, some municipalities increase the nurse's caseload beyond the recommended 25, diminishing the intensity and effectiveness of the interventions.

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For her part, Ms. Rodrigue is looking ahead. She had completed a certified nursing assistant program while pregnant and will soon start nursing school, in which she had enrolled but quit shortly after high school. "I wasn't ready for it," she said. "But now I have a child and I know what to expect. I feel like I'm ready. I want to better myself."

Patient Protection and Affordable Care Act, HR 3590 § 2951, 111th Congress.

The nursing profession is well positioned to produce system innovators. A few years ago, the Institute for Healthcare Improvement (IHI) launched a national project to reduce patient injuries, called the "100,000 Lives Campaign." The project translated the aims of safety and effectiveness into operational form as "bundles" of care procedures (Berwick et al., 2006; McCannon et al., 2006), such as the Central Line Bundle to prevent catheter-associated bloodstream infections. Hundreds of hospitals reported success in terms of improved patient outcomes. Recurrent patterns of success included actively engaged nurses supported in standardizing their own processes of care according to the IHI bundles and empowered and supported in monitoring and enforcing those standards across disciplines, including with their physician colleagues (Berwick et al., 2006). Encouraged to innovate locally to adapt changes to local contexts, nurses proved the ideal leaders for changing care systems and raising the bar on results.

One new role for nurses that taps their potential as innovators is the clinical nurse leader (CNL), an advanced generalist clinician role designed to improve clinical and cost outcomes for specific groups of patients. Responsible for coordinating care and in some cases actively providing direct care in complex situations, the CNL has the responsibility for translating and pplying research findings to design, implement, and evaluate care plans for patients (AACN, 2007). This new role has been adopted by the VA system.

The Need for Interprofessional Collaboration

The need for greater interprofessional collaboration has been emphasized since the 1970s. Studies have documented, for example, the extent to which poor communication and lack of respect between physicians and nurses lead to harmful outcomes for patients (Rosenstein and O'Daniel, 2005; Zwarenstein et al., 2009). Conversely, a growing body of evidence links effective teams to better patient outcomes and more efficient use of resources (Bosch et al., 2009; Lemieux-Charles and McGuire, 2006; Zwarenstein et al., 2009), while good working relationships between physicians and nurses have been cited as a factor in improving the retention of nurses in hospitals (Kovner et al., 2007). As the delivery of care becomes more complex across a wide range of settings, and the need to coordinate care among multiple providers becomes ever more important, developing well-functioning teams becomes a crucial objective throughout the health care system.

Differing professional perspectives—with attendant differences in training and philosophy—can be beneficial. Nurses are taught to treat the patient not only from a disease management perspective but also from psychosocial, spiritual, and family and community perspectives. Physicians are experts in physiology, disease pathways, and treatment. Social workers are trained in family dynamics. Occupational and physical therapists focus on improving the patient's functional capacity. Licensed practical nurses provide a deeply ground-level perspective, given their routine of measuring vital signs and assisting patients in feeding, bathing, and movement.

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All these perspectives can enhance patients' well-being—provided the various professionals keep the patient and family at the center of their attention.

Finding the right balance of skills and professional expertise is important under the best of circumstances; in a time of increasing financial constraints, personnel shortages, and the growing need to provide care across multiple settings, it is crucial. Care teams need to make the best use of each member's education, skill, and expertise, and all health professionals need to practice to the full extent of their license and education. Where the competency and skills of doctors and nurses safely overlap, it makes sense to rely on nurses to provide many of those services. Similarly, where the competency and skills of RNs and licensed practical or vocational nurses safely overlap, it makes sense to rely on the latter—or as the case may be, nurses' aides—to provide many of those services. In this way, more specialized skills and competencies are appropriately reserved for the most complex needs. This type of skill balancing should not, however, be used as a means of cutting costs by indiscriminately replacing more skilled with less skilled clinicians.

CONCLUSIONS

Nurses are well positioned to help meet the evolving needs of the health care system. They have vital roles to play in achieving patient-centered care; strengthening primary care services; delivering more care in the community; and providing seamless, coordinated care. They also can take on reconceptualized roles as health care coaches and system innovators. In all of these ways, nurses can contribute to a reformed health care system that provides safe, patient-centered, accessible, affordable care. Their ability to make these contributions, however, will depend on a transformation of nursing practice, education, and leadership, as discussed in Chapters 3, 4, and 5, respectively. Nurses must remodel the way they practice and make clinical decisions. They must rethink the ways in which they teach nurses how to care for people. They must rise to the challenge of providing leadership in rapidly changing care settings and in an evolving health care system. In short, nurses must expand their vision of what it means to be a nursing professional. At the same time, society must amend outdated regulations, attitudes, policies, and habits that unnecessarily restrict the innovative contributions the nursing profession can bring to health care.

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The Future of Nursing: Leading Change, Advancing Health
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Part II

A Fundamental Transformation of the Nursing Profession

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practice, professional resistance to expanded roles for nurses, fragmentation of the health care system, outdated insurance policies, high turnover rates among nurses, difficulties encountered in the transition from education to practice, and demographic challenges. The third section describes the new structures and opportunities made possible by the ACA, as well as through technology. The final section summarizes the committee's conclusions regarding the vital contributions of the nursing profession to the success of these initiatives as well as the overall transformation of the health care system, and what needs to be done to transform practice to ensure that this contribution is realized. Particular emphasis is placed on advanced practice registered nurses (APRNs), including their roles in chronic disease management and increased access to primary care, and the regulatory barriers preventing them from taking on these roles. This is not to say that general registered nurses (RNs) should not have the opportunity to improve their practice and take on new roles; the chapter also provides such examples.

THE IMPORTANCE OF TRANSFORMING NURSING PRACTICE TO IMPROVE CARE

As discussed in Chapter 2, the changing landscape of the health care system and the changing profile of the population require that the system undergo a fundamental shift to provide patient-centered care; deliver more primary as opposed to specialty care; deliver more care in the community rather than the acute care setting; provide seamless care; enable all health professionals to practice to the full extent of their education, training, and competencies; and foster interprofessional collaboration. Achieving such a shift will enable the health care system to provide higher-quality care, reduce errors, and increase safety. Providing care in this way and in these areas taps traditional strengths of the nursing profession. This chapter argues that nurses are so well poised to address these needs by virtue of their numbers, scientific knowledge, and adaptive capacity that the health care system should take advantage of the contributions they can make by assuming enhanced and reconceptualized roles.

Nursing is one of the most versatile occupations within the health care workforce.[1] In the 150 years since Florence Nightingale developed and promoted the concept of an educated workforce of caregivers for the sick, modern nursing has reinvented itself a number of times as health care has advanced and changed (Lynaugh, 2008). As a result of nursing's versatility and adaptive capacity, new career pathways for nurses have evolved, attracting a larger and more broadly talented applicant pool and leading to expanded scopes of practice and responsibilities for nurses. Nurses have been an enabling force for change in health care along many dimensions (Aiken et al., 2009). Among the many innovations that a versatile, adaptive, and well-educated nursing profession have helped make possible are:

- the evolution of the high-technology hospital,
- the possibility for physicians to combine office and hospital practice,
- lengths of hospital stay that are among the shortest in the world,
- reductions in the work hours of resident physicians to improve patient safety,
- expansion of national primary care capacity,
- improved access to care for the poor and for rural residents,

[1] This discussion draws on a paper commissioned by the committee on "Nursing Education Policy Priorities," prepared by Linda H. Aiken, University of Pennsylvania (see Appendix I on CD-ROM).

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- respite and palliative care, including hospice,
- care coordination for chronically ill and elderly people, and
- greater access to specialty care and focused consultation (e.g., incontinence consultation, home parenteral nutrition services, and sleep apnea evaluations) that complement the care of physicians and other providers.

With every passing decade, nursing has become an increasingly integral part of health care services, so that a future without large numbers of nurses is impossible to envision.

Nurses and Access to Primary Care

Given current concerns about a shortage of primary care health professionals, the committee paid particular attention to the role of nurses, especially APRNs,[2] in this area. Today, nurse practitioners (NPs), together with physicians and physician assistants, provide most of the primary care in the United States. Physicians account for 287,000 primary care providers, NPs for 83,000, and physician assistants for 23,000 (HRSA, 2008; Steinwald, 2008). While the numbers of NPs and physician assistants are steadily increasing, the numbers of medical students and residents entering primary care have declined in recent years (Naylor and Kurtzman, 2010). The demand to build the primary care workforce, including APRNs, will grow as access to coverage, service settings, and services increases under the ACA. While NPs make up slightly less than a quarter of the country's primary care professionals (Bodenheimer and Pham, 2010), it is a group that has grown in recent years and has the potential to grow further at a relatively rapid pace.

The Robert Wood Johnson Foundation (RWJF) Nursing Research Network commissioned Kevin Stange, University of Michigan, and Deborah Sampson, Boston College, to provide information on the variation in numbers of NPs across the United States. Figures 3-1 and 3-2, respectively, plot the provider-to-primary care physician ratio for NPs and physician assistants by county for 2009.[3] The total is calculated as the population-weighted average for states with available data. Between 1995 and 2009, the number of NPs per primary care MD more than doubled, from 0.23 to 0.48, as did the number of physician assistants per primary care MD (0.12 to 0.28) (RWJF, 2010c). These figures suggest that it is possible increase the supply of both NPs and PAs in a relatively short amount of time, helping to meet the increased demand for care.

[2] APRNs include nurse practitioners (NPs), certified nurse midwives (CNMs), clinical nurse specialists (CNSs), and certified registered nurse anesthetists (CRNAs). When the committee refers to NPs, the term denotes only NPs.
[3] To get a sense of the size and proportion of the NP workforce across the country, Stange and Sampson computed the ratio between the total number of licensed nurse practitioner and the total number of primary care MDs, Pas, and NPs in a given area. PA share is defined similarly. This computation is for proportion and growth analysis only; it is not to suggest that all NPs or PAs are providing primary care.

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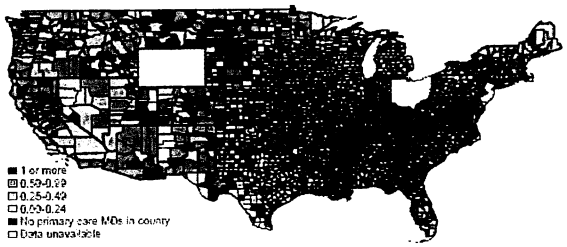

FIGURE 3-1 Map of the number of NPs per primary care MD by county, 2009.
SOURCE: RWJF, 2010a. Reprinted with permission from Lori Melichar, RWJF.

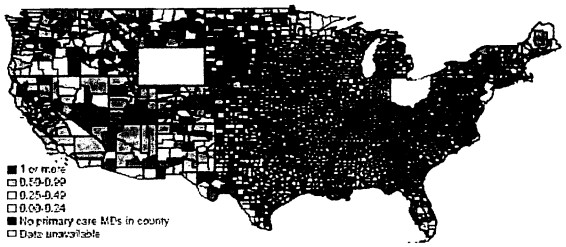

FIGURE 3-2 Map of the number of physician assistants per primary care MD by county, 2009.
SOURCE: RWJF, 2010b. Reprinted with permission from Lori Melichar, RWJF.

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In addition to the numbers of primary care providers available across the United States and where specifically they practice, it is worth noting the kind of care being provided by each of the primary care provider groups. According to the complexity-of-care data shown in Table 3-1, the degree of variation among primary care providers is relatively small. Much of the practice of primary care—whether provided by physicians, NPs, physician assistants, or certified nurse midwives (CNMs)—is of low to moderate complexity.

TABLE 3-1 Complexity of Evaluation and Management Services Provided Under Medicare Claims Data for 2000, by Practitioner Type

Practitioner Type	Low Complexity (%)	Moderate Complexity (%)	High Complexity (%)
Primary care physician	55	34	11
Nurse practitioner	57	35	9
Physician assistant	59	34	7
Certified nurse midwife	77	19	4

NOTES: For evaluation and management services, low-complexity services are defined as those requiring straightforward or low-complexity decision making; moderate-complexity services are those defined as requiring a moderate level of decision making; and high-complexity services are defined as those requiring a high level of decision making.
SOURCE: Chapman et al., 2010. Copyright © 2010 by the authors. Reprinted by permission of SAGE Publications.

Nurses and Quality of Care

Beyond the issue of pure numbers of practitioners, a promising field of evidence links nursing care to a higher quality of care for patients, including protecting their safety. According to Mary Naylor, director of The Robert Wood Johnson Foundation's Interdisciplinary Nursing Quality Research Initiative (INQRI), "Several INQRI-funded research teams have provided examples of this link. Nurses are crucial in preventing medication errors, reducing rates of infection and even facilitating patients' transition from hospital to home."[4]

INQRI researchers at The Johns Hopkins University have found that substantial reductions in central line–associated blood stream infections can be achieved with nurses leading the infection control effort. Hospitals that adopted INQRI's intensive care unit (ICU) safety program as well as an environment that supported nurse's involvement in quality improvement efforts reduced or eliminated bloodstream infections (INQRI, 2010b; Marsteller et al., 2010).

Other INQRI researcher linked a core cluster of nurse safety processes to fewer medication errors. These safety processes include asking physicians to clarify or rewrite unclear orders, independently reconciling patient medications, and providing patient education. A positive work environment was also important. This included having more RNs per patient, a supportive management structure, and collaborative relationships between nurses and physicians (Flynn et al., 2010; INQRI, 2010a).

[4] Personal communication, Mary Naylor, Marian S. Ware Professor in Gerontology, Director of New Courtland Center for Transitions and Health, University of Pennsylvania School of Nursing, June 17, 2010.

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Examples of Redesigned Roles for Nurses

Many examples exist in which organizations have been redesigned to better utilize nurses, but their scale is small. As Marilyn Chow, Vice President of the Patient Services Program Office at Kaiser Permanente, declared at a public forum hosted by the committee, "The future is here, it is just not everywhere" (IOM, 2010b). For example, over the past 20 years, the U.S. Department of Veterans Affairs (VA) has expanded and reconceived the roles played by its nurses as part of a major restructuring of its health care system. The results with respect to quality, access, and value have been impressive. In addition, President Obama has lauded the Geisinger Health System of Pennsylvania, which provides comprehensive care to 2.6 million people at a greater value than is achieved by most other organizations (White House, 2009). Part of the reason Geisinger is so effective is that it has aligned the roles played by nurses to accord more closely with patients' needs, starting with its primary care sites and ambulatory areas. The following subsections summarize the experience of the VA and Geisinger, as well as Kaiser Permanente, in expanding and reconceptualizing the roles of nurses. Because these institutions also measured outcomes as part of their initiatives, they provide real-world evidence that such an approach is both possible and necessary. Of note in these examples is not only how nurses are collaborating with physicians, but also how nurses are collaborating with other nurses.

Department of Veterans Affairs[5]

In 1996, Congress greatly expanded the number of veterans eligible to receive VA services, which created a need for the system to operate more efficiently and effectively (VHA, 2003). Caring for the wounded from the wars in Afghanistan and Iraq has greatly increased demand on the VA system, particularly with respect to brain injuries and posttraumatic stress disorder. Moreover, the large cohort of World War II veterans means that almost 40 percent of veterans are aged 65 or older, compared with 13 percent of the general population (U.S. Census Bureau, 2010; VA, 2010).

Anticipating the challenges it would face, the VA began transforming itself in the 1990s from a hospital-based system into a health care system that is focused on primary care and it aims to provide more services, as appropriate, closer to the veteran's home or community (VHA, 2003, 2009). This strategy required better coordination of care and chronic disease management—a role that was filled by experienced front-line RNs. More NPs were hired as primary care providers, and the VA actively promoted a more collaborative professional culture by organizing primary care providers into health teams. It also developed a well-integrated information technology system to link its health professionals and its services.

The VA uses NPs as primary care providers to care for patients across all setting including inpatient and outpatient settings. In addition to their role as primary care providers, NPs serve as health care researchers who apply their findings to the variety of settings in which they practice. NPs serve as educators, some as university faculty, providing clinical experiences for 25 percent of all nursing students in the country. As health care leaders, VA NPs shape policy, facilitate access to VA health care, and impact resource management (VA, 2007).

[5] See http://www1.va.gov/health/.

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The results of the VA's initiatives using both front-line RNs and APRNs are impressive. Quality and outcome data consistently demonstrate superior results for the VA's approach (Asch et al., 2004; Jha et al., 2003; Kerr et al., 2004). One study found that VA patients received significantly better health care—based on various quality-of-care indicators[6]—than patients enrolled in Medicare's fee-for-service program. In some cases, the study showed, between 93 and 98 percent of VA patients received appropriate care in 2000; the highest score for comparable Medicare patients was 84 percent (Jha et al., 2003). In addition, the VA's spending per enrollee rose much more slowly than Medicare's, despite the 1996 expansion of the number of veterans who could access VA services. After adjusting for different mixes of population and demographics, the Congressional Budget Office (CBO) determined that the VA's spending per enrollee grew by 30 percent from 1999 to 2007, compared with 80 percent for Medicare over the same period.

Geisinger Health System[7]

The Geisinger Health System employs 800 physicians, 1,900 nurses, and more than 1,000 NPs, physician assistants, and pharmacists. Over the past 18 years, Geisinger has transformed itself from a high-cost medical facility to one that provides high value—all while improving quality. It has borrowed several restructuring concepts from the manufacturing world with an eye to redesigning care by focusing on what it sees as the most critical determinant of quality and cost—actual caregiving. "What we're trying to do is to have [our staff] work up to the limit of their license and...see if redistributing caregiving work can increase quality and decrease cost," Glenn Steele, Geisinger's president and CEO, said in a June 2010 interview (Dentzer, 2010).

Numerous improvements in the quality of care, as well as effective innovations proposed by employees, have resulted. For example, the nurses who used to coordinate care and provide advice through the telephone center under Geisinger's health plan suspected that they would be more effective if they could build relationships with patients and meet them at least a few times face to face. Accordingly, some highly experienced general-practice nurses moved from the call centers to primary care sites to meet with patients and their families. The nurses used a predictive model to identify who might need to go to the hospital and worked with patients and their families on creating a care plan. Later, when patients or families received a call from a nurse, they knew who that person was. The program has worked so well that nurse coordinators are now being used in both Geisinger's Medicare plan and its commercial plan.[8] Some of the nation's largest for-profit insurance companies, including WellPoint and Cigna, are now trying out the approach of employing more nurses to better coordinate their patients' care (Abelson, 2010). As a result, an innovation that emerged when a few nurses at Geisinger took the initiative and changed an already well-established program to deliver more truly patient-centered care may now spread well beyond Pennsylvania. Geisinger was also one of the very first health systems in

[6] Quality-of-care indicators included those in preventive care (mammography, influenza vaccination, pneumococcal vaccination, colorectal cancer screening, cervical cancer screening), outpatient care (care for diabetes [e.g., lipid screening], hypertension [e.g., blood-pressure goal <140/90 mm Hg], depression [annual screening]), and inpatient care (acute myocardial infarction [e.g., aspirin within 24 hr of myocardial infarction], congestive heart failure [e.g., ejection fraction checked]).

[7] See http://www.geisinger.org/about/index.html.

[8] Personal communication, Bruce H. Hamory, Executive Vice President and Chief Medical Officer Emeritus, Geisinger Health System, April 27, 2010.

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the country to create its own NP-staffed convenient care clinics[9]—another innovation that reflects the organization's commitment to providing integrated, patient-centered care throughout its community.

Kaiser Permanente[10,11]

As one of the largest not-for-profit health plans, Kaiser Permanente provides health care services for more than 8.6 million members, with an employee base of approximately 165,000. Kaiser Permanente has facilities in nine states and the District of Columbia, and has 35 medical centers and 454 medical offices. The system provides prepaid health plans that have an emphasis on prevention and consolidated services that keep as many services as possible in one location (KP, 2010). Kaiser is also at the forefront of experimenting with reconceptualized roles for nurses that are improving quality, satisfying patients, and making a difference to the organization's bottom line.

Nurses in San Diego have taken the lead in overseeing the process for patient discharge, making it more streamlined and efficient and much more effective. Discharge nurses now have full authority over the entire discharge process until home health nurses, including those in hospice and palliative care, step in to take over the patient's care. They have created efficiencies relative to previous processes by using time-sensitive, prioritized lists of only those patients who are being discharged over the next 48 hours (instead of patients who are being discharged weeks into the future). Home health care nurses and discharge planners stay in close contact with one another on a daily basis to make quick decisions about patient needs, including the need for home health care visitation. In just 3 months, the number of patients who saw a home health care provider within 24 hours increased from 44 to 77 percent (Labor Management Partnership, 2010).

In 2003, Riverside Medical Center implemented the Riverside Proactive Health Management Program (RiPHM)™, an integrated, systematic approach to health care management that promotes prevention and wellness and coordinates interventions for patients with chronic conditions. The model strengthens the patient-centered medical home concept and identifies members of the health care team (HCT)—a multidisciplinary group whose staff is centrally directed and physically located in small units within the medical office building. The team serves panel management and comprehensive outreach and inreach functions to support primary care physicians and proactively manage the care of members with chronic conditions such as diabetes, hypertension, cardiovascular disease, asthma, osteoporosis, and depression. The expanded role of nurses as key members of the HCT is a major factor in RiPHM's success. Primary care management nurse clinic RNs and licensed practical nurses (LPNs) provide health care coaching and education for patients to promote self-management of their chronic conditions through face-to-face education visits and telephone follow-up. Using evidence-based clinical guidelines, such as diabetes and hypertension treat-to-target algorithms, nurses play important roles in the promotion of changes in chronic conditions and lifestyles, coaching and counseling, self-monitoring and goal setting, depression screening, and the use of advanced technology such as interactive voice recognition for patient outreach.

[9] Personal communication, Tine Hansen-Turton, CEO, National Nursing Centers Consortium, and Vice President, Public Health Management Corporation, August 11, 2010.
[10] See https://members.kaiserpermanente.org/kpweb/aboutus.do.
[11] Personal communication, Marilyn Chow, Vice President, Patient Care Services, Program Office, Kaiser Permanente, August 23, 2010.

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Through this model of care, nurses and pharmacists have become skilled users of health information technology to strengthen the primary care–based, patient-centered medical home. Nurses use disease management registries to work with assigned primary care physicians, and review clinical information that addresses care gaps and evaluate treatment plans. RiPHM has provided a strong foundation for the patient-centered medical home. By implementing this program and expanding the role of nurses, Riverside has sustained continuous improvement in key quality indicators for patient care.

Guided care is a new model for chronic care that was recently introduced within the Kaiser system. Guided care is intended to provide, within a primary care setting, quality care to patients with complex needs and multiple chronic conditions. An RN, who assists three to four physicians, receives training in areas such as the use of an electronic health record (EHR), interviewing, and the particulars of health insurance coverage. RNs are also provided skills in managing chronic conditions, providing transitional care, and working with families and community organizations (Boult et al., 2008).

The nurse providing guided care nurse offers eight services: assessment; planning care; monitoring; coaching; chronic disease self-management; educating and supporting caregivers; coordinating transitions between providers and sites of care; and facilitating access to community services, such as Meals-on-Wheels, transportation services, and senior centers. Results of a pilot study comparing surveys of patients who received guided care and those who received usual care revealed improved quality of care and lower health care costs (according to insurance claims) for guided care patients (Boult et al., 2008).

Summary

The VA, Geisinger, and Kaiser Permanente are large integrated care systems that may be better positioned than others to invest in the coordination, education, and assessment provided by their nurses, but their results speak for themselves. If the United States is to achieve the necessary transformation of its health care system, the evidence points to the importance of relying on nurses in enhanced and reconceptualized roles. This does not necessarily mean that large regional corporations or vertically integrated care systems are the answer. It does mean that innovative, high-value solutions must be developed that are sustainable, easily adopted in other locations, and rapidly adaptable to different circumstances. A website on "Innovative Care Models" illustrates that many other solutions have been identified in other types of systems.[12] As patients, employers, insurers, and governments become more aware of the benefits offered by nurses, they may also begin demanding that health care providers restructure their services around the contributions that a transformed nursing workforce can make. As discussed later in the chapter, the committee believes there will be numerous opportunities for nurses to help develop and implement care innovations and assume leadership roles in accountable care organizations and medical homes as a way of providing access to care for more Americans. As the next section describes, however, it will first be necessary to acknowledge the barriers that prevent nurses from practicing to the full extent of their education and training, as well as to generate the political will on the part of policy makers to remove these barriers.

[12] See http://www.innovativecaremodels.com/ and http://www.rwjf.org/reports/grr/057241.htm.

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BARRIERS TO TRANSFORMING PRACTICE

Nurses have great potential to lead innovative strategies to improve the health care system. As discussed in this section, however, a variety of historical, regulatory, and policy barriers have limited nurses' ability to contribute to widespread transformation (Kimball and O'Neil, 2002). This is true of all RNs, including those practicing in acute care and public and community health settings, but is most notable for APRNs in primary care. Other barriers include professional resistance to expanded roles for nurses, fragmentation of the health care system, outdated insurance policies, high rates of nurse turnover, difficulties for nurses transitioning from school into practice, and an aging workforce and other demographic challenges. Many of these barriers have developed as a result of structural flaws in the U.S. health care system; others reflect limitations of the present work environment or the capacity and demographic makeup of the nursing workforce itself.

Regulatory Barriers

As the committee considered how the additional 32 million people covered by health insurance under the ACA would receive care in the coming years, it identified as a serious barrier overly restrictive scope-of-practice regulations for APRNs that vary by state. Scope-of-practice issues are of concern for CNMs, certified registered nurse anesthetists (CRNAs), NPs, and clinical nurse specialists (CNSs). The committee understands that physicians are highly trained and skilled providers and believes strongly that there clearly are services that should be provided by these health professionals, who have received more extensive and specialized education and training than APRNs. However, regulations in many states result in APRNs not being able to give care they were trained to provide. The committee believes all health professionals should practice to the full extent of their education and training so that more patients may benefit.

History of the Regulation of the Health Professions

A paper commissioned by the committee[13] points out that the United States was one of the first countries to regulate health care providers and that this regulation occurred at the state—not the federal—level. Legislatively, physician practice was recognized before any other health profession (Rostant and Cady, 2009). Legislators in Washington, for example, defined the practice of medicine broadly as, for example, any action to "diagnose, cure, advise or prescribe for any human disease, ailment, injury, infirmity, deformity, pain or other condition, physical or mental, real or imaginary, by any means or instrumentality" or to administer or prescribe "drugs or medicinal preparations to be used by any other person" or to "[sever or penetrate] the tissues of human beings."[14] Even more important were corresponding provisions making it illegal for anyone not licensed as a physician to undertake any of the acts included in this definition. These provisions thereby rendered not only universal but (in medicine's own view) exclusive,[15] a

[13] This and the following paragraph draw on a paper commissioned by the committee on "Federal Options for Maximizing the Value of Advanced Practice Registered Nurses in Providing Quality, Cost-Effective Health Care," prepared by Barbara J. Safreit, Lewis & Clark Law School (see Appendix H on CD-ROM).
[14] *Washington Rev. Code* §18.71.011 (1)-(3) (1993).
[15] Sociologist Eliot Freidson has aptly characterized this statutory preemption as "the exclusive right to practice" (Freidson, 1970).

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preemption of the field that was further codified when physicians obtained statutory authority to control the activities of other health care providers.

Most APRNs are in the opposite situation. Because virtually all states still base their licensure frameworks on the persistent underlying principle that the practice of medicine encompasses both the ability and the legal authority to treat all possible human conditions, the scopes of practice for APRNs (and other health professionals) are exercises in legislative exception making, a "carving out" of small, politically achievable spheres of practice authority from the universal domain of medicine. As a result, APRNs' scopes of practice are so circumscribed that their competence extends far beyond their authority. At any point in their career, APRNs can do much more than they may legally do. As APRNs acquire new skills, they must seek administrative or statutory revision of their defined scopes of practice (a costly and often difficult enterprise).

As the health care system has grown over the past 40 years, the education and roles of APRNs have continually evolved so that nurses now enter the workplace willing and qualified to provide more services than they previously did. As the services supported by evolving education programs expanded, so did the overlap of practice boundaries of APRNs and physicians. APRNs are more than physician extenders or substitutes. They cover the care continuum from health promotion and disease prevention to early diagnosis to prevent or limit disability. These services are grounded in and shaped by their nursing education, with its particular ideology and professional identity. NPs also learn how to work with teams of providers, which is perhaps one of the most important factors in the successful care of chronically ill patients. Although they use skills traditionally residing in the realm of medicine, APRNs integrate a range of skills from several disciplines, including social work, nutrition, and physical therapy.

Almost 25 years ago, an analysis by the Office of Technology Assessment (OTA) indicated that NPs could safely and effectively provide more than 90 percent of pediatric primary care services and 75 percent of general primary care services, while CRNAs could provide 65 percent of anesthesia services. OTA concluded further that CNMs could be 98 percent as productive as obstetricians in providing maternity services (Office of Technology Assessment, 1986). APRNs also have competencies that include the knowledge to refer patients with complex problems to physicians, just as physicians refer patients who need services they are not trained to provide, such as medication counseling, developmental screening, or case management, to APRNs. As discussed in Chapter 1 and reviewed in Annex 1-1, APRNs provide services, in addition to primary care, in a wide range of areas, including neonatal care, acute care, geriatrics, community health, and psychiatric/mental health. Most NPs train in primary care; however, increasing numbers are being trained in acute care medicine and other specialty disciplines (Cooper, 1998).

The growing use of APRNs and physician assistants has helped ease access bottlenecks, reduce waiting times, increase patient satisfaction, and free physicians to handle more complex cases (Canadian Pediatric Society, 2000; Cunningham, 2010). This is true of APRNs in both primary and specialty care. In orthopedics, the use of physician assistants and APRNs is a long-standing practice. NPs and physician assistants in gastroenterology help meet the growing demand for colon cancer screenings in either outpatient suites or hospital endoscopy centers. Because physician assistants and APRNs in specialty practice typically collaborate closely with physicians, legal scope-of-practice issues pose limited obstacles in these settings.

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Variation in Nurse Practitioner Scope-of-Practice Regulations

Regulations that define scope-of-practice limitations vary widely by state. In some states, they are very detailed, while in others, they contain vague provisions that are open to interpretation (Cunningham, 2010). Some states have kept pace with the evolution of the health care system by changing their scope-of-practice regulations to allow NPs to see patients and prescribe medications without a physician's supervision or collaboration. However, the majority of state laws lag behind in this regard. As a result, what NPs are able to do once they graduate varies widely across the country for reasons that are related not to their ability, their education or training, or safety concerns (Lugo et al., 2007), but to the political decisions of the state in which they work. For example, one group of researchers found that 14 states plus the District of Columbia have regulations that allow NPs to see primary care patients without supervision by or required collaboration with a physician (see Figure 3-3). As with any other primary care providers, these NPs refer patients to a specialty provider if the care required extends beyond the scope of their education, training, and skills.

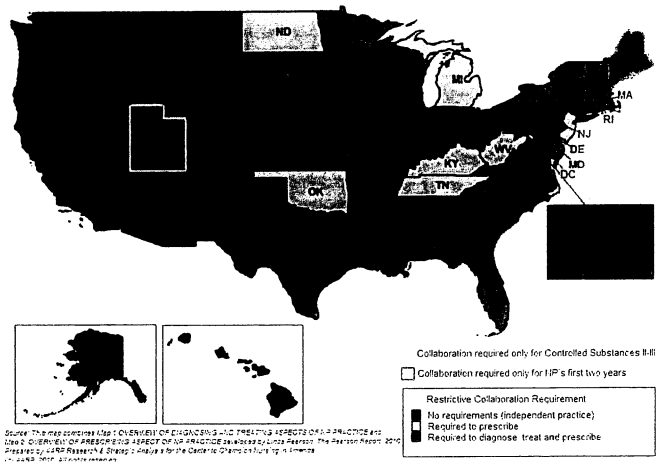

FIGURE 3-3 Requirements for physician–nurse collaboration, by state, as a barrier to access to primary care.
NOTE: Collaboration refers to a mutually agreed upon relationship between nurse and physician.
SOURCE: AARP, 2010b. Courtesy of AARP. All rights reserved.

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Other legal practice barriers include on-site physician oversight requirements, chart review requirements, and maximum collaboration ratios for physicians who collaborate with more than a single NP. See Safriet (2010, Appendix H on CD-ROM) for further discussion of inconsistencies in the regulation of NP practice at the state level.

There are fundamental contradictions in this situation. Educational standards—which the states recognize—support broader practice by all types of APRNs. National certification standards—which most states also recognize—likewise support broader practice by APRNs. Moreover, the contention that APRNs are less able than physicians to deliver care that is safe, effective, and efficient is not supported by the decades of research that has examined this question (Brown and Grimes, 1995; Fairman, 2008; Groth et al., 2010; Hatem et al., 2008; Hogan et al., 2010; Horrocks et al., 2002; Hughes et al., 2010; Laurant et al., 2004; Mundinger et al., 2000; Office of Technology Assessment, 1986). No studies suggest that care is better in states that have more restrictive scope-of-practice regulations for APRNs than in those that do not. Yet most states continue to restrict the practice of APRNs beyond what is warranted by either their education or their training.

Depending on the state, restrictions on an APRN's scope of practice may limit or prohibit the authority to prescribe medications, admit patients to hospitals, assess patient conditions, and order and evaluate tests. Box 3-1 provides an example of the variation in state licensure regulations, detailing examples of the services an APRN would not be permitted to provide if she practiced in a more restrictive state (Safriet, 2010). In addition to variations among states, the scope of practice for APRNs in some cases varies within a state by geographic location of the practice within the state or nature of the practice setting.

BOX 3-1*
Variation in State Licensure Regulations

There are several states that permit APRNs to provide a wide list of services, such as independently examining patients, ordering and interpreting laboratory and other tests, diagnosing and treating illness and injury, prescribing indicated drugs, ordering or referring for additional services, admitting and attending patients in a hospital or other facility, and directly receiving payment for services. However, in other states, those same APRNs would be prohibited from providing many of these services.

The following list provides examples of restrictions that APRNs face in states that have adopted more restrictive scope of practice regulations. The list is a compilation of restrictions found in these states and could greatly limit the ability of an APRN to use his or her preparation.

Examination and Certification

A nurse may not examine and certify for:

- worker's compensation;
- Department of motor vehicles (DMV) disability placards and license plates and other DMV testing;
- excusal from jury service;
- mass transit accommodation (reduced fares, access to special features);
- sports physicals (she may perform them, but cannot sign the forms);
- declaration of death;
- school physicals and forms, including the need for home-bound schooling;
- clinician order for life sustaining treatment (COLST), cardiopulmonary resuscitation (CPR), or do not resuscitate (DNR) directives;
- disability benefits;

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- birth certificates;
- marriage health rules;
- treatment in long-term-care facilities;
- involuntary commitment for alcohol and drug treatment;
- psychiatric emergency commitment;
- hospice care; or
- home-bound care (including signing the plan of care).

Referrals and Orders

A nurse may not refer for and order:

- diagnostic and laboratory tests (unless the task has been specifically delegated by protocol with a supervising physician),
- occupational therapy,
- physical therapy,
- respiratory therapy, or
- durable medical equipment or devices.

Examination and Treatment

A nurse may not:

- treat chronic pain (even at the direction of a supervising physician).
- examine a new patient, or a current patient with a major change in diagnosis or treatment plan, unless the patient is seen and examined by a supervising physician within a specified period of time.
- set a simple fracture or suture a laceration.
- perform:
  - cosmetic laser treatments or Botox injections,
  - first-term aspiration abortions,
  - sigmoidoscopies, or
  - admitting examinations for patients entering skilled nursing facilities.
- provide anesthesia services unless supervised by a physician, even if she has been trained as a certified registered nurse anesthetist.

Prescriptive Authority

A nurse may not:

- have his or her name on the label of a medication as prescriber.
- accept and dispense drug samples.
- prescribe:
  - some (or, in a few jurisdictions, any) scheduled drugs, and
  - some legend drugs.
- prescribe even those drugs that she is permitted to prescribe except as follows:
  - as included in patient–specific protocols;
  - with the co-signature of a collaborating or supervising physician;
  - if the drugs are included in a specific formulary or written protocol or practice agreement;
  - if a specified number or percentage of charts are reviewed by a collaborating or supervising physician within a specified time period;
  - if the physician is on site with the APRN for a specified percentage of time or number of hours per week or month;

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  - if the APRN is practicing in a limited number of satellite offices of the supervising physician;
  - if the prescription is only for a sufficient supply for 1 or 2 weeks, or provides no refills until the patient sees a physician;
  - if a prescribing/practice agreement is filed with the state board of nursing, board of medicine, and/or board of pharmacy, both annually and when the agreement is modified in any way;
  - pursuant to rules jointly promulgated by the boards named above; and
  - if the collaborating or supervising physician's name and Drug Enforcement Administration (DEA) number are also on the script.
- admit or attend patients in hospitals
  - if precluded from obtaining clinical privileges or inclusion in the medical staff,
  - if state rules require physician supervision of NPs in hospitals,
  - if medical staff bylaws interpret "clinical privileges" to exclude "admitting privileges," or
  - if hospital policies require a physician to have overall responsibility for each patient.

Compensation

A nurse may not be:

- empaneled as a primary care provider for Medicaid or Medicare Advantage managed care enrollees.
- included as a provider for covered services for Workers Compensation.
- paid only at differential rates (65, 75, or 85 percent of physician scale) by Medicaid, Medicare, or other payers and insurers.
- paid directly by Medicaid.
- certified as leading a patient-centered medical home or primary care home.
- paid for services unless supervised by a physician.

A nurse may:

- indirectly affect the eligibility of other providers for payment because
  - pharmacies cannot obtain payment from some private insurers unless the supervising or collaborating physician's name is on the script, and
  - hospitals cannot bill for APRNs' teaching or supervising of medical students and residents and advanced practice nursing students (as they can for physicians who provide those same services).

*This box draws on Safriet, 2010 (see Appendix H on CD-ROM).

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Current laws are hampering the ability of APRNs to contribute to innovative health care delivery solutions. Some NPs, for example, have left primary care to work as specialists in hospital settings (Cooper, 2007), although demand in those settings has also played a role in their movement. Others have left NP practice altogether to work as staff RNs. For example, restrictive state scope-of-practice regulations concerning NPs have limited expansion of retail clinics, where NPs provide a limited set of primary care services directly to patients (Rudavsky et al., 2009). Similarly, the roles of NPs in nurse-managed health centers and patient-centered medical homes can be hindered by dated state practice acts.

Credentialing and payment policies often are linked to state practice laws. A 2007 survey of the credentialing and reimbursement policies of 222 managed care organizations revealed that that 53 percent credentialed NPs as primary care providers; of these, 56 percent reimbursed primary care NPs at the same rate as primary care providers, and 38 percent reimbursed NPs at a lower rate (Hansen-Turton et al., 2008). Rationales stated by managed care staff for not credentialing NPs as primary care providers included the fact that NPs have to bill under a physician's provider number, NPs do not practice in physician shortage areas, NPs do not meet company criteria for primary care providers, state law does not require them to credential NPs, and the National Committee for Quality Assurance (NCQA) accreditation process prevents them from recognizing NPs as primary care provider leads in medical homes. As discussed above, some states require NPs to be supervised by physicians in order to prescribe medications, while others do not. In this survey, 71 percent of responding insurers credentialed NPs as primary care providers in states where there was no requirement for physicians to supervise NPs in prescribing medications. In states that required more physician involvement in NP prescribing, insurers were less likely to credential NPs. Of interest, this was the case even though the actual level of involvement by the physician may be the same in states where supervision is required as in states where it is not. Also of note is that Medicaid plans were more likely than any other category of insurer to credential NPs.

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Although there is a movement away from a fee-for-service system, Table 3-2 shows the current payment structure for those providing primary care.

TABLE 3-2 Medicare Claims Payment Structure by Provider Type

Provider	Office Services	Hospital Services	Incident to a Physician's Services[a]	Surgery Services	Medicare Provider ID	Direct Reimbursement
Physician	100% of physician fee	100% of physician fee	N/A	Usually receives a global fee	Own provider ID required	Physician or employer may be reimbursed directly
Nurse practitioner (NP)	85% of physician fee, 100% if billed "incident to"[a] in a physician's office or clinic using MD's provider ID	Usually salaried; nursing costs are part of hospital payment	100% of physician fee (must bill under the MD's provider ID)	Usually accounted for in surgeon's global fee	Own ID possible, but not required	NP or employer may be reimbursed directly
Certified nurse midwife (CNM)	65% of physician fee[b]		100% if billed "incident to" in a physician office or clinic using MD's provider ID	Usually accounted for in surgeon's global fee	Own ID possible, but not required	CNM or employer may be reimbursed directly
Physician assistant (PA)	Lesser of the actual charge or 85% of physician fee	Lesser of the actual charge or 75% of physician fee	100% if billed "incident to" in a physician office or clinic using MD's provider ID	Use assistant surgeon modifier	Own ID required	Only employer can be reimbursed directly

[a]"Incident to" is used by Medicare to denote cases in which work is performed under the direction and supervision of a physician. Criteria for "incident to" billing require that the physician be on site (in the suite of offices) at the time the service is performed, that the physician treat the patient on the patient's first visit to the office, and that the service be within the NP scope of practice in the state.
[b]CNM payment will increase to 100 percent of physician fee as of January 1, 2011.
SOURCE: Chapman et al., 2010. Copyright © 2010 by the authors. Reprinted by permission of SAGE Publications.

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The Federal Government and Regulatory Reform[16]

Precisely because many of the problems described in this report are the result of a patchwork of state regulatory regimes, the federal government is especially well situated to promote effective reforms by collecting and disseminating best practices from across the country and incentivizing their adoption. The federal government has a compelling interest in the regulatory environment for health care professions because of its responsibility to patients covered by federal programs such as Medicare, Medicaid, the VA, and the Bureau of Indian Affairs. Equally important, however, is the federal government's responsibility to all American taxpayers who fund the care provided under these and other programs to ensure that their tax dollars are spent efficiently and effectively. Federal actors already play a central role in a number of areas that would be essential to effective reform of nursing practice, especially that of APRNs. They pay for the majority of health care services delivered today, they pay for research on the safety and effectiveness of existing and innovative practice models and encourage their adoption, and they have a compelling interest in achieving more efficient and value-driven health care services. The federal government also appropriates substantial funds for the education and training of health care providers, and it has an understandable interest in ensuring that the ever-expanding skills and abilities acquired by graduates of these programs are fully utilized for the benefit of the American public.

Specifically, the Federal Trade Commission (FTC) has a long history of targeting anticompetitive conduct in health care markets, including restrictions on the business practices of health care providers, as well as policies that could act as a barrier to entry for new competitors in the market. The FTC has responded specifically to potential policies that might be viewed predominantly as guild protection rather than consumer protection, for example, taking antitrust actions against the American Medical Association (AMA) for policies restricting access to clinical psychologists to cases referred by a physician and for ethical prohibitions on collaborating with chiropractors, podiatrists, and osteopathic physicians. In 2008, the FTC evaluated proposed laws in Massachusetts, Illinois, and Kentucky, finding that several provisions could be considered anticompetitive, including limits on advertising, differential cost sharing, more stringent physician supervision requirements, restrictions on clinic locations and physical configurations or proximity to other commercial ventures, and limits on the scope of professional services that can be provided that are not applicable to professionals with similar credentials who practice in similar "limited care settings" (for example, urgent care centers) (DeSanti et al., 2010; Ohlhausen et al., 2007, 2008).

The FTC initiated an administrative complaint against the North Carolina Board of Dental Examiners in June 2010 (FTC, 2010). The Board had prohibited nondentists from providing teeth-whitening services. The FTC alleged that by doing this the Board had hindered competition and made it more difficult and costly for consumers in the state to obtain this service.

As a payer and administrator of health insurance coverage for federal employees, the Office of Personnel Management (OPM) and the Federal Employees Health Benefits (FEHB) Program have a responsibility to promote and ensure employee/subscriber access to the widest choice of competent, cost-effective health care providers. Principles of equity would suggest that this subscriber choice would be promoted by policies ensuring that full, evidence-based practice is permitted for all providers regardless of geographic location.

[16] This section is based on a September 11, 2010 personal communication with Barbara J. Safriet, Lewis & Clark Law School.

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Finally, the Centers for Medicare and Medicaid Services (CMS) has the responsibility to promulgate rules and policies that promote access of Medicare and Medicaid beneficiaries to appropriate care. CMS therefore should ensure that its rules and polices reflect the evolving practice abilities of licensed providers, rather than relying on dated definitions drafted at a time when physicians were the only authorized providers of a wide array of health care services.

Expanding Scopes of Practice for Nurses

For several decades, the trend in the United States has been toward expansion of scope-of-practice regulations for APRNs, but this shift has been incremental and variable. Most recently, the move to expand the legal authority of all APRNs to provide health care that accords with their education, training, and competencies appears to be gathering momentum. In 2008, after 5 years of study, debate, and negotiation, a group of nursing accreditation, certification, and licensing organizations, along with several APRN groups, developed a consensus model for the education, training, and regulation of APRNs (NCSBN, 2008a) (Appendix D). The stated goals of the APRN consensus process are to:

- "strive for harmony and common understanding in the APRN regulatory community that would continue to promote quality APRN education and practice;
- develop a vision for APRN regulation, including education, accreditation, certification, and licensure;
- establish a set of standards that protect the public, improve mobility, and improve access to safe, quality APRN care; and
- produce a written statement that reflects consensus on APRN regulatory issues" (NCSBN, 2008a).

The consensus document will help schools and programs across the United States standardize the education and preparation of APRNs. It will also help state regulators establish consistent practice acts because of education and certification standardization. And of importance, this document reflects the consensus of nursing organizations and leaders and accreditation and certification boards regarding the need to eliminate variations in scope-of-practice regulations across states and to adopt regulations that more fully recognize the competence of APRNs.

In March 2010, the board of directors of AARP concluded that statutory and regulatory barriers at the state and federal levels "are short-changing consumers." Acknowledging that nurses, particularly APRNs, can provide much of the care that Americans need and that barriers to their doing so must be lifted, the organization updated its policy on scope of practice. AARP states that "the policy change allows us to work together to ensure that our members and all health care consumers, especially in underserved settings such as urban and rural communities, have increased access to high quality care." The amended policy reads as follows:

> Current state nurse practice acts and accompanying rules should be interpreted and/or amended where necessary to allow APRNs to fully and independently practice as defined by their education and certification (AARP, 2010a).

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Meanwhile, after passage of the ACA, 28 states began considering expanding their scope-of-practice regulations for NPs (Johnson, 2010). Expanding the scope of practice for NPs is particularly important for the rural and frontier areas of the country. Twenty five percent of the U.S. population lives in these areas, however, only 10 percent of physicians practice in rural areas (NRHA, 2010). People who live in rural areas are generally poorer and have higher morbidity and mortality rates than their counterparts in suburban and urban settings and are in need of a reliable source of primary care providers (NRHA, 2010). The case study in Box 3-2, describing an NP in rural Iowa, demonstrates the benefits of a broad scope of practice with respect to the quality of and access to care.

BOX 3-2
Advanced Practice Registered Nurses

PROMOTING ACCESS TO CARE IN RURAL IOWA

A qualified health care professional is a terrible thing to waste.
—Cheryll Jones, BSN, ARNP, BC, CPNP, pediatric NP, Ottumwa, Iowa

The passage of the Affordable Care Act will give millions of Americans better access to primary care—if there are enough providers. The United States has a shortage of primary care physicians, especially in rural areas, but Alison Mitchell, president of Texas Nurse Practitioners, told the *Dallas Morning News* in April 2010 that nurse practitioners (NPs) are ready to step in: "We would be happy to help in the trenches and be primary care providers." Many states are considering ways to permit NPs to function in this capacity with fewer restrictions (AP, 2010).

In 2001, 23 percent of NPs in the United States worked in rural areas and almost 41 percent in urban communities, where most provided primary care services to underserved populations (Hooker and Berlin, 2002). The NP's scope of practice is governed by state laws and regulations that differ in their requirements for physician supervision and prescriptive authority—the ability to prescribe medications. In rural communities, NPs may be the only available primary care providers, and it is important that they be able to practice independently, if need be, although they value collaboration with physicians and other providers regardless of state authorization.

Iowa is one of 22 states where advanced practice registered nurse (APRNs)—NPs, certified nurse midwives, certified registered nurse anesthetists (CRNAs), and clinical nurse specialists—practice without physician oversight and one of 12 states that permit them to prescribe without restriction (Phillips, 2010). Iowa's APRNs must be nationally certified in their specialty; meet state requirements for continuing education; provide evidence of their education; and collaborate with a physician on "medically delegated tasks," such as circumcision and hospital admission. Several studies have shown that APRNs produce outcomes comparable to those of physicians and that the care they provide encompasses 80 to 90 percent of the services provided by physicians (Mundinger et al., 2000; Office of Technology Assessment, 1986).

One pediatric NP in Ottumwa, Iowa, has worked to remove barriers faced by APRNs for more than three decades. Cheryll Jones, BSN, ARNP, BC, CPNP, said that permitting all nurses to practice to the fullest extent of their education has been essential to improving access to care for rural Iowans. Iowa's gains have been realized largely through regulations rather than through incremental changes to the state's nurse practice act, as has been the case in other states. Ms. Jones attributes those successes to the diligence of Iowa nurses and others interested in promoting access to care, who:

- emphasized the issue of access to care for rural and disadvantaged populations;
- ensured that policy makers knew what APRNs do (Ms. Jones invited legislators to her clinic);
- promoted unity among Iowa nursing groups and with organizations such as the Iowa Hospital Association; and
- partnered with leaders, such as former Iowa governor Tom Vilsack (now U.S. secretary of agriculture), the first governor to opt out of Medicare's requirement that the state's CRNAs be supervised by physicians.

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Evidence that it is safe to remove restrictions on APRNs comes from an annual review of state laws and regulations governing APRNs that now includes malpractice claims in its analysis. The 2010 *Pearson Report* documents no increase in claims registered in the Healthcare Integrity and Protection Data Bank in states where APRNs have full authority to practice and prescribe independently (Lenz et al., 2004). The report also notes that the overall ratio of claims against NPs is 1 for every 166 NPs in the nation, compared with 1 for every 4 physicians (Pearson, 2010).

In June 2010 President Barack Obama addressed the House of Delegates of the American Nurses Association to announce "a number of investments to expand the primary care workforce." These included increased funding for NP students and for nurse- and NP-run clinics—two important steps, the President said, in "a larger effort to make our system work better for nurses and for doctors, and to improve the quality of care for patients" (White House, 2010).

Scope of Practice for non-APRN Nurses

Generalist nurses are expanding their practices across all settings to meet the needs of patients. Expansions include procedure-based skills (involving, for example, IVs and cardiac outputs), as well as clinical judgment skills (e.g., taking health histories and performing physical examinations to develop a plan of nursing care). According to Djukic and Kovner (2010), there has been "no formal examination of the impact of RN role expansion on care cost or on or physician and RN workload." The authors describe the expansion as a shifting of skills and activities, which in the long run, given the physician shortage, could free up physician resources, especially in long-term care, community health, and school-based health. On the other hand, given the projected nursing shortage, task shifting to overworked nurses could create unsafe patient care environments, especially in acute care hospitals. To avert this situation, nurses need to delegate to others, such as LPNs, nursing assistants, and community health workers, among others. A transformed nursing education system that is able to respond to changes in science and contextual factors, such as population demographics, will be able to incorporate needed new skills and support full scopes of practice for non-APRNs to meet the needs of patients (see Chapter 4).

Professional Resistance

Increasing access to care by expanding state scope-of-practice regulations so they accord with the education and competency of APRNs is a critical and controversial topic. Practice boundaries are constantly changing with the emergence of new technologies, evolving patient expectations, and workforce issues. Yet the movement to expand scopes of practice is not supported by some professional medical organizations. Professional tensions surrounding practice boundaries are not limited to nurses and physicians, but show a certain continuity across many disciplines. Psychiatrists and psychologists have been disagreeing about prescriptive privileges for more than two decades (Daly, 2007). In the dental field, one new role, the advanced dental hygiene practitioner, functions under a broadened scope similar to that of an APRN. The American Dental Association does not recognize this new type of practitioner as an independent clinician, but mandates that all dental teams be headed by a professional dentist (Fox, 2010). Likewise, physical therapists are challenging traditional scope-of-practice boundaries established by chiropractors (Huijbregts, 2007).

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Physician Challenges to Expanded Scope of Practice

The AMA has consistently issued resolutions, petitions, and position papers supporting opposition to state efforts to expand the scope of practice for professional groups other than physicians.[17] The AMA's Citizens Petition, submitted to the Health Care Financing Administration in June 2000, and the AMA-sponsored Scope of Practice Partnership (SOPP), announced in January 2006, both focused on opposing scope-of-practice expansion. The SOPP in particular, an alliance of the AMA and six medical specialty organizations, was an effort on the part of organized medicine to oppose boundary expansion and to defeat proposed legislation in several states to expand scope of practice for allied health care providers, including nurses (Croasdale, 2006; Cys, 2000).

The SOPP, with the assistance of a special full-time legislative attorney hired for the purpose, spearheaded several projects designed to obstruct expansion of scopes of practice for nurses and others. These projects included comparisons between the medical profession and specific allied health professions on education standards, certification programs, and disciplinary processes; development of evidence to discredit access-to-care arguments made by various allied health professionals, particularly in rural areas of a state; and identification of the locations of physicians by specialty to counter claims of a lack of physicians in certain areas (Cady, 2006). One of the policies pursued by the SOPP is the AMA's 2006 resolution H-35.988,[18] Independent Practice of Medicine by "Nurse Practitioners." This resolution opposes any legislation allowing the independent practice of medicine by individuals who have not completed state requirements to practice medicine.

The AMA has released a set of 10 documents for members of state medical associations to help them explain "to regulators and legislators the limitations in the education and training of non-physician providers" (AMA, 2009). One of these, The *AMA Scope of Practice Data Series: Nurse Practitioners,* uses the term "limited licensure health care providers." The document argues that these providers—NPs—seek scope-of practice expansions that may be harmful to the public (AMA, 2009). Other organizations, such as the American Society of Anesthesiologists and the American Association of Family Physicians (AAFP), have also issued statements that do not support nurses practicing to their fullest ability (ASA, 2004), although the AAFP supports nurses and physicians working together in collaborative teams (Phillips et al., 2001). The AAFP recently released a press packet—a "nurse practitioner information kit."[19] The kit includes a set of five papers and a new piece of legislation "clarifying" why NPs cannot substitute for physicians in primary care, although as Medicare and Medicaid data show, they already are doing so. There are also new guidelines on how to supervise CNMs, NPs, and physician assistants. The AAFP notes that its new proposed legislation, the Health Care Truth and Transparency Act of 2010, "ensures that patients receive accurate health care information by prohibiting misleading and deceptive advertising or representation of health care professionals' credentials and training." The legislation is also endorsed by 13 other physician groups.

[17] See for example, AMA. 2000. Res. H-360.988. "Nurse Practitioner Reimbursement Under Medicare"; AMA. 2000. H.D. Res. H-160.947, Physician Assistants and Nurse Practitioners."
[18] AMA. 2006. Res. H-35.988, "Independent Practice of Medicine by 'Nurse Practitioners.'"
[19] See http://www.aafp.org/online/en/home/media/kits/fp-np.html.

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Action has been taken at the state level as well. For example, in 2010, the California Medical Association (CMA) and the California Society of Anesthesiologists (CSA) sued the state of California after Governor Schwarzenegger decided to opt out of a Medicare provision requiring physician supervision of CRNAs (Sorbel, 2010). At the time of release of the committee's report, the case had not yet been heard.

Reasons for Physician Resistance

The CMA and CSA both cited patient safety as the reason for protesting the governor's decision—although evidence shows that CRNAs provide high-quality care to California citizens, there is no evidence of patient harm from their practice, and 14 other states have taken similar opt out actions (Sorbel, 2010). A study by Dulisse and Cromwell (2010), found no increase in inpatient mortality or complications in states that opted out of the CMS requirement that an anethsesiologist or surgeon oversee the administration of anesthesia by a CRNA. As noted earlier in this chapter, the contention that APRNs are less able than physicians to deliver care that is safe, effective, and efficient is not supported by research that has examined this question (Brown and Grimes, 1995; Fairman, 2008; Groth et al., 2010; Hatem et al., 2008; Hogan et al., 2010; Horrocks et al., 2002; Hughes et al., 2010; Laurant et al., 2004; Mundinger et al., 2000; Office of Technology Assessment, 1986).

Some physician organizations argue that nurses should not be allowed to expand their scope of practice, citing medicine's unique education, clinical knowledge, and cognitive and technical skills. Opposition to this expansion is particularly strong with regard to prescriptive practice. However, evidence does not support an association between a physician's type and length of preparation and the ability to prescribe correctly and accurately or the quality of care (Fairman, 2008). Similar questions have been raised about the content of nursing education (see the discussion of nursing curricula in Chapter 4).

Support for Expanded Scope of Practice for Nurse Practitioners

Some individual physicians support expanded scope of practice for NPs. The Robert Wood Johnson Foundation Nursing Research Network (described in Appendix A) conducted a survey of 100 physician members of the online physician site Sermo.com[20] and found that more than 50 percent of respondents agreed either somewhat or strongly that "allowing Nurse Practitioners to practice independently would increase access to primary care in the US" (RWJF, 2010e). As Figure 3-4 shows, however, physicians were more skeptical that expanding NPs' scope of practice in this way would decrease costs, and they feared a decrease in average quality of care provided to patients.

[20] Sermo.com respondents are all members of the online community sermo.com. Sermo.com members are distributed across age, gender, geography, and specialty groups in patterns that mimic those of the U.S. population. For this study, respondents were randomly recruited to participate in the IOM survey activity via e-mail; others were allowed to join the survey by volunteering when they visited the site. The majority of respondents have specialties in cardiology (6 percent), family medicine (35 percent), internal medicine (26 percent), and oncology (4 percent). The remaining physicians surveyed are distributed across a wide range of specialties.

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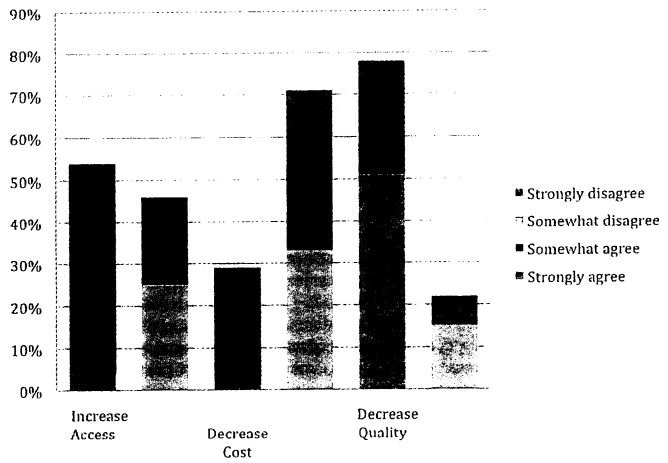

FIGURE 3-4 Physician opinions about the impact of allowing nurse practioners to practice independently.
SOURCE: RWJF, 2010d. Reprinted with permission from Lori Melichar, RWJF.

In addition to support for expanded scope of practice for NPs among some physicians, public support for NP practice is indicated by satisfaction ratings for retail-based health clinics. Approximately 95 percent of providers in these clinics are NPs, with the remaining 5 percent comprising physician assistants and some physicians.[21] According to a survey of U.S. adults by the Wall Street Journal.com/Harris Interactive (Harris Interactive, 2008), almost all respondents who had used a retail-based health clinic (313 total) were very or somewhat satisfied with the quality of care, cost, and staff qualifications (see Figure 3-5). Such public support can be backed up with high-quality clinical outcomes (Mehrotra et al., 2008).

[21] Personal communication, Tine Hansen-Turton, CEO, National Nursing Centers Consortium, and Vice President, Public Health Management Corporation, August 6, 2010.

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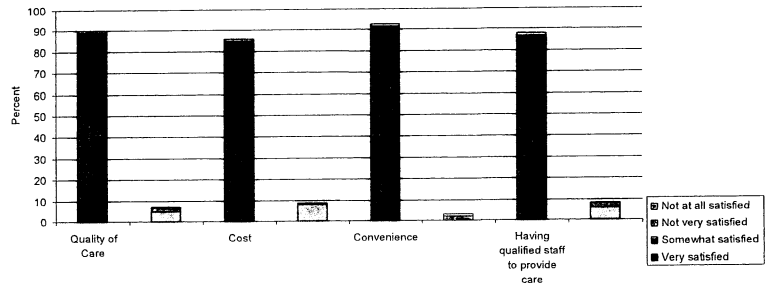

FIGURE 3-5 Patient satisfaction with retail-based health clinics.
NOTES: Question asked: Overall, how satisfied were you with your or your family member's experience using an onsite health clinic in a pharmacy or retail chain on the following items?
Percentages may not add up to 100 because of the small percentage not included here that chose "not sure."

Despite opposition by some physicians and specialty societies, the strong trend over the past 20 years has been a growing receptivity on the part of state legislatures to expanded scopes of practice for nurses. There simply are not enough primary care physicians to care for an aging population now, and their patient load will dramatically increase as more people gain access to care. For example, in 2007 Pennsylvania Governor Edward Rendell announced a blueprint for reform, known as Rx for PA, to promote access to care for the state's residents and reduce health care expenses (see the case study in Chapter 5). One initiative under Rx for PA was expanding the legal scope of practice for physician assistants, APRNs, CNSs, CNMs, and dental hygienists. This initiative has had an important impact on access to care. Outcome data after the first year of Rx for PA show an increase in the number of people with diabetes receiving eye and foot examinations and a doubling of the number of children with asthma who have a plan in place for controlling exacerbations (Pennsylvania Governor's Office, 2009).

The experience of states that have led these changes offers important reassurance to physicians who continue to believe that patient care may be adversely affected, or that expanded nursing practice autonomy threatens the professional and economic roles of physicians. States with broader nursing scopes of practice have experienced no deterioration of patient care. In fact, patient satisfaction with the role of APRNs is very high. Nor has expansion of nursing scopes of practice diminished the critical role of physicians in patient care or physician income (Darves, 2007). With regard to the quality of care and the role of physicians, it is difficult to distinguish states with restrictive and more expanded scopes of practice. Finally, the committee believes that the new medical home concept, based on professional collaboration, represents a perfect opportunity for nurses and physicians to work together for the good of patient care in their community.

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Fragmentation of the Health Care System

The U.S. health care system is characterized by a high degree of fragmentation across many sectors, which raises substantial barriers to building value. A fragmented health care system is characterized by weak connections among multiple component parts. Fragmentation makes simple tasks—such as assigning responsibility for payment—much more difficult than they need to be, while more complex tasks—such as coordination of home health care, family support, transportation, and social services after a hospital stay—become more difficult because they require following many separate sets of often contradictory rules. As a result, people may simply give up trying rather than take advantage of the services to which they are entitled. An examination of fragmentation in hospital services explores its origins in American pluralism, historical accident, and the hybridization of business and charity (Stevens, 1999). A review by Cebul and colleagues identifies three broad areas of fragmentation: (1) the U.S. health insurance system; (2) the provision of care; and (3) the inability of health information systems to allow a "seamless flow of information between hospitals, providers and insurers" (Cebul et al., 2008).

In the United States, there is a disconnect between public and private services, between providers and patients, between what patients need and how providers are trained, between the health needs of the nation and the services that are offered, and between those with insurance and those without (Stevens, 1999). Communication between providers is difficult, and care is redundant because there is no means of sharing results. For example, a patient with diabetes covered by Medicaid may have difficulty finding a physician to help him control his blood sugar. If he is able to find a physician, that individual may not have admitting privileges at the hospital to which the patient is transported after a hypoglycemic reaction. After the patient has been admitted to the emergency room, a new cadre of physicians is responsible for him but has no information about previous blood sugar determinations, other medications he is taking, or other health problems. The patient is stabilized and a discharge is arranged, but he is ineligible under his insurance plan for reimbursement for the further education in diet and glucose control, materials (such as a glucometer), and referral to an ophthalmologist that are indicated. Home follow-up is needed, but the visiting nurse agency is certified to provide only two visits when the patient could use five. No one calls the initial primary care physician to share discharge planning or information, and no one gives the patient a summary of the visit to take to that physician. The ophthalmologist will not accept the patient because of his status as a Medicaid recipient. A major challenge to repairing this fragmentation lies in the fee-for-service structure of the payment system, which indiscriminately rewards increasing volume of services regardless of whether it improves health outcomes or provides greater value (MedPAC, 2006).

Effect of Fragmentation on Realizing the Value of Nurses

Within this system, the contributions of nursing are doubly hidden. Accounting systems of most hospitals and health care organizations are not designed to capture or differentiate the economic value provided by nurses. Thus, all nursing care is treated equally in its effect on revenue. A 2007 review of 100 demonstration projects that provided incentives for high-value care to hospitals and physicians found no examples that specifically delineated or rewarded nurses' contributions (Kurtzman et al., 2008). Yet nurses' work is estimated to vary by 15 to 40 percent for any given diagnosis-related group (DRG) (Laport et al., 2008). The effect on the provision of health care is difficult to document, but a closer look at staffing ratios suggests some of the consequences. Generally speaking, as an analysis by the Lewin Group concludes, because

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health care facilities cannot capture the full economic value of the services nurses provide, they have an economic incentive—whether they decide to heed it or not—to staff their organizations "at levels below where the benefit to society equals the cost to employ an additional nurse" (Dall et al., 2009).

Barriers to measuring and realizing the economic value generated by nurses exist outside the hospital setting as well. In many states, APRNs are not paid directly but must be reimbursed through the physician with whom they have a collaboration agreement. Payments are funneled through the physician provider number, and the nurse is salaried.

For years, professional nursing organizations have sought to counter the inequitable aspects of the fee-for-service payment system by lobbying to increase the types of services for which NPs can independently bill Medicare, Medicaid, and other providers. They have had some success in that regard in the past (Sullivan-Marx, 2008). However, according to Mark McClellan and Gail Wilensky, both former directors of CMS, this approach has become a losing proposition. As McClellan and Wilensky testified to the committee in September 2009, while fee-for-service is not going to disappear any time soon, its future is severely limited in any sustainable health care system.

Proposals to Address Fragmentation

Alternative proposals for financing the health care system have coalesced around the idea of providing "global payments" that are shared among a predetermined group of providers, such as hospitals, physicians, nurses, social workers, nutritionists, and other professionals, and "bundled payments" that are linked to a single episode of care, such as treatment of and recovery from a heart attack. A full exploration of all the benefits and caveats of such alternative payment proposals is beyond the scope of this report. However, as the Medicare Payment Advisory Commission (MedPAC) noted in its June 2008 report to Congress, "Bundling payment raises a range of implementation issues because under bundled payment the entity accepting the payment—rather than Medicare—has discretion in the amount it pays providers for care provided, whether to pay for services not now covered by Medicare, and how it rewards providers for reducing costs and improving quality" (MedPAC, 2008). It will be up to the entity accepting payment to determine how and indeed whether to valuate nurses' contributions. Yet the tendency of human nature is to follow the practices and behaviors with which one is most familiar. Without the presence of nurses in decision-making positions in these new entities, the legacy of undervaluing nurses, characteristic of the fee-for-service system, will carry over into whatever new payment schemes are adopted. The services of nurses must be properly and transparently valued so that their contributions can fully benefit the entire system.

Outdated Policies of Insurance Companies

As noted in Chapter 2, many NPs and CNMs have cared for underserved populations that are either uninsured or rely on Medicaid. Expanding their services to the private insurance market is another matter altogether. The health care reform experience of Massachusetts shows the extent to which corporate policy can negate government regulation. An estimated 5,600 NPs work in Massachusetts (Pearson, 2010), falling under the authority of the Commonwealth's Board of Nursing as well as its Board of Medicine. NPs are required to collaborate with a physician and may prescribe drugs only under a written collaborative agreement with a physician (Christian et

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al., 2007). The law allows them to act as primary care providers (PCPs), and the Massachusetts Medicaid program formally named NPs as PCPs.

Despite the shortage of PCPs that occurred after the Massachusetts legislature enacted health care reform in 2006, no private insurance companies listed NPs as PCPs in Massachusetts. As a matter of policy, one major New England carrier stated that it would not list NPs as PCPs unless required to do so by the legislature. This same carrier, however, listed NPs as PCPs in its service directories for the neighboring states of New Hampshire and Maine. Eventually, Massachusetts passed a second health care reform law in 2008 that amended the state's insurance regulations to recognize NPs as PCPs in the private as well as the public market. Massachusetts was thereby able to expand the supply of its PCPs without changing its scope-of-practice laws (Craven and Ober, 2009). The policy differences among states may have to do with different scope-of-practice regulations or differences in the states' insurance industries. There is some evidence that insurers are more likely to recognize NPs as PCPs in states where NPs have independent practice authority (Hansen-Turton et al., 2008).

The actions of private insurance companies toward APRNs are having an effect on government-funded programs as well. Nurse-managed health centers (NMHCs) have long provided care for populations served by Medicare, Medicaid, and children's health insurance programs. However, federal and state governments are increasingly turning to the private sector to manage these programs (Hansen-Turton et al., 2006). The insurance companies' continued policy of not credentialing and/or recognizing NPs as PCPs—and the federal government's refusal to mandate that they do so—creates a barrier for NMHCs as they seek to continue serving these populations (Hansen-Turton et al., 2006).

One specific model of the medical/health home—the Patient-Centered Medical Home™ (PCMH)—does not permit management by nurses. In other words, a nurse may manage an organization that in every way adheres to the principles of PCMHs, but the practice will not be recognized as a PCMH by NCQA, a "not-for-profit organization dedicated to improving health care quality" (NCQA, 2010). Without public recognition, nurse-led medical/health homes cannot qualify for insurance reimbursement, which in turn leaves substantial populations underserved. NCQA, which administers the recognition for the medical homes, is a physician-dominated organization receiving its member dues from physicians. Its board, although currently reconsidering its stance on whether NPs can lead medical homes, has decided that physicians are more able to serve in PCMH leadership positions. The original concept for the medical home came from physicians, and NCQA adopted their principles of operation.[22] Several state agencies have contacted NCQA to request that it recognize NPs' ability to lead PCMHs. NCQA has appointed an advisory committee to review the policy that medical homes must be physician led. Meanwhile, the Joint Commission on Accreditation of Healthcare Organizations is developing a competitive certification program that will allow for leadership by NPs.[23]

[22] Personal communication, Greg Pawlson, Executive Vice President, NCQA, January 5, 2010.
[23] Personal communication, Greg Pawlson, Executive Vice President, NCQA, January 5, 2010.

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High Turnover Rates

As the health care system undergoes transformation, it will be imperative that patients have highly competent nurses who are adept at caring for them across all settings. It will be just as important that the system have enough nurses at any given time. Both having enough nurses and having the right kind of highly skilled nurses will contribute to the overall safety and quality of a transformed system. Although the committee did not focus solely on the upcoming shortage of nurses, it did devote time to considering how to retain experienced nurses and faculty.

Some solutions have been researched, proposed, and reproposed for so long that it is difficult to understand why they have not yet been implemented more widely. High turnover rates continue to destabilize the nurse workforce in the United States and other countries (Hayes et al., 2006). Figure 3-6 indicates some of the reasons that have been cited for not working in the nursing profession. For nurses under 50, personal or family reasons were most frequently cited.

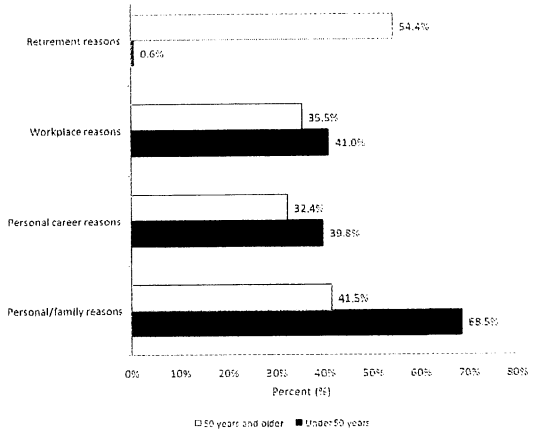

FIGURE 3-6 Reasons cited for not working in nursing, by age group
NOTES: Percents do not add to 100 because registered nurses may have provided more than one reason. Includes only RNs who are not working in nursing.
SOURCE: HRSA, 2010.

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The costs associated with high turnover rates are significant, particularly in hospitals and nursing homes (Aiken and Cheung, 2008). The literature shows that the workplace environment plays a major role in nurse turnover rates (Hayes et al., 2006; Tai et al., 1998; Yin and Yang, 2002). Staff shortages, increasing workloads, inefficient work and technology processes, and the absence of effective pathways for nurses to propose and implement improvements all have a negative impact on job satisfaction and contribute to the decision to leave. Tables 3-3 and 3-4, respectively, show the intentions of nurses with regard to their employment situation (e.g., plan to leave current job) and the percentage of nurses who left their job in 2007–2008, by setting. New research has also highlighted the contribution to the problem of disruptive behavior—ranging from verbal abuse to physical assault or sexual harassment of nurses, often by physicians but also by other nurses (Rosenstein and O'Daniel, 2005, 2008). For more than a quarter century, blue ribbon commissions and policy experts have concluded that wide-reaching changes in nurses' practice environments would significantly reduce their high turnover rates and improve productivity (Aiken and Cheung, 2008).

TABLE 3-3 Plans Regarding Nursing Employment, by Graduation Cohort, 2008

Plans	Graduated before 2001 (%)	Graduated 2001–2008 (%)
Plans regarding current position		
No plans to leave job	57.8	42.8
Undecided about plans	15.1	17.8
Have left job or plan to leave in 12 months	14.5	23.2
Plan to leave in 1 to 3 years	12.6	16.2
Total that plan to leave within 3 years	27.1	39.3
For those who plan to leave their job		
Plan to remain in nursing work	77.9	96.7
Plan to leave nursing	22.1	3.3

SOURCE: HRSA, 2010.

TABLE 3-4 Changes in Position Setting, by 2007 Setting, for Registered Nurses Who Graduated in 2001–2008

Setting in 2007	Percent Who Left Setting between 2007 and 2008
Hospital	11.1
Nursing home/extended care	25.8
Home health	21.2
Public/community health	23.2
Ambulatory care	20.8
Other	18.9

NOTES: Public/community health includes school health and occupational health. Other settings includes academic education and insurance/benefits/utilization review.
SOURCE: HRSA, 2010.

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Many individual facilities and programs have adopted those recommendations. Much of the data showing the impact of reducing turnover by focusing on workplace environment comes from the acute care setting. Nonetheless, these data are instructive in their demonstration of a triple win: improving the workplace environment reduces nurse turnover, lowers costs, and improves health outcomes of patients. For example, the Transforming Care at the Bedside (TCAB) initiative is a national program that engages nurses to lead process improvement efforts so as to improve health outcomes for patients, reduce costs, and improve nurse retention (Bolton and Aronow, 2009). TCAB relies on nurses developing small tests of change that are continuously planned, assessed, and rapidly adopted or dropped, with each round building on previous successes. According to Bolton and Aronow (2009), as the TCAB principles and locally proposed and tested interventions spread throughout Cedars-Sinai Hospital, administrators noted the emergence of "a culture that emphasizes performance improvement and value-adding activities on nursing units." Physician–nurse rounding, physician–nurse education teams, recognition programs, and collaborative efforts of nursing staff with other, non-nursing departments were the major reason, the authors believe, behind a decrease in nurse turnover rates from 7 percent in 2004 to 3 percent in 2008.

Some employers have also discovered that making it easier for nurses to obtain advanced degrees while continuing to work has increased retention rates. Chapter 4 includes an example of this phenomenon from the Carondelet Health Network in Tucson, Arizona. Based on workforce data Carondelet regularly collects for use in its strategic planning, the network has concluded that its educational efforts have had a positive effect on recruiting and retention. Its percentage of staff (as opposed to contract) nurses has increased from 81.7 to 89.2 percent. Because so many newly graduated nurses have begun seeking work at Carondelet, the average age of its staff nurses fell from 50 years in 2004 to 45.2 years in 2007 (The Lewin Group, 2009).

Difficulties of Transition to Practice

High turnover rates among newly graduated nurses highlight the need for a greater focus on managing the transition from school to practice (Kovner et al., 2007). Some turnover is to be expected—and is even appropriate if new nurses discover they are not really suited to the care setting or employer they have chosen. However, some entry-level nurses who leave first-time hospital jobs leave the profession entirely, a situation that needs to be avoided when possible. In a 2007 survey of entry-level nurses, those who had already left their first job cited reasons such as poor management, stress, and a desire for experience in a different clinical area (Kovner et al., 2007).

In 2002, the Joint Commission recommended the development of nurse residency programs—planned, comprehensive periods of time during which nursing graduates can acquire the knowledge and skills to deliver safe, quality care that meets defined (organization or professional society) standards of practice. This recommendation was most recently endorsed by the 2009 Carnegie study on the nursing profession (Benner et al., 2009). Versant[24] and other organizations have launched successful transition-to-practice residency programs for nurses in recent years, while the University HealthSystem Consortium (UHC) and the American Association of Colleges of Nursing (AACN) have developed a model for postbaccalaureate nurse residencies (Goode and Williams, 2004; Krugman et al., 2006; Williams et al., 2007). The

[24] Versant is a nonprofit organization that provides, supervises, and evaluates nurse transition-to-practice residency programs for children's and general acute care hospitals. See http://www.versant.org/item.asp?id=35.

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residency model developed by the UHC/AACN addresses needs identified by new nursing graduates and organizations that employ them. These needs included developing skills in ways to organize work and establish priorities; communicate with physicians, other professionals as well as patients and their families. In addition, nurses and employers indicated the need for nurses to develop leadership and technical skills in order to provide quality care. (Beecroft et al., 2001, 2004; Halfer and Graf, 2006). As an example, in one hospital, the total cost for a residency program is $93,100, with a cost per resident of $2,023.91. Given that the average cost of replacing just one new graduate RN is $45,000, a return on investment can be significantly dependent on a reduction in RN turnover (AAN, 2010a).

The AACN has also adopted accreditation standards for these programs (AACN, 2008). Meanwhile, the National Council of State Boards of Nursing, after reviewing the evidence in favor of nursing residencies, has developed a regulatory model for transition-to-practice programs, recommending that state boards of nursing enforce a transition program through licensure (NCSBN, 2008b).

Residencies Outside of Acute Care

Residency programs are supported predominantly in hospitals and larger health systems, with a focus on acute care. This has been the area of greatest need since most new graduates gain employment in acute care settings, and the proportion of new hires (and nursing staff) that are new graduates is rapidly increasing (Kovner et al., 2007). It is essential, however, that residency programs outside of acute care settings be developed and evaluated. Chapter 2 documents the demographic changes on the horizon; the shift of care from hospital to community-based settings; and the need for nursing expertise in chronic illness management, care of older adults in home settings, and transitional services. In this context, nurses need to be prepared for new roles outside of the acute care setting. It follows that new types of residency programs appropriate for these types of roles need to be developed.[25]

Several community care organizations are already acting on their own perceived need for a residency-type program lasting 3 months or longer for new employees. At the Visiting Nurse Services of New York, nurses receive a great deal of education and training on the job. New nurses with a bachelor's degree participate in an internship that provides hands-on experience and mentoring from experienced staff that prepares them for home-based nursing. "We really have to do a lot of our own education and training to compensate for the fact that most of the nurses don't come with the experience, the competencies, or the comfort and confidence with technology that we think they need," said Carol Raphael, the organization's president and CEO (IOM, 2010a).

There are a few successful transition-to-practice initiatives in the field of public health, although they are commonly called internships, orientations, or mentoring programs. For example, the North Carolina State Health Department has begun a pilot effort with four public health departments in an effort to educate new nurses about population-based health. The 6-month mentoring program is being used as a recruitment and retention tool and has very explicit objectives, including an increase in retention and understanding of population health and

[25] This paragraph draws on a paper commissioned by the committee on "Transforming Pre-licensure Nursing Education: Preparing the New Nurse to Meet Emerging Health Care Needs," prepared by Christine A. Tanner, Oregon Health & Science University School of Nursing (see Appendix I on CD-ROM).

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a willingness to serve as a mentor as the program goes forward.[26] Another successful community-based transition-to-practice program, called LEAP (Linking Education and Practice for Excellence in Public Health Nursing), was recently demonstrated in Milwaukee Wisconsin. Two public health departments and three community health centers not only collaborated to diversify the nurses entering public and community health settings, but also offered them paid traineeships to transition into their settings. The public health departments partnered with the Wisconsin Center for Nursing and a collaborative of five baccalaureate schools of nursing to first boost the community health curriculum in those schools and then help with the development of the internship upon graduation for 17 nurses. The program has been successful in recruiting more minorities into community and public health settings with the knowledge they need to practice successfully outside of the acute care setting. Financial support was secured from a variety of sources, including foundations, corporations, and partnership members themselves. The program is new and is currently undergoing an evaluation to determine its financial sustainability.[27] Such programs are not widespread, however, and need to be.

Evidence in Support of Residencies

Much of the evidence supporting the success of residencies has been produced through self-evaluations by the residency programs themselves. For example, Versant has demonstrated a profound reduction in turnover rates for new graduate RNs—from 35 to 6 percent at 12 months and from 55 to 11 percent at 24 months—compared with new graduate RN control groups hired at a facility prior to implementation of the residency program (Versant, 2010). Other research suggests residencies may be useful to help new graduates transition into practice settings (Goode et al., 2009; Krozek, 2008).

The UHC/AACN nurse residency program described above also reports reduced rates of turnover and cites cost savings to its participants. According to the UHC (2009) and AACN,[28] since 2002 the program:

- saved participating organizations over $6 million per year on the costs of turnover for a first-year nurse (the cost to recruit and retain a replacement nurse was estimated at $88,000);
- increased its retention rate from 87 percent in 2004 to 94 percent in 2009;
- increased stability in staffing levels, thereby reducing stress, improving morale, increasing efficiency, and promoting safety;
- achieved a return on investment of up to 14:1; and
- helped first-year nurses in the program achieve the following:
  - develop their ability in clinical decision-making,
  - develop clinical autonomy in providing patient care,
  - incorporate research-based evidence into their practices, and
  - increase commitment to nursing as a career.

[26] Personal communication, Joy Reed, Head, Public Health Nursing for the NC Division of Public Health, August 24, 2010.
[27] See http://pindev.forumone.com/faye-mcbeath-foundation-with-greater-milwaukee-foundation-northwestern-mutual-foundation-wisconsin-2/.
[28] This section also draws on a June 2010 personal communication with Geraldine Bednash, CEO, AACN.

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The committee focused its attention on residencies for newly licensed RNs because these residencies have been most studied. Looking forward, however, the committee acknowledges the need for RNs with more experience to take part in residency programs as well. Such programs may be necessary to help nurses transition from, for example, the acute care to the community setting. As a growing number of nurses pursue advanced practice degrees immediately after receiving a bachelor's degree—with no break between for employment in a clinical setting—the benefit to APRNs of completing a residency is likely to grow as well. The committee believes that regardless of where the residency takes place—whether in the acute care setting or the community—nurses should be paid a salary, although the committee does not take a position on whether this should be a full or reduced salary. Loan repayment and educational debt should be postponed during residency, especially if a reduced salary is offered.

At the committee's December 2009 Forum on the Future of Nursing: Care in the Community, Margaret Flinter, vice president and clinical director, Community Health Center, Inc., spoke about her organization's decision to develop nurse residency programs for APRNs. The intensity and demands of providing service in the complex setting of a federally qualified health center (FQHC), Flinter testified, often discourage newly graduated NPs from joining an FQHC and the clinics from hiring newly graduated NPs. In 2006, she continued, her organization started the country's first formal NP residency training program. The goal was to ensure that new NPs would find the training and transition support they needed to be successful as PCPs. The program is a 12-month, full-time, intensive residency that provides extensive precepting, specialty rotations, and additional didactic education in the high-risk/high-burden problems commonly seen in FQHCs. The NP residents are trained in a chronic care/planned care approach that features both prevention and chronic disease management, advance access to eliminate waits and delays, integrated behavioral health and primary care, and expert use of the electronic health record. In Flinter's view and that of her organization, the initial year of residency training is essential to transitioning a new NP into a fully accountable PCP (Flinter, 2009). And indeed, the ACA allocates $200 million from 2012 to 2015 as part of a demonstration project that will pay hospitals for the costs of clinical training to prepare APRNs with the skills necessary to provide primary and preventive care, transitional care, chronic care management, and other nursing services appropriate for the Medicare population.

Residency provides a continuing opportunity to apply important knowledge for the purpose of remaining a safe and competent provider in a continuous learning environment. Paying for residencies is a challenge, but the committee believes that funds received from Medicare can be used to help with these costs. In 2006, about half of all Medicare nursing funding went to five states that have the most hospital-based diploma nursing programs (Aiken et al., 2009). The diploma programs in these states directly benefit from receiving these funds. Most states, however, and most hospitals do not receive Medicare funding for nursing education. The committee believes it would be more equitable to spread these funds more widely and use it for residency programs that would be valuable for all nurses across the country.

Demographic Challenges

As discussed in Chapter 2, the population of the United States is growing older and is becoming increasingly diverse in terms of race, ethnicity, and language. To achieve the goal of increasing access to high-quality, culturally relevant care among the diverse populations in the United States, the nursing profession must increase its appeal to young people, men, and nonwhite racial/ethnic groups.

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An Aging Workforce

Like the U.S. population, the nurse workforce continues to grow older. Over the past three decades, there has been a profound shift in the age composition of nurses. In 1983, approximately 50 percent (596,000 full-time equivalents [FTEs]) of the workforce was between the ages of 20 and 34, while only 17 percent (202,000 FTEs) was over the age of 50. Since the 1980s, the number of FTEs in the nursing workforce has doubled, and there has been a dramatic increase in the number of middle-aged and older RNs. From 1983 to 2009, the number of nurses over age 50 more than quadrupled, and the number of middle-aged nurses (aged 35–49) doubled to approximately 39 percent (977,000). These older and middle-aged nurses now represent almost three-quarters of the nursing workforce, while nurses younger than 34 now make up only 26 percent (Buerhaus et al., 2009a). Figure 3-7 shows the age shift in the nursing workforce that has occurred over the past two decades.

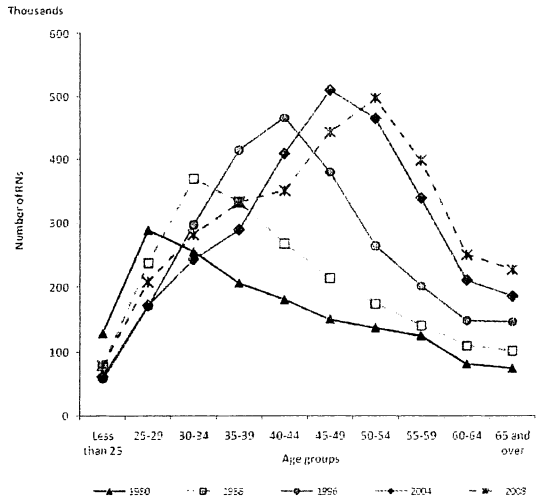

FIGURE 3-7 Age distribution of registered nurses, 1980–2008.
SOURCE: HRSA, 2010.

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The figure shows that since 1980, the nursing workforce has grown older, as reflected by more RNs reporting that they fall within the older age categories with each successive survey. At the same time, the figure indicates that in both 2004 and especially 2008, the number of young RNs in the workforce was growing relative to earlier years. This increase may reflect, in part, the impact of the Johnson & Johnson Campaign for Nursing's Future, which launched a large national media initiative in 2002 aimed at attracting people into nursing. As other similar recruitment initiatives followed, more, younger people chose to become nurses, reversing a 20-year trend of declining entry into nursing by young people.

The shift in the age composition of the nursing workforce can be attributed in part to the large number of baby boomers who became RNs in the 1970s and 1980s, followed by much smaller cohorts in the later decades (Buerhaus et al., 2009a). These smaller cohorts were a result of not only the decrease in births, but also a decrease in interest in the profession during the 1980s and 1990s when women began entering other professions that had typically been dominated by men (Staiger et al., 2000). The physician workforce has also been aging, but in much smaller numbers. Figure 3-8 compares the average age of nurses with varying levels of education with that of physicians and physician faculty. Between 2001 and 2009, the number of physicians aged 50–64 grew by 77,000 FTEs, while the number of RNs in that same age group grew by almost five times as many (368,000 FTEs) (Staiger et al., 2009). Compared with the size of the nursing workforce, however, the size of the physician workforce is less dependent on interest in profession. The supply of physicians is influenced more by institutional factors that govern the number of available slots in medical schools and residency programs. For example, the supply of physicians was deliberately expanded in the 1960s with the introduction of the Medicare and Medicaid programs but has remained fairly constant since then. This pattern has resulted in large successive cohorts of physicians who are replacing smaller groups of retiring physicians (Staiger et al., 2009).

As the coming decades unfold, nurses and physicians will continue to age. Many of the large numbers of older RNs will retire, and increasing numbers of middle-aged RNs will enter their 50s. Although the number of younger RNs has recently begun to grow, the increase is not expected to be large enough to offset the number of RNs anticipated to retire over the next 15 years (Buerhaus et al., 2009b). To fill gaps created by retirement and the increasing demand for nursing services, resulting in part from an aging population and increased rates of insurance coverage, the nursing workforce will need to expand by attracting younger individuals into the profession—a challenge that has been more difficult for the nursing profession than it has been for medicine (Kimball and O'Neil, 2002).

Gender Diversity

Throughout much of the 20th century, the nursing profession was composed mainly of women. While the absolute number of men who become nurses has grown dramatically in the last two decades, from 45,060 in 1980 to 168,181 in 2004 (HRSA, 2006), men still make up just over 7 percent of all RNs (HRSA, 2010). Overall, male RNs tend to be younger than female RNs, with an average age of 44.6 years. Men are also more likely to begin their careers with slightly more advanced nursing degrees (HRSA, 2006).

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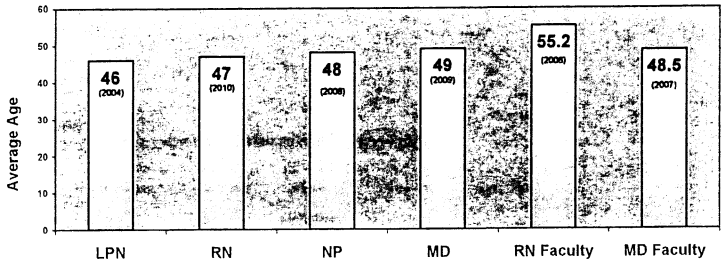

FIGURE 3-8 Average age of nurses at various levels of education and of MDs.
NOTE: MD = doctor of medicine; LPN = licensed practical nurse; NP = nurse practitioner; RN = registered nurse.
SOURCE: Based on data from: for LPNs, (HRSA, 2004); for RNs, (HRSA, 2010); for NPs, (AANP, 2010); for MDs, (Sermo.com, 2009); for RN faculty, (AACN, 2010b); for MD faculty, (AAMC, 2009).

Efforts to recruit more men into the civilian nursing profession have had minimal success, and a body of research indicates gender-based reasons for entering the nursing profession. The evidence is generally thin, but men tend to list factors associated with security and professional growth that led them to the nursing profession: salary, ease of obtaining work, job security, and opportunities for leadership. By contrast, women tend to list factors that represent social encouragement from family or friends (Zysberg and Berry, 2005). While more men are being drawn to nursing, especially as a second career, the profession needs to continue efforts to recruit men; their unique perspectives and skills are important to the profession and will help contribute additional diversity to the workforce.

Racial and Ethnic Diversity

To better meet the current and future health needs of the public and to provide more culturally relevant care, the current nursing workforce will need to grow more diverse. Previous IOM reports have found that greater racial and ethnic diversity among providers leads to stronger relationships with patients in nonwhite communities. These reports argue that the benefits of such diversity are likely to be felt across health professions and to grow as the U.S. population becomes increasingly diverse (IOM, 2004, 2006). The IOM's report *Unequal Treatment: Addressing Racial and Ethnic Disparities in Health Care* identifies the diversification of the health care workforce as an important step toward responding to racial and ethnic disparities in the health care system (IOM, 2003). Because nurses make up the largest proportion of the health care workforce and work across virtually every health care and community-based setting, changing the demographic composition of nurses has the potential to effect changes in the face of health care in America.

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Although nurses need to develop the ability to communicate and interact with people from differing backgrounds, the demographic characteristics of the nursing workforce should be closer to those of the population at large to foster better interaction and communication (AACN, 2010a). The 2008 National Sample Survey of Registered Nurses (NSSRN) documented the lack of diversity in the nursing workforce, with 5.4 percent of nurses describing themselves as Black/African American, 3.6 percent as Hispanic/Latino, 5.8 percent as Asian or Native Hawaiian/Pacific Islander, 0.3 percent as American Indian/Alaska Native, and 1.7 percent as multiracial (HRSA, 2010). Figure 3-9 compares the racial/ethnic diversity of RNs with that of the U.S. population.

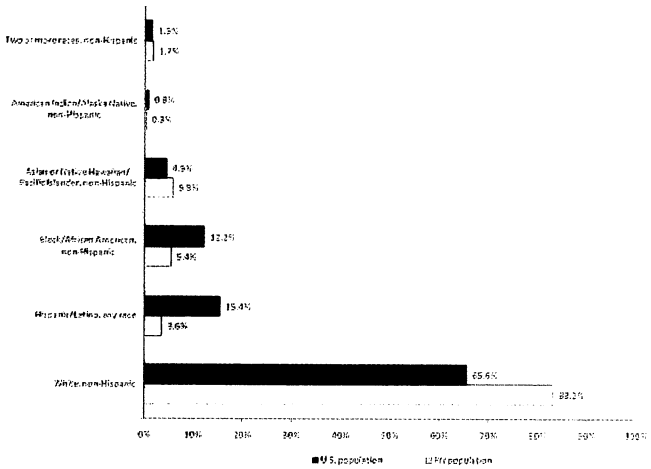

FIGURE 3-9 Distribution of registered nurses and the U.S. population by racial/ethnic background. SOURCE: HRSA, 2010.

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Numerous programs nationwide are aimed at increasing the number of health professionals from underrepresented ethnic and racial groups. One program that seeks to increase diversity while also responding to the health needs of underserved populations is the Harambee Nursing Center (HNC) in Louisville, Kentucky (AAN, 2010c). The name refers to an African tribal word that means "let's pull together." HNC was founded in 2003 by the University of Louisville School of Nursing, in partnership with the University of Louisville hospital and several religious groups, "to improve the health of the approximately 11,000 low-income, primarily African-American, urban, underserved Smoketown-Shelby Park-Phoenix Hill neighborhood" (Roberts and Hayes, 2005). It is managed by nurses with the help of a volunteer family practice physician. Since its inception, a goal of the program has included attracting greater numbers of minority persons into nursing and other health professions and providing opportunities to enhance the cultural competence of nursing students and faculty.[29] Strategies to increase diversity in nursing include:

- providing supervised clinical experiences for nursing and other health professional students at HNC;
- offering group educational programs to community members and persons working in community agencies and one-to-one mentoring of community residents who are interested in a nursing career (which includes providing clinical experiences, taking participants to planning meetings, having them talk directly to student advisers at the School of Nursing, arranging experiences at the hospital or nursing home, and holding conversations with interested persons);
- creating structured opportunities for nursing students and faculty to be engaged in service to the community so they can begin to comprehend the life experiences of the residents and be more sensitive to their needs when advising and creating recruitment programs;
- distributing literature and pictures related to the history of African Americans in nursing; and
- collaborating with other community agencies to include nursing education and career options in their educational and jobs programs.

Outcomes cited by Dr. Roberts include the following:

- Nursing careers and educational pathways are now formally included in job-related programs implemented by the Presbyterian Community Center (PCC). For example, over the past 2 years, PCC has selected 50 community residents into the Changemaker program, which targets 19- to 25-year-olds to engage them in self-discovery, goal setting, and progress toward career goals, with the condition of giving back to the community. Each year about four to six Changemakers examine health careers in depth. HNC included nursing and health careers in the proposal that funded this pathway and provides supervised clinical experiences, mentoring, part-time job opportunities where possible, and education about nursing.
- Arrangements have been made to connect interested residents with entry into a medical assistant program that provides articulation to associate's degree education and then

[29] This section draws on a September 8, 2010 personal communication with Kay T. Roberts, Executive Director, Harambee Health Center.

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mentoring to advance to the bachelor's of science in nursing (BSN) and further, in addition to baccalaureate programs.

- The University of Louisville School of Nursing hosts a recruitment booth at the Annual Health Fair at HNC.
- Community health students and faculty now provide education at the community middle school regarding careers in nursing.
- Based on HNC's feedback to the School of Nursing, criteria for selection of students into the RN–BSN program are under scrutiny. Last year no African American student was accepted. One of HNC's mentorees missed selection by only a few points. Dialogue with faculty led to an examination of policies that resulted in the omission of minority students.
- Literally hundreds of undergraduate and graduate nursing students (from several academic institutions) have supervised learning experiences in the community. These include at least 10 undergraduate community health nursing students each semester, a class of 30 graduate nursing students enrolled in a health promotion class each year, and 2 or more NP students based in the clinic each semester. About 5 NP and 10 undergraduate students participate in a Back to School event each fall where Harambee offers school physicals and immunizations for underserved middle school students. Each year 2 to 4 graduate nursing students serve as research or program assistants and/or researchers, and nursing students in the PhD program engage in research-related projects.

Conclusion: Demographic Challenges

The nurse workforce is slowly becoming more diverse, and the proportion of racially and ethnically diverse nursing graduates has increased by 10 percent in the last two decades, growing from 12.3 to 22.5 percent (HRSA, 2010). Nonetheless, additional commitments are needed to further increase the diversity of the nurse workforce. Steps should be taken to recruit, retain, and foster the success of diverse individuals. One way to accomplish this is to increase the diversity of the nursing student body, an issue addressed in Chapter 4. The combination of age, gender, race/ethnicity, and life experiences provides individuals with unique perspectives that can contribute to advancing the nursing profession and providing better care to patients.

NEW STRUCTURES, NEW OPPORTUNITIES

The ACA will bring new opportunities to overcome some of the barriers discussed above and use nurses in new and expanded capacities. This section offers a brief look at four of the current initiatives—the accountable care organization (ACO), the medical/health home, the community health center (CHC), and the NMHC—that are designed to implement these changes at an affordable price regardless of whether the providers involved are part of a large, integrated health care organization like the VA, Geisinger, or Kaiser Permanente. All four initiatives have shown enough promise that they were selected to receive additional financial support under the ACA.

Depending on their outcomes, these exemplars may lead the way to broader changes in the health care system. Given this possibility, the creation of the new Center for Medicare and Medicaid Innovation within the Department of Health and Human Services may prove to be one of the most important provisions of the ACA (Whelan and Russell, 2010). The Center is designed "to test innovative payment and service delivery models to reduce program

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expenditures...while preserving or enhancing the quality of care."[30] CMS can expand the duration and scope of successful programs with priority given to programs that also apply to private payers. They can also terminate or modify programs that are not working well. These types of decisions had previously been allowed only after congressional action.

The committee offers no predictions as to which combination, if any, of these four exemplars—ACOs, medical/health homes, CHCs, and NMHCs—will best succeed at meeting patients' needs. However, it wishes to emphasize to the Center for Medicare and Medicaid Innovation that each of these four initiatives depends on high-functioning, interprofessional teams in which the competencies and skills of all nurses, including APRNs, can be more fully utilized. New models of care, still to be developed, may deliver care that is better and more efficient than that provided by these four initiatives. Nursing, in collaboration with other professions, should be a part of the design of these initiatives by shaping and leading solutions. Innovative solutions are most likely to emerge if researchers from the nursing field work in partnership with other professionals in medicine, business, technology, and law to create them.

Accountable Care Organizations

The ACO is a legally defined entity consisting of a group of primary care providers, a hospital, and perhaps some specialists who share in the risk as well as the rewards of providing quality care at a fixed reimbursement rate (Fisher et al., 2009; MedPAC, 2009). (The use of the phrase "primary care ACO professionals" in the ACA is inclusive of APRNs as well as physicians.) Payment for this set of services, as provided for in the ACA, will move beyond the traditional fee-for-service system and may include shared savings payments or capitated payments for all services. The goal of this payment structure is to encourage the ACO to improve the quality of the care it provides and increase care coordination while containing growth. ACOs that use APRNs and other nurses to the full extent of their education and training in such roles as health coaching, chronic disease management, transitional care, prevention activities, and quality improvement will most likely benefit from providing high-value and more accessible care that patients will find to be in their best interest.

Medical/Health Homes

The concept of a medical home was first developed by pediatricians in the late 1960s (AAP, 1967). The original impetus was to create a single place to house all of individual children's medical records—particularly children with special health needs who often must see multiple clinicians (Sia et al., 2004). Over the years, however, the term "medical home" has evolved to refer to a specific type of primary care practice that coordinates and provides comprehensive care; promotes a strong relationship between patient and provider; measures, monitors, and improves the quality of care; and is not necessarily limited to children.

Medical homes play a prominent role in the ACA, but the law is not consistent in its terminology for them. In various places, the ACA refers to "medical homes," "health homes," and even the above-discussed PCMH that is recognized by NCQA. The ACA indicates that medical/health homes should be supported by community-based interprofessional teams or "health teams" that include physicians, nurses, and other health professionals.[31]

[30] *Patient Protection and Affordable Care Act*, HR 3590 § 3021, 111th Congress.
[31] *Patient Protection and Affordable Care Act*, HR 3590 § 3502, 111th Congress.

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The medical/health home concept has been adopted and adapted in several ways. The latest phase of the broader nursing strategy at the VA, for example, consists of the implementation of a medical home model with expanded roles for RNs. Previously, primary care providers (physicians and NPs) at the VA felt that they were not receiving enough professional support to do their jobs effectively. The new strategy calls for including staff nurses on the primary care teams. "This is not your typical staff nurse role in primary care settings," said Catherine Rick, chief nursing officer of the VA.[32] What the staff nurse brings to primary care that has not been there before is the provision of chronic care management, care coordination, health risk appraisal, health promotion, and disease prevention. Work on rolling out the VA's medical home model began in August 2009, and the program was officially launched in April 2010. The case study in Box 3-3 illustrates how the medical home concept is being applied in the VA health system.

BOX 3-3
The Patient-Centered Medical Home

A TEAM APPROACH TO PRIMARY CARE FOR VETERANS

We realized that we needed to dedicate additional services to being patient-centered, or what I prefer to call patient-driven—really engaging patients in shared decision-making, developing a plan of care that is based on their informed decisions and their individual preferences.
—Catherine Rick, MSN, RN, NEA-BC, FACHE, chief nursing officer, U.S. Department of Veterans Affairs

When a veteran with diabetes who was experiencing hyperglycemia visited the Overton Brooks VA Medical Center in Shreveport, Louisiana, a nurse practitioner (NP) made adjustments to his medications. But that visit was different from others he had made: he also talked with a team of providers about exercise, diet, and blood glucose self-monitoring, and they discussed what support he would need to make changes in these areas as well.

After 2 weeks, Helen Rasmussen, BSN, RN, CDE, a care manager in primary care at the facility, called the patient, who reported his daily blood glucose levels. An NP made further medication adjustments, and Ms. Rasmussen called again in 2 weeks. "The results were much improved, and he was very happy that he didn't have to come in to see a provider each time for these changes," she said.

Ms. Rasmussen has been a primary care nurse with the U.S. Department of Veterans Affairs (VA) for more than 12 years, and until recently, she said, she would not have had the time to make those follow-up calls; her caseload would have been too high. But in 2009 VA secretary Eric Shinseki announced a major push toward more "veteran-centered care" for the 6 million veterans using the system (VA, 2009). One element of that new initiative is the Patient-Centered Medical Home™ (PCMH).

The PCMH is not a new concept. Four decades after the American Academy of Pediatrics developed the concept of a medical home, however, its meaning has evolved. Many now think of the PCMH as a "health home"—a team approach to primary care that involves better care coordination and information systems (including the electronic health record) and gives patients greater access to care and to their providers (including e-mail exchanges). The patient is necessarily at the center of decision making.

The VA's nearly 65,000 licensed nurses are fundamental to this approach at the VA. "We decided to have a full-time RN [registered nurse] care manager for every full-time primary care provider," said Catherine Rick, MSN, RN, NEA-BC, FACHE, the VA's chief nursing services officer. The RN care manager works with others on a four-person team—including a primary care provider (a physician or an NP) and support staff—to help veterans better manage their illnesses and coordinate transitions in care, such as hospital admission.

[32] Personal communication, Cathy Rick, Chief Nursing Officer of the Department of Veterans Affairs, March 9, 2010.

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Another aspect of the PCMH at the VA is the clinical nurse leader—which, Ms. Rick said, "is probably one of the most transformational roles that the nursing profession has to offer the health care industry." The American Association of Colleges of Nursing has defined it as a new leadership role for nurses that is neither administrative nor managerial (AACN, 2007); rather, this nurse with a master's degree supervises the care provided by the team. At the VA, the clinical nurse leader oversees the care provided by more than one team, while the RN care manager focuses on the care provided by just his or her team. The VA intends to employ clinical nurse leaders in all of its medical centers by 2016 (ONS, 2009).

Too few support staff may prevent some facilities from implementing the PCMH, said Colette S. Torres, MSN, RN, CCM, associate director of primary care, Robert J. Dole VA Medical Center, Wichita, Kansas, until savings from reduced rates of hospitalization are realized. Also, the VA is measuring outcomes of the PCMH, but data have not yet been released.

Ms. Torres said that what she particularly appreciates about this model "is that we carry our patients through acute and chronic issues." Under the old model, when a veteran was hospitalized, the primary care providers would wait to see the patient. Now, she said, they visit a veteran in the hospital. "We go up and say, 'How are you doing? We're not here to provide your care; we're here because we're a part of your team.' And they absolutely love it."

Community Health Centers

CHCs have a long track records of providing high-value, quality primary and preventive care in poor and underserved parts of the United States. Many also offer dental, mental health, and substance abuse and pharmacy services as well. CHCs generally are very team oriented and depend on nurses to deliver services. Nurses provide primary care, preventive services, and home visits, and many serve in administrative and leadership positions. At present, 20 million Americans receive care at CHCs in 7,500 communities (NACHC, 2009). CHC patients are less likely to have unmet medical needs, visit the emergency department for nonurgent care, or need hospitalization relative to the general population. A 2007 report by the National Association of Community Health Centers found that medical expenses for patients who receive the majority of their care at a CHC are 41 percent lower ($1,810 per person) than those for comparable patients who receive most of their care elsewhere (NACHC et al., 2007). As a result, the organization estimates that CHCs save the health care system $9.9–17.6 billion a year (NACHC, 2009).

In 2002, the Bush Administration began a significant expansion of the CHC program, which began in the 1960s as part of the "war on poverty." The program received another big boost in 2009 with a $2 billion investment as part of the American Recovery and Reinvestment Act. And in 2010, as part of the ACA, Congress allocated an additional $11 billion in funds to further expand the program (Whelan, 2010).

Nurse-Managed Health Centers

NMHCs have provided care for populations served by Medicare, Medicaid, and children's health insurance programs, as well as the uninsured, since the 1960s. There are 250 NMHCs across the United States serving 1.5 million medically underserved people, nearly half of whom are uninsured (NNCC, 2005). As the name implies, they are run by nurses—although many employ physicians, social workers, health educators, and outreach workers as members of a collaborative health team. Services generally include comprehensive primary care, family planning, prenatal services, mental/behavioral health care, and health promotion and disease prevention.

The majority of NMHCs are affiliated with a nursing school and about half with a

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community-based nonprofit organization (King and Hansen-Turton, 2010). NMHCs report that their clients make 15 percent fewer emergency department visits than the general population, have 35–40 percent fewer nonmaternity hospital days, and spend 25 percent less on prescriptions (NNCC, 2005). The ACA authorizes an additional $50 million in 2010 and "such sums as may be necessary for each of the fiscal years 2011 through 2014"[33] to NMHCs that offer primary care to low-income and medically underserved patients, although as of this writing, this funding specifically for NMHCs has not been allocated. The case study presented in Box 3-4 shows how an NMHC worked with community leaders to reduce health disparities in an underserved poor neighborhood in Philadelphia.

BOX 3-4
11th Street Family Health Services of Drexel University

A NURSE-MANAGED HEALTH CENTER REDUCES HEALTH DISPARITIES IN PHILADELPHIA

I describe the center as a healthy-living center. And that is what the residents wanted. It's not just access to clinical services. It's providing opportunity for a neighborhood that doesn't have a lot of opportunity for people to get healthier.
—Patricia Gerrity, PhD, RN, FAAN, director, Eleventh Street Family Health Services of Drexel University, Philadelphia

Lisa Scardigli, age 44, has suffered periodically from spasticity, a symptom of the multiple sclerosis she has lived with for more than 20 years. She had been receiving physical therapy at 11th Street Family Health Services in Philadelphia when she had a pump implanted for spinal infusion of a drug that reduces spasticity. But the pump's catheter punctured in late 2009, and she was hospitalized for several weeks. When she returned to 11th Street, she said, she got "holy heck" from the staff there; they had been worried about her. "Even the people at the front desk were up in arms over the fact that I didn't call," Ms. Scardigli said. "It went from the physical therapist to the primary care person to the security guard. I was actually missed."

This is a small story, but it illustrates a big reason for this health center's success: it not only serves its community (there were 26,000 clinical visits in 2009); it also *creates* community. And that may have something to do with the fact that it is run by nurses.

This nurse-managed health center provides primary care and other services in a neighborhood in North Philadelphia where most of the 6,000 residents are African American, have low incomes, and are medically underserved. Nurse practitioners (NPs) and social workers make up teams that are augmented as needed by physicians, nutritionists, and others. Having been launched in 1998 in a recreation center, 11th Street is now a federally qualified health center housed in a $3.3 million, 17,000-square-foot facility, with a staff of 53.

The center's work began gradually, as a joint project of the Philadelphia Housing Authority and Drexel University's College of Nursing and Health Professions. In 1996 director Patricia Gerrity, PhD, RN, FAAN, placed a public health nurse at each of four housing developments in the neighborhood. The nurses responded to residents' immediate concerns: the need for stop signs, animal control, food assistance, and training in CPR. "Over that first year or two we gained the trust of the residents because we weren't defining the issues; they were," Dr. Gerrity said. "And it showed that we were making a long-term commitment."

From there, she met with area representatives to discover their visions for the community. They wanted a health care center, they said, one they could access regardless of their ability to pay. A community advisory board was formed, and the search for funding began. (Over the years the center has received funding from federal, state, and private sources.)

[33] *Patient Protection and Affordable Care Act*, H.R. 3590 § 5208, 111th Congress.

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Dr. Gerrity uses the word "transdisciplinary" rather than "multidisciplinary" or "interdisciplinary" to describe the care provided at 11th Street. "Transdisciplinary means you start to break down the barriers between disciplines. Each person learns something about the other person's discipline, and it enriches their own practice," Dr. Gerrity said. For example, behavioral health care has been incorporated into every primary care visit, with NPs and social workers closely collaborating.

The range of services provided is remarkably diverse. Patients like Ms. Scardigli undergo physical therapy. Patients with diabetes join cooking classes that make use of locally grown produce. First-time mothers receive home visits through the Nurse–Family Partnership. Six to eight mother–infant pairs meet through the Centering Parenting program. A fitness center with a full-time personal trainer is on site, full dental care is available, and chronic illness management groups provide peer support.

Unpublished outcome data for patients with diabetes show that in an 18-month period, the proportion who had glycosylated hemoglobin levels below 7 percent doubled and that low-density lipoprotein cholesterol and blood pressure levels fell as well. Also seen were reductions in depression and low-birth-weight infants and increases in immunization and breast cancer screening.

Access to payment for care coordination through medical home designation is important to the center's sustainability. Despite meeting the criteria set by the National Committee for Quality Assurance for qualifying as a Patient-Centered Medical Home™, 11th Street was denied the designation because it is led by nurses rather than physicians—an issue for the 250 nurse-managed health centers across the nation.

Lisa Scardigli is so impressed by all the center does that she now sits on the community advisory board. Recently, she brought in a neighbor of hers who needed new dentures. "She loves it," Ms Scardigli said. "She's 90, and she's from down south, so it reminds her of when the doctor used to come to your house and knew the family and sat down and broke bread."

Opportunities through Technology

There is perhaps no greater opportunity to transform practice than through technology. Information technology has long been used to support billing and payments but has become increasingly important in the provision of care as an aid to documentation and decision making. Diagnostic and monitoring machines have proven invaluable in the treatment of cancer, heart disease, and many other ailments. Examples cited by the IOM in *Crossing the Quality Chasm: A New Health System for the 21st Century* include "growing evidence that automated order entry systems can reduce errors in drug prescribing and dosing" and "improvements in timeliness through the use of Internet-based communication (i.e., e-visits, telemedicine) and immediate access to automated clinical information, diagnostic tests, and treatment results" (IOM, 2001). Since that report was published, the expanded use of online communication has resulted in so-called telehealth services that are not limited to diagnosis or treatment but also include health promotion, follow-up, and coordination of care. Delivery of telehealth services has, however, like that of APRN services, been complicated by variability in state regulations, particularly whenever online communications cross state lines.

Impact of Technology on the Design of Health Care Delivery

In 2009, the American Recovery and Reinvestment Act (ARRA) (Public Law 111-5) included provisions to create incentives for the adoption and meaningful use of health information technology (HIT). ARRA strengthened standards for maintaining the privacy and security of health information. ARRA provided grants to help state and local governments as well as health care providers in their efforts to adopt and use HIT. CMS also provided incentives, under ARRA to encourage eligible hospitals and health professionals to become "meaningful

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users" of certified electronic health records (EHRs). A definition of "meaningful use" was developed by the Secretary of HHS by official rulemaking procedures, providing opportunity for public and professional input (HHS, 2009). The meaningful use objectives will likely continue to be refined but outline core requirements that should be included in every EHR. By adopting these recommendations, users will be eligible for federal incentive payments and will be able to report information on the clinical quality of care. States can add or modify additional objectives to this definition for their Medicaid programs (CMS, 2010).

A recent article in the *New England Journal of Medicine* summarizes the meaningful use criterion as follows: "use by providers to achieve significant improvements in care" (Blumenthal and Tavenner, 2010). Given the nature of patient data collection, nurses will be integral to proper collection of meaningful use data. For example, among the first set of criteria to be measured include patient demographics, vital signs, and lists of patient's diagnoses, allergies, and active medications. As EHRs become more refined and integrated, nurses will have the opportunity to help define additional meaningful use objectives.

Implications for Time and Place of Care

Care supported by interoperable digital networks will shift in the importance of time and place. The patient/consumer will not always have to be in the same location as the provider, and the provider will not always have to interact with the patient in real time. As EHRs, computerized physician order entry (CPOE) systems, laboratory results, imaging systems, and pharmacies are all linked into the same network, many types of care can be provided without regard to location, as the "care grid" is available anywhere, anytime.

Remote patient monitoring is expanding exponentially. An ever-growing array of biometric devices (e.g., indwelling heart or blood sugar monitors) can collect, monitor, and report information from the patient in real time, in either an institution or the home. Some of these devices can also provide direct digitally mediated care; the automated insulin pump and implantable defibrillators are two examples.

The implications of these developments for nursing will be considerable and as yet are not fully understood (Abbott and Coenen, 2008). It is not clear how much of nursing care might be independent of physical location when HIT is fully implemented, but it will likely be a significant subset of care, possibly in the range of 15–35 percent of what nurses do today. That is, for this proportion of care, nurses need not be in the same locale (or even the same nation) as their patients. As new technologies impact the hospital and other settings for nursing services, this phenomenon may increase.

Implications for Nursing Practice

HIT will fundamentally change the ways in which RNs plan, deliver, document, and review clinical care. The process of obtaining and reviewing diagnostic information, making clinical decisions, communicating with patients and families, and carrying out clinical interventions will depart radically from the way these activities occur today. Moreover, the relative proportion of time RNs spend on various tasks is likely to change appreciably over the coming decades. While HIT arguably will have its greatest influence on how RNs plan and document their care, all facets of care will be mediated increasingly by digital workflow, computerized knowledge management, and decision support.

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In the future, virtually every facet of nursing practice in each setting where it is rendered will have a significant digital dimension around a core EHR. Biometric data collection will increasingly be automated, and diagnostic tests, medications, and some therapies will be computer generated and managed and delivered with computer support. Patient histories and examination data will increasingly be collected by devices that interface directly with the patient and automatically stream into the EHR. Examples include automated blood pressure cuffs, personal digital assistant (PDA)–based functional status, and patient history surveys.

In HIT-supported organizations, a broader array and higher proportion of services of all types will be provided within the context of computer templates and workflows. Care and its documentation will less frequently be "free-hand." As routine aspects of care become digitally mediated and increasingly rote, RNs and other clinicians can be expected to shift and expand their focus to more complex and nuanced "high-touch" tasks that these technologies cannot readily or appropriately accomplish, such as communication with and guidance and support for patients and their families. There will likely be greater opportunities for such interventions as counseling, behavior change, and social and emotional support—interventions that lie squarely within the province of nursing practice.

Impact of Technology on Quality, Efficiency, and Outcomes

Adoption of HIT is expected to increase the efficiency and effectiveness of clinician interactions with each patient and the target population. EHRs and other HIT should lower the cost per unit of service delivered and/or improve the quality of care as measured by outcomes or achievement of other end points, such as increased adherence to optimal guidelines. HIT will lead to greater efficiency if it takes less time for a clinician to provide the same unit of service or if a lower-cost clinician practicing with extensive HIT support can deliver the same type of care as a higher-cost non-HIT-supported provider. Controlled time and motion studies that have compared clinicians performing the same task with and without HIT support have produced mixed findings on time efficiencies gained across clinicians and settings. One area with emerging evidence is hospital nursing time spent in documentation, with studies showing a 23–24 percent reduction (Poissant et al., 2005). On the other hand, these efficiency gains may be partially offset by the information demands of quality improvement initiatives and similar programs undertaken by a growing number of institutions (DesRoches et al., 2008).[34]

According to a review of the literature conducted for the committee, although research on the impact of HIT on the quality of nursing care is limited, documentation quality and accessibility generally improve after the implementation of HIT. Medication errors almost always decrease after the implementation of bar code medication administration (Waneka and Spetz, 2009). DeRoches and colleagues (2008) conducted a national survey of more than 3,436 RNs (1,392 responses) and found that hospitals with basic EHR systems were more likely to be recognized for nursing excellence (magnets/magnet-like) and to have quality improvement programs. No differences were found in time spent on patient care activities for nurses in hospitals with and without minimally functioning systems.

[34] This paragraph draws on a paper commissioned by the committee on "Health Care System Reform and the Nursing Workforce: Matching Nursing Practice and Skills to Future Needs, Note Past Demands," prepared by Julie Sochalski, University of Pennsylvania School of Nursing, and Jonathan Weiner, Johns Hopkins University Bloomberg School of Public Health (see Appendix F on CD-ROM).

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Technology is also used to measure patient outcomes, with varying results. While measuring outcomes is critical to the provision of 21st-century health care, complications have developed in ensuring that outcome measures from different institutions and organizations are, in fact, comparable. Even ensuring that outcome measures from different parts of the same organization are comparable can be problematic. Researchers in Colorado conducted a comprehensive review of the use of rescue agents—a Joint Commission–approved quality measure—based on the EHRs at the Children's Hospital in Aurora. They found that variations in the way information was entered in the EHRs accounted for significant variations within the institution and could be responsible for as much as a 40-fold difference in outcome measures among hospitals (Kahn and Ranade, 2010). The researchers concluded that "more detailed clinical information may result in quality measures that are not comparable across institutions due [to] institution-specific workflow."

A longitudinal study of 326 hospitals found that those that had implemented more advanced EHR systems over the time period had higher costs and increased nurse staffing levels (Furukawa et al., 2010). Patient complications increased in these hospitals, while mortality for some conditions declined. It should be noted, however, that these results may be difficult to interpret because of the implementation of minimum nurse staffing regulations at the same time that the implementation of EHRs ramped up. During that time, nurse staffing rose, and thus costs per patient rose, and if there is any correlation between implementation of EHRs and increased nurse staffing due to the ratios, the results may confound the two. In addition, the study did not control for hospital ownership (e.g., nonprofit, for-profit) or system affiliation, both of which might be important.

Finally, a systematic review of the literature (fewer than 25 articles) showed that the time spent on documentation of care may increase or decrease with EHRs (Thompson et al., 2009). The increases in time however, may be compensated for by the use of EHRs in other activities, such as giving/receiving reports, reconciling medications, and planning care.

Technology Transforming Roles for Nurses

The new practice milieu—where much of nursing and medical care is mediated and supported within an interoperable "digital commons"—will support and potentially even require much more effective integration of multiple disciplines into a collaborative team focused on the patient's unique set of needs. Furthermore, interoperable EHRs linked with personal health records and shared support systems will influence how these teams work and share clinical activities. It will increasingly be possible for providers to work on digitally linked teams that will collaborate with patients and their families no longer limited by real-time contact.[35]

As the knowledge base and decision pathways that previously resided primarily in clinicians' brains are transferred to clinical decision support and CPOE modules of advanced HIT systems, some types of care most commonly provided by nurses can readily shift to personnel with less training or to patients and their families. Similarly, many types of care previously provided by physicians and other highly trained personnel can be provided effectively by APRNs and other specialty trained RNs. Furthermore, the performance of these fundamentally restructured teams

[35] This and the next paragraph draw on a paper commissioned by the committee on "Health Care System Reform and the Nursing Workforce: Matching Nursing Practice and Skills to Future Needs, Note Past Demands," prepared by Julie Sochalski, University of Pennsylvania School of Nursing, and Jonathan Weiner, Johns Hopkins University Bloomberg School of Public Health (see Appendix F).

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will be monitored through the use of biometric, psychometric, and other types of process and outcome "e-indicators" extracted from the HIT infrastructure.

Increasingly, technology is allowing nurses and other health care providers to offer their services in a wider range of settings. For example, the ability of the Visiting Nurse Service of New York to tap into mobile technology, as described in Chapter 2, allowed that organization to provide ever more complex care in the home setting (IOM, 2010a).

Involving Nurses in Technology Design and Implementation

As the largest segment of the health care workforce with some of the closest, most sustained interactions with patients, nurses are often the greatest users of technology. In many instances, they may know what will work best with regard to technological solutions, but they are asked for their opinions infrequently. According to a survey of nurses at 25 leading acute care facilities across the United States, nurses find "that existing systems are often splintered, unable to interface and require multiple log-on to access or enter data. They call repeatedly for integrated systems to ease their workload and help them reach clinical transformation" (Bolton et al., 2008).

Studies show that involving nurses in the design, planning, and implementation of technology systems leads to fewer problems during implementation (Hunt et al., 2004). The TIGER Initiative (for Technology Informatics Guiding Education Reform) is a collaborative effort of 1,400 nurses from various organizations, government agencies, and vendors whose goal is "to interweave informatics and enabling technologies transparently into nursing practice" (TIGER, 2009). As leaders from the TIGER Initiative told the committee, "Regardless of the setting or environment of care, the best, most up to date information is required to support safe, effective care and promote optimal outcomes." And yet, they pointed out, "Today, health information is not shared across the various providers and stakeholder groups who provide, fund and research care." The members of the TIGER Initiative hope to help change that situation by developing the capacity of nursing students and members of the nursing workforce "to use electronic health records to improve the delivery of health care" and "engage more nurses in leading both the development of a national health care information technology (NHIT) infrastructure and health care reform." They also see the need to "accelerate adoption of smart, standards based, interoperable technology that will make health care delivery safer, more efficient, timely, accessible, and patient-centered, while also reducing the burden of nurses" (TIGER, 2009).

Nurses have also invented new technology to help them care for their patients. For instance, Barbara Medoff Cooper, professor in pediatric nursing and director of the Center for Biobehavioral Research at the University of Pennsylvania School of Nursing, developed a microchip device that is situated between the nipple and the rest of the baby bottle. It measures the sucking ability of premature neonatal babies, which has been shown to be an accurate indication of the infant's ability to feed successfully and thus survive discharge. The information thus gathered has helped guide parents and providers in better planning for the care of high-risk neonates at home (Bakewell-Sachs et al., 2009; Medoff-Cooper et al., 2009).

Another effort, called TelEmergency, brings a certified emergency room physician to 12 rural hospitals in Mississippi from the University of Mississippi via a T-1 line, but only when needed. The system is managed by a group of 35 APRNs who provide care in these rural communities, including management of the technology as a referral system. The nurses are able to handle 60 percent of all emergency care, saving the hospital consortium $72,000 per month (AAN, 2010b).

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The case study in Box 3-5 shows how nurses at one institution are working to ensure that they spend their time in patient care and not on the technology associated with delivering modern health care.

BOX 3-5
Technology at Cedars-Sinai Hospital

SENDING ALERTS VIA TEXT MESSAGE SHORTENS NURSES' RESPONSE TIMES TO CRITICAL ALARMS

We're responding a lot faster, which hopefully translates into intervening to prevent harm and saving someone's life.
—Ray Hancock, MSN, RN, director of critical care and telemetry services, Cedars–Sinai Health System, Los Angeles

In January 2010 a California hospital was fined for the death of a man whose cardiac alarm had been set to an inaudible level; when his heart stopped, the emergency room nurses were unaware of it and failed to intervene (California Department of Public Health, 2009). That same month a man died in a Massachusetts hospital after his heart rate declined over a 20-minute period; nurses did not hear his cardiac alarm, investigators found, and a second alarm had been turned off (McKinney, 2010).

Nurses attend to a variety of alarms and alerts during a shift, and there is often no system in place for prioritizing urgency. Confusion and "alarm fatigue" can result, with potentially lethal consequences: the ECRI Institute lists alarm hazards as the second most serious of the top 10 technology hazards in health care for 2010 (ECRI Institute, 2010). The problem has been shown to pose a danger to patient safety (Graham and Cvach, 2010), as have problems with clinical alarms in general (ACCE Healthcare Technology Foundation, 2006). Unfortunately, nurses are rarely involved in decisions about new technologies in health care, although the patient's bedside has been identified as the area most in need of technological innovation (Bolton et al., 2008).

At a combined telemetry and medical–surgical unit at Cedars-Sinai Health System in Los Angeles, nurses are taking the lead in testing ways to aggregate and prioritize the alarms to which they must respond, most recently via text messages sent to nurses' and nursing assistants' BlackBerry devices. This system has replaced pagers and many bedside alarms, with promising results.

Timely, Accurate Messaging. In a unit where routine alerts might range in importance from an out-of-reach water pitcher to cardiac arrest, getting "the right message to the right person at the right time" is critical, said Joanne Pileggi, MSN, RN, the unit's nurse manager. Working with Emergin, a communications software company, the unit's nurses and nursing assistants categorized the alarms they receive—from cardiac monitors, patients' call buttons, bed alarms, code blues, and the laboratory—according to their urgency, classifying them as red (most critical), blue (moderately critical), or yellow (least critical).

For example, if a patient's cardiac monitor detects a dangerous arrhythmia, that information is sent to the unit's "command center," where a cardiac nurse sends out a red alert via text message to that patient's nurse and the charge nurse. A beep or vibration from the nurse's BlackBerry indicates that a new text message has arrived. The nurse can glance at the device, see that the alert is red, and reply immediately, eliminating several problems with overhead paging systems: the need for repeated pages, the inability of the nurse to respond, excessive noise on the unit, and delays in response.

The 30-bed unit employs nine registered nurses (RNs) on the day shift and nine on the night shift and has been testing a variety of devices for more than 2 years. Staff were involved from the beginning, Ms. Pileggi said, and everyone, including aides, received training from Emergin.

An Investment in Safety. Use of the BlackBerry devices has cut the number of overhead pages on the unit by more than half. Nurses report less alarm fatigue and faster response times to alarms, and they receive critical laboratory values 10 minutes sooner under the new system than under the old one. They also save time by not handling alarms that do not require a nurse's attention.

Darren Dworkin, chief information officer for Cedars-Sinai, said the initial costs of purchasing the devices and training the staff have paid off in more efficient and safer care. "Enabling nurses to spend more time at the bedside is a goal we want to achieve," he said, "and so if the technology achieves that, then we are achieving our return on investment." The unit has not conducted a cost–benefit analysis.

Few manufacturers are designing technologies with nurses in mind, and limitations of the available technology have meant that not all ideas for improving processes can be tested. For example, the unit could not incorporate IV pump alarms into the most recent test. Still, bedside nurses and patients are quite pleased. The nurses are looking forward to a test of iPhones, which will display cardiac rhythms on screen. Said Ms. Pileggi, "We're anticipating patients' needs, so there hasn't been the need for patients to call as often."

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CONCLUSIONS

The nursing profession has evolved more rapidly than the public policies that affect it. The ability of nurses to better serve the public is hampered by the constraints of outdated policies, particularly those involving nurses' scopes of practice. Evidence does not support the conclusion that APRNs are less able than physicians to provide safe, effective, and efficient care (Brown and Grimes, 1995; Fairman, 2008; Groth et al., 2010; Hatem et al., 2008; Hogan et al., 2010; Horrocks et al., 2002; Hughes et al., 2010; Laurant et al., 2004; Mundinger et al., 2000; Office of Technology Assessment, 1986). The roles of APRNs—and the roles of all nurses—are undergoing changes that will help make the transformative practice models outlined at the beginning of this chapter a more common reality. Such changes must be supported by a number of policy decisions, including efforts to remove the existing regulatory barriers to nursing practice. If the current conflicts between what nurses can do based on their education and training and what they may do according to state and federal policies and regulations are not addressed, patients will continue to experience limited access to high-quality care.

Despite the evidence demonstrating that APRNs are educated, trained, and competent to provide safe, high-quality care without the need for physician supervision, states' legislative decisions regarding legal scopes of practice range from restrictive to permissive. While medicine and a number of other professions enjoy practice regulations that are comparable across states, this goal has been elusive for nurses, particularly those working in advanced practice. With the availability now of a consensus document that offers agreed-upon standards for APRN education, training, and regulation, states that have been reluctant in the past may move toward broader scopes of practice. Such a move, however, considered by the committee to be a critical one, is not guaranteed. And while the committee defers to the rights of states to continue their regulation of health professionals, it also wishes to note why and how the federal government can play an important role in this arena.

The primary reason the federal government has a compelling interest in state regulation of health professionals is the responsibility to patients covered by federal programs such as Medicare and Medicaid. If access to care is hindered, if costs are unduly high, if quality of care could be improved for these millions of patients through evidence-based changes to the ways in which professionals may practice, the federal government has a right to explore the options and encourage change. An additional reason is the federal government's unique perspective—somewhat removed from that of the individual states—enabling it to shed light on the value and benefit to all Americans of harmonizing practice regulations among the states.

Certain federal entities may both defer to the states in adopting their own practice regulations and encourage the adoption of regulations that are consistent with current clinical evidence and comparable across the country. Congress, CMS, OPM, and the FTC each have specific authority

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or responsibility for decisions that either must be made at the federal to be consistent with state efforts to remove scope-of-practice barriers or could be made to encourage and support those efforts. While no single actor or agency can independently make a sweeping change to eliminate current barriers, the various state and federal entities can each make relevant decisions that together can lead to much-needed improvements.

In addition to regulatory barriers, cultural and organizational barriers constrain nurses' ability to identify solutions and implement them quickly, knowing that patients' lives and well-being are at stake. Moreover, an important priority in national health care reform is achieving better value for the expenditures made on health care services. Since health care is labor-intensive, getting more value from the health care system will depend in large part on enhancing the productivity and effectiveness of the workforce. Nurses therefore represent a large and unexploited opportunity to achieve greater value in health care.

The committee believes that any proposed changes in the responsibilities of the nursing workforce should be evaluated against their ability to support the provision of seamless, affordable, quality care that is accessible to all. In particular, the committee argues that now is the time to finally eliminate the outdated regulations and organizational and cultural barriers that limit the ability of nurses, including APRNs, to practice to the full extent of their education, training, and competence. The committee also believes that nurses must be allowed to lead improvement and redesign efforts (see Chapter 5).

Specifically, in order that all Americans may have access to high quality, safe health care, federal and state actions are required to update and standardize scope-of-practice regulations to take advantage of the full capacity and education of nurses. Cultural and organizational barriers should also be eliminated. States and insurance companies must follow through with specific regulatory, policy, and financial changes that uphold patient-centered care as the organizing principle for a reformed health care system. The education and training of nurses support their ability to offer a wider range of services safely and effectively—as documented by numerous studies. And nurses must respond to the challenge, reinventing themselves as needed in a rapidly evolving health care system. Nursing is, of course, not the only profession to confront the need to transform itself in response to new realities; similarly disruptive challenges have been faced in other fields, such as medicine, health care, publishing, education, business, manufacturing, and the military. In the field of health care, expansion of scopes of practice to reflect the full extent of one's education and training should occur for all health professionals to maximize the contributions of each to patient care. For example, one impact of enhancing nursing scopes of practice may be to allow the currently inadequate numbers of physicians to better use their time and skills on the most complex and challenging cases and tasks, as well as broaden the array of services they can offer as part of a collaborative team of providers (e.g., within new models of care—ACOs, medical homes, transitional care—that are part of the ACA, as well as in groups of specialty providers). To facilitate the most effective transition to team practice, as well as practice that encompasses full extent of their scope, all providers will require continual teaching and learning to facilitate the highest level of team functioning (see Chapter 4).

Key factors that contribute to the success of managing such a transition include technological literacy, good communication skills, adaptability to organizational changes, and a willingness to evaluate and reinvent how work is organized and accomplished (Kimball and O'Neil, 2002). Going forward under the ACA and whatever reforms may follow, the health care system is likely to change so rapidly that building the adaptive capacity of the nursing workforce to work across

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settings and in different types of roles in new models of care will require intentional development, expanded resources, and policy and regulatory changes.

Finally, the committee believes that if practice is to be transformed, nurses graduating with a bachelor's degree must be better prepared to enter the practice environment and confront the challenges they will encounter. Therefore, the committee concludes that nurse residency programs should be instituted to provide nurses with an appropriate transition to practice and develop a more competent nursing workforce.

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Annex 3-1
National Nursing Centers Consortium (NNCC) State-By-State Guide to Regulations Regarding Nurse Practitioner and Physician Practice, 2009

State	Physician Involvement Requirement (for Prescription)	On-Site Oversight Requirement	Quantitative Requirements for Physician Chart Review	Maximum NP-to-Physician Ratio
Alabama	MD Collaboration Required	10% of the time	10% of all charts, all adverse outcomes	1 MD - 3 full-time NPs or max. total of 120 hours/week
Alaska	None	None	No	N/A
Arizona	None	None	No	N/A
Arkansas	MD Collaboration Required	None	No	None stated
California	MD Supervision Required	None	No	4 prescribing NPs - 1 MD
Colorado	MD Collaboration Required (this requirement will be repealed effective 7/1/10 pursuant to 2009 Nurse Practice Act revisions)	None	No	5 NPs - 1 MD; board may waive restriction
Connecticut	MD Collaboration Required	None	No	None stated
Delaware	MD Collaboration Required	None	No	None stated

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State	Physician Involvement Requirement (for Prescription)	On-Site Oversight Requirement	Quantitative Requirements for Physician Chart Review	Maximum NP-to-Physician Ratio
Florida	MD Supervision Required	None	No	1 MD - no more than 4 offices in addition to MD's primary practice location (If MD provides primary health care services)
Georgia	MD Delegation Required	None	All controlled substance Rx w/in 3 mos of issuance of Rx, all adverse outcomes w/in 30 days of discovery, 10% of all other charts at least annually	4 NPs - 1 MD
Hawaii	MD Collaboration Required	None	No	None stated
Idaho	None	None	No	N/A
Illinois	MD Delegation Required	At least once per month (no duration specified)	Yes, periodic review required for Rx orders	None stated
Indiana	MD Collaboration Required	None	Yes, at least 5% random sample of charts and medications prescribed for patients	None stated
Iowa	None	None	No	N/A
Kansas	MD Collaboration Required	None	No	None stated
Kentucky	MD Collaboration Required	None	No	None stated
Louisiana	MD Collaboration Required	None	No	None stated

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State	Physician Involvement Requirement (for Prescription)	On-Site Oversight Requirement	Quantitative Requirements for Physician Chart Review	Maximum NP-to-Physician Ratio
Maine	None (although supervision required for first 24 months of NP practice)	None	No	N/A
Maryland	MD Collaboration Required	None	Yes (percentage left to MD & NP discretion)	None stated
Massachusetts	MD Supervision Required	None	Yes (for Rx only - once every 3 months, percentage left to MD & NP discretion)	None stated
Michigan	MD Delegation Required	None	No	None stated
Minnesota	MD Delegation Required	None	No	None stated
Mississippi	MD Collaboration Required	At least once every 3 months	Yes - a representative sample of either 10% or 20 charts, whichever is less, every month	None stated
Missouri	MD Delegation Required	NP must first practice for at least one month at same location of collaborating MD, after which time MD must be on-site once every 2 weeks	Yes - once every 2 weeks	3 FTE NPs - 1 MD
Montana	None	None	15 or 5% of charts, whichever is less, reviewed quarterly (may be reviewed by MD or NP peer)	None stated

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State	Physician Involvement Requirement (for Prescription)	On-Site Oversight Requirement	Quantitative Requirements for Physician Chart Review	Maximum NP-to-Physician Ratio
Nebraska	MD Collaboration Required	None	No	None stated
Nevada	MD Collaboration Required	Part of a day, once a month	Yes (percentage left to MD & NP discretion)	3 NPs - 1 MD
New Hampshire	None	None	No	N/A
New Jersey	MD Collaboration Required	None	Yes - periodic review (percentage left to MD & NP discretion)	None stated
New Mexico	None	None	No	N/A
New York	MD Collaboration Required	None	Yes at least once every 3 months (percentage left to MD & NP discretion)	4:1 NPs to physicians (only applies if more than 4 NPs practice off-site)
North Carolina	MD Supervision Required	None	Yes (for initial 6 months of collaboration, must be review and countersigning by MD w/in 7 days of NP-patient contact & meetings of NP-MD on weekly basis for first month, & then at least monthly for next 5 months)	None stated
North Dakota	MD Collaboration Required	None	No	None stated
Ohio	MD Collaboration Required	None	Yes - periodic review (annually, percentage left to MD & NP discretion)	3 NPs - 1 MD
Oklahoma	MD Supervision Required	None	No	2 FTE NPs or max 4 PT NPs - 1 MD

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State	Physician Involvement Requirement (for Prescription)	On-Site Oversight Requirement	Quantitative Requirements for Physician Chart Review	Maximum NP-to-Physician Ratio
Oregon	None	None	No	N/A
Pennsylvania	MD Collaboration Required	None	Yes (percentage left to MD & NP discretion)	4 NPs - 1 MD
Rhode Island	MD Collaboration Required	None	No	None stated
South Carolina	MD Delegation Required	None	No	3 NPs - 1 MD
South Dakota	MD Collaboration Required	No less than one half day a week or 10% of the time	Yes (percentage left to MD & NP discretion)	4 NPs - 1 MD
Tennessee	MD Supervision Required	Once every 30 days (no duration specified)	20% of all charts every 30 days	None stated
Texas	MD Delegation Required	For sites serving medically underserved populations: at least once every 10 days (no duration specified). 10% for designated alternative practice sites.	10% of all charts	3 NPs or FTE - 1 MD (for alternative practice sites, 4 - 1; can be waived up to 6 - 1)
Utah	MD Collaboration Required	None	No	None stated
Vermont	MD Collaboration Required	None	Yes (percentage left to MD & NP discretion)	None stated
Virginia	MD Supervision Required	MD must "regularly practice" at location where NP practices	Yes - periodic review (percentage left to MD & NP discretion)	4 NPs - 1 MD
Washington	None	None	No	N/A

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State	Physician Involvement Requirement (for Prescription)	On-Site Oversight Requirement	Quantitative Requirements for Physician Chart Review	Maximum NP-to-Physician Ratio
West Virginia	MD Collaboration Required	None	Periodic and joint review of Rx practice (no percentage specified)	None stated
Wisconsin	MD Collaboration Required	None	No	None stated
Wyoming	MD Collaboration Required	None	No	None stated

NOTES: For the purposes of this chart, "collaboration" includes all collaboration-like requirements (such as "collegial relationship," etc.).
FTE = full-time equivalent; MD = medical doctor; NP = nurse practitioner; PT = part time; Rx = prescription.
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REFERENCE

NNCC. 2009. *NNCC's state-by-state guide to regulations regarding nurse practitioner and physician practice 2009*. http://www.nncc.us/research/ContractingToolkit/contractingtoolkitgrid.pdf (accessed September 27, 2010).

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4
Transforming Education

> ***Key Message #2: Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.***
>
> *Major changes in the U.S. health care system and practice environments will require equally profound changes in the education of nurses both before and after they receive their licenses. Nursing education at all levels needs to provide a better understanding of and experience in care management, quality improvement methods, systems-level change management, and the reconceptualized roles of nurses in a reformed health care system. Nursing education should serve as a platform for continued lifelong learning and include opportunities for seamless transition to higher degree programs. Accrediting, licensing, and certifying organizations need to mandate demonstrated mastery of core skills and competencies to complement the completion of degree programs and written board examinations. To respond to the underrepresentation of racial and ethnic minority groups and men in the nursing workforce, the nursing student body must become more diverse. Finally, nurses should be educated with physicians and other health professionals as students and throughout their careers.*

Major changes in the U.S. health care system and practice environments will require equally profound changes in the education of nurses both before and after they receive their licenses. In Chapter 1, the committee set forth a vision of health care that depends on a transformation of the roles and responsibilities of nurses. This chapter outlines the fundamental transformation of nurse education that must occur if this vision is to be realized.

The primary goals of nursing education remain the same: nurses must be prepared to meet diverse patients' needs; function as leaders; and advance science that benefits patients and the capacity of health professionals to deliver safe, quality patient care. At the same time, nursing education needs to be transformed in a number of ways to prepare nursing graduates to work collaboratively and effectively with other health professionals in a complex and evolving health care system in a variety of settings (see Chapter 3). Entry-level nurses, for example, need to be able to transition smoothly from their academic preparation to a range of practice environments, with an increased emphasis on community and public health settings. And advanced practice registered nurses (APRNs) need graduate programs that can prepare them to assume their roles in primary care, acute care, long-term care, and other settings, as well as specialty practices.

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This chapter addresses key message #2 set forth in Chapter 1: Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression. The chapter begins by focusing on nurses' undergraduate education, emphasizing the need for a greater number of nurses to enter the workforce with a baccalaureate degree or to progress to this degree early in their career. This section also outlines some of the challenges to meeting undergraduate educational needs. The chapter then turns to graduate nursing education, stressing the need to increase significantly the numbers and preparation of nurse faculty and researchers at the doctoral level. The third section explores the need to establish, maintain, and expand new competencies throughout a nurse's education and career. The chapter next addresses the challenge of underrepresentation of racial and ethnic minority groups and men in the nursing profession and argues that meeting this challenge will require increasing the diversity of the nursing student body. The fifth section describes some creative solutions that have been devised for addressing concerns about educational capacity and the need to transform nursing curricula. The final section presents the committee's conclusions regarding the improvements needed to transform nursing education.

The committee could have devoted this entire report to the topic of nursing education—the subject is rich and widely debated. However, the committee's statement of task required that it examine a range of issues in the field, rather than delving deeply into the many challenges involved in and solutions required to advance the nursing education system. Several comprehensive reports and analyses addressing nursing education have recently been published. They include a 2009 report from the Carnegie Foundation that calls for a "radical transformation" of nursing education (Benner et al., 2009); a 2010 report from a conference sponsored by the Macy Foundation that charts a course for "life-long learning" that is assessed by the "demonstration of competency [as opposed to written assessment] in both academic programs and in continuing education" (AACN and AAMC, 2010); two consensus reports from the Institute of Medicine (IOM) that call for greater interprofessional education of physicians, nurses, and other health professionals, as well as new methods of improving and demonstrating competency throughout one's career (IOM, 2003b, 2009); and other articles and reports on necessary curriculum changes, faculty development, and new partnerships in education (Erickson, 2002; Lasater and Nielsen, 2009; Mitchell et al., 2006; Orsolini-Hain and Waters, 2009; Tanner C. A et al., 2008). Additionally, in February 2009, the committee hosted a forum on the future of nursing in Houston, Texas, that focused on nursing education. Discussion during that forum informed the committee's deliberations and this chapter; a summary of that forum is included on the CD-ROM in the back of this report.[1] Finally, Appendix A highlights other recent reports relevant to the nursing profession. The committee refers readers wishing to explore the subject of nursing education in greater depth to these publications.

UNDERGRADUATE EDUCATION

This section begins with an overview of current undergraduate nursing education, including educational pathways, the distribution of undergraduate degrees, the licensing exam, and costs (see Appendix E for additional background information on undergraduate education). The discussion then focuses on the need for more nurses prepared at the baccalaureate level. Finally, barriers to meeting undergraduate educational needs are reviewed.

[1] The summary also can be downloaded at http://www.iom.edu.

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Overview of Current Undergraduate Education

Educational Pathways

Nursing is unique among the health care professions in the United States in that it has multiple educational pathways leading to an entry-level license to practice (see the annexes to Chapter 1 and Appendix E). For the past four decades, nursing students have been able to pursue three different educational pathways to become registered nurses (RNs): the bachelor's of science in nursing (BSN), the associate's degree in nursing (ADN), and the diploma in nursing. More recently, an accelerated, second-degree bachelor's program for students who possess a baccalaureate degree in another field has become a popular option. This multiplicity of options has fragmented the nursing community and has created confusion among the public and other health professionals about the expectations for these educational options. However, these pathways also provide numerous opportunities for women and men of modest means and diverse backgrounds to access careers in an economically stable field.

In addition to the BSN, ADN, or diploma received by RNs, another undergraduate-level program available is the licensed practical/vocational diploma in nursing. Licensed practical/vocational nurses (LPNs/LVNs) are especially important because of their contributions to care in long-term care facilities and nursing homes.[2] LPNs/LVNs receive a diploma after completion of a 12-month program. They are not educated or licensed for independent decision making for complex care, but obtain basic training in anatomy and physiology, nutrition, and nursing techniques. Some LPNs/LVNs continue their education to become RNs; in fact, approximately 17.9 percent of RNs were once licensed as LPNs/LVNs. (HRSA, 2010b) While most LPNs/LVNs have an interest in advancing their education, a number of barriers to their doing so have been cited, including financial concerns, lack of capacity and difficulty getting into ADN and BSN programs, and family commitments (HRSA, 2004). Although this chapter focuses primarily on the education of RNs and APRNs, the committee recognizes the contributions of LPNs/LVNs in improving the quality of health care. The committee also recognizes the opportunity the LPN/LVN diploma creates as a possible pathway toward further education along the RN and APRN tracks for the diverse individuals who hold that diploma.

Distribution of Undergraduate Degrees

At present, the most common way to become an RN is to pursue an ADN at a community college. Associate's degree programs in nursing were launched in the mid-20th century in response to the nursing shortage that followed World War II (Lynaugh, 2008; Lynaugh and Brush, 1996). The next most common undergraduate nursing degree is the BSN, a 4-year degree typically offered at a university. Baccalaureate nursing programs emphasize liberal arts, advanced sciences, and nursing coursework across a wider range of settings than are addressed by ADN programs, along with formal coursework that emphasizes both the acquisition of leadership development and the exposure to community and public health competencies. The least common route to becoming an RN currently is the diploma program, which is offered at a hospital-based school and generally lasts 3 years. During the 20th century, as nursing gained a

[2] While titles for LPNs and LVNs vary from state to state, their responsibilities and education are relatively consistent. LPNs/LVNs are required to pass the National Council Licensure Examination for Practical Nurses (NCLEX-PN) to secure a license to practice.

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stronger theoretical foundation and other types of nursing programs increased in number, the number of diploma programs declined remarkably except in a few states, such as New Jersey, Ohio, and Pennsylvania. Figure 4-1 gives an overview of trends in the distribution of nursing graduates by initial nursing degree.

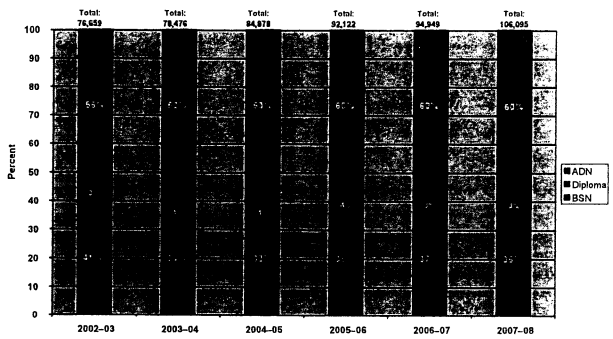

FIGURE 4-1 Trends in graduation from basic RN programs, by type, 2002–2008.
SOURCE: NLN, 2010b.

Entry into Practice: The Licensing Exam[3]

Regardless of which educational pathway nursing students pursue, those working toward an RN must ultimately pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN), which is administered by the National Council of State Boards of Nursing (NCSBN), before they are granted a license to practice. Rates of success on the NCLEX-RN are often used for rating schools or for marketing to potential students. As with many entry-level licensing exams, however, the NCLEX-RN uses multiple-choice, computer-based methods to test the minimum competency required to practice nursing safely. The exam is administered on a pass/fail basis and although rigorous, is not meant to be a test of optimal performance. Following passage of the exam, individual state boards of nursing grant nurses their license to practice.

The content of the NCLEX-RN is based on surveys of what new nurses need to know to begin their practice. As with most entry-level licensing exams, the content of the NCLEX-RN directly influences the curricula used to educate nursing students. Currently, the exam is skewed toward acute care settings because this is where the majority of nurses are first employed and where most work throughout their careers. To keep pace with the changing demands of the health care system and patient populations, including the shift toward increasing care in

[3] See https://www.ncsbn.org/nclex.htm.

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community settings (see Chapter 2), the focus of the exam will need to shift as well. Greater emphasis must be placed on competencies related to community health, public health, primary care, geriatrics, disease prevention, health promotion, and other topics beyond the provision of nursing care in acute care settings to ensure that nurses are ready to practice in an evolving health care system.

Costs of Nursing Education

Although a limited number of educational grants and scholarships are available, most of individuals seeking nursing education must finance their own education at any level of preparation. Costs vary based on the pathway selected for basic preparation and through to doctoral preparation. The LPN degree is the least expensive to attain, followed by the ADN, BSN (accelerated program), BSN, master's of science in nursing (MSN), and PhD/doctor of nursing practice (DNP) degrees. It is no surprise that educational costs and living expenses play a major role in determining which degree is pursued and the numbers of nurses who seek advanced degrees.

To better understand the costs of nursing education, the committee asked The Robert Wood Johnson Foundation (RWJF) Nursing Research Network to estimate the various costs associated with pursuing nursing education, specifically at the advanced practice level, in comparison with those for a medical doctor (MD) or doctor of osteopathy (DO). The RWJF Nursing Research Network produced several comparison charts in an attempt to convey accurately the differences in costs between alternative nursing degrees and the MD or DO degree. This task required making assumptions about public versus private and proprietary/for-profit education options, prerequisites for entry, and years required to complete each degree. An area of particular difficulty arose in assessing costs associated with obtaining an ADN degree. In most non–health care disciplines, the associate's degree takes 2 years to complete. In nursing, however, surveys have found that it takes students 3 to 4 years to complete an ADN program because of the need to fulfill prerequisites necessary to prepare students for entry into degree programs and the lack of adequate faculty, which lead to long waiting lists for many programs and classes (Orsolini-Hain, 2008). Box 4-1 illustrates the challenges of this task by outlining the difficulty of comparing the cost of becoming a physician with the cost of becoming an APRN. The task of comparing the increasing "sticker costs" of nursing and medical education was complicated further because much of the data needed to compute those costs is either missing or drawn from incomparable years. In the end, the committee decided not to include detailed discussion of the costs of nursing education in this report.

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BOX 4-1
Costs of Health Professional Education

Depending on the method used, the number of advanced practice registered nurses (APRNs) that can be trained for the cost of training 1 physician is between 3 and 14. Assessing the costs of education is a multidimensional problem. Manno (1998) has suggested that costs for higher education can be measured in at least four ways:

- "the production cost of delivering education to students;
- the 'sticker price' that students/families are asked to pay;
- the cost to students to attend college, including room and board, books and supplies, transportation, tuition, and fees; and
- the net price paid by students after financial aid awards" (Starck, 2005).

While the first of these measures, the production cost to the institution, is the most complete, it is the most complex to derive. One study attempted to compare the educational cost for various health professions. This study, sponsored by the Association of Academic Health Centers (Gonyea, 1998), used the 1994 methodology of Valberg and colleagues, which included 80 percent essential education and 20 percent complementary research and service (Valberg et al., 1994). The conclusion reached was that for every 1 physician (4 years), 14 advanced nurse practitioners or 12 physician assistants could be produced (Starck, 2005).

If one examines simply the cost to students of postsecondary training (the "sticker price"), the differences among professions are slightly less dramatic. The cost to students is defined as the tuition and fees students/families pay. This measure does not include costs associated with room and board, books, transportation, and other living expenses. Nor does it include those costs incurred by the educational programs that may be beyond what is covered by tuition revenues. Residency programs for physicians are not included in this estimate because students do not pay them.

Medical residencies are funded largely by Medicare, and in 2008, totaled approximately $9 billion per year ($100,000 on average for each of about 90,000 residents) for graduate medical education. (MedPAC, 2009). Some of the Medicare expenditures are for indirect costs, such as the greater costs associated with operating a teaching hospital. Estimates of the average cost per resident for the federal government are difficult to establish because of the wide variation in payments by specialty and type of hospital. In addition, residency costs vary significantly by year, with the early years requiring more supervision than the later years.

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Why More BSN-Prepared Nurses Are Needed

The qualifications and level of education required for entry into the nursing profession have been widely debated by nurses, nursing organizations, academics, and a host of other stakeholders for more than 40 years (NLN, 2007). The causal relationship between the academic degree obtained by RNs and patient outcomes is not conclusive in the research literature. However, several studies support a significant association between the educational level of RNs and outcomes for patients in the acute care setting, including mortality rates (Aiken et al., 2003; Estabrooks et al., 2005; Friese et al., 2008; Tourangeau et al., 2007; Van den Heede et al., 2009). Other studies argue that clinical experience, qualifications before entering a nursing program (e.g., SAT scores), and the number of BSN-prepared RNs that received an earlier degree confound the value added through the 4-year educational program. One study found that the level of experience of nurses was more important than their education level in mitigating medication errors in hospitals (Blegen et al., 2001). Another study performed within the Department of Veterans Affairs (VA) system found no significant association between the proportion of RNs with a baccalaureate degree and patient outcomes at the hospital level (Sales et al., 2008).

This debate aside, an all-BSN workforce at the entry level would provide a more uniform foundation for the reconceptualized roles for nurses and new models of care that are envisioned in Chapters 1 and 2. Although a BSN education is not a panacea for all that is expected of nurses in the future, it does, relative to other educational pathways, introduce students to a wider range of competencies in such arenas as health policy and health care financing, leadership, quality improvement, and systems thinking. One study found that new BSN graduates reported significantly higher levels of preparation in evidence-based practice, research skills, and assessment of gaps in areas such as teamwork, collaboration, and practice (Kovner et al., 2010)—other important competencies for a future nursing workforce. Moreover, as more nurses are being called on to lead care coordination efforts, they should have the competencies requisite for this task, many of which are included in the American Association of Colleges of Nursing's (AACN) *Essentials of Baccalaureate Education for Professional Nursing Practice*.[4]

Care within the hospital setting continues to grow more complex, and nurses must make critical decisions associated with care for sicker, frailer patients. Care in this setting depends on sophisticated, life-saving technology coupled with complex information management systems that require skills in analysis and synthesis. Care outside the hospital is becoming more complex as well. Nurses are being called upon to coordinate care among a variety of clinicians and community agencies; to help patients manage chronic illnesses, thereby preventing acute care episodes and disease progression; and to use a variety of technological tools to improve the quality and effectiveness of care. A more educated nursing workforce would be better equipped to meet these demands.

An all BSN-workforce would also be poised to achieve higher levels of education at the master's and doctoral levels, required for nurses to serve as primary care providers, nurse researchers, and nurse faculty—positions currently in great demand as discussed later in this chapter. Shortages of nurses in these positions continue to be a barrier to advancing the profession and improving the delivery of care to patients.

[4] See http://www.aacn.nche.edu/education/pdf/BaccEssentials08.pdf.

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Some health care organizations in the United States are already leading the way by requiring more BSN-prepared nurses for entry-level positions. A growing number of hospitals, particularly teaching and children's hospitals and those that have been recognized by the American Nurses Credentialing Center (ANCC) Magnet Recognition Program (see Chapter 5), favor the BSN for employment (Aiken, 2010). Depending on the type of hospital, the goal for the proportion of BSN-prepared nurses varies; for example, teaching hospitals aim for 90 percent, whereas community hospitals seek at least 50 percent (Goode et al., 2001). Absent a nursing shortage, then, nurses holding a baccalaureate degree are usually the preferred new-graduate hires in acute care settings (Cronenwett, 2010). Likewise, in a recent survey of 100 physician members of Sermo.com (see Chapter 3 for more information on this online community), conducted by the RWJF Nursing Research Network, 76 percent of physicians strongly or somewhat agreed that nurses with a BSN are more competent than those with an ADN. Seventy percent of the physicians surveyed also either strongly or somewhat agreed that all nurses who provide care in a hospital should hold a BSN, although when asked about the characteristics they most value in nurses they work with, the physicians placed a significantly higher value on compassion, efficiency, and experience than on years of nursing education and caliber of nursing school (RWJF, 2010c).

In community and public health settings, the BSN has long been the preferred minimum requirement for nurses, given the competencies, knowledge of community-based interventions, and skills that are needed in these settings (ACHNE, 2009; ASTDN, 2003). The U.S. military and the VA also are taking steps to ensure that the nurses making up their respective workforces are more highly educated. The U.S. Army, Navy, and Air Force require all active duty RNs to have a baccalaureate degree to practice, and the U.S. Public Health Service has the same requirement for its Commissioned Officers. Additionally, as the largest employer of RNs in the country, the VA has established a requirement that nurses must have a BSN to be considered for promotion beyond entry level (AACN, 2010c). As Table 4-1 shows, however, the average earnings of BSN-prepared nurses are not substantially higher than those of ADN- or diploma-prepared nurses.

TABLE 4-1 Average Earnings of Full-Time RNs, by Highest Nursing or Nursing-Related Education and Job Title

	Earnings				
Position	Diploma ($)	Associate's Degree ($)	Bachelor's Degree ($)	Master's/ Doctoral Degree ($)	Overall Average ($)
All nurses	65,349	60,890	66,316	87,363	66,973
Staff nurse	63,027	59,310	63,382	69,616	61,706
First-line management	68,089	66,138	75,144	85,473	72,006
Senior/middle management	74,090	69,871	79,878	101,730	81,391
Patient coordinator	62,693	60,240	64,068	71,516	62,978

NOTE: Only those who provided earnings information to surveyors are included in the calculations used for this table.
SOURCE: HRSA, 2010b.

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Decades of "blue ribbon panels" and reports to Congress on the health care workforce have found that there is a significant shortage of nurses with baccalaureate and higher degrees to respond to the nation's health needs (Aiken, 2010). Almost 15 years ago, the National Advisory Council on Nurse Education and Practice, which advises Congress and the secretary of Health and Human Services on areas relevant to nursing, called for the development of policy actions that would ensure a minimum of 66 percent of RNs who work as nurses would have a BSN or higher degree by 2010 (Aiken et al., 2009). The result of policy efforts of the past decade has been a workforce in which approximately 50 percent of RNs hold a BSN degree or higher, a figure that includes ADN- and diploma-educated RNs who have gone on to obtain a BSN (HRSA, 2010b). Of significant note, the Tri-Council for Nursing, which consists of the American Nurses Association (ANA), American Organization of Nurse Executives (AONE), National League for Nursing (NLN), and American Association of Colleges of Nursing (AACN), recently released a consensus policy statement calling for a more highly educated nursing workforce, citing the need to increase the number of BSN-prepared nurses to deliver safer and more effective care (AACN, 2010a).

In sum, an increase in the percentage of nurses with a BSN is imperative as the scope of what the public needs from nurses grows, expectations surrounding quality heighten, and the settings where nurses are needed proliferate and become more complex. The formal education associated with obtaining the BSN is desirable for a variety of reasons, including ensuring that the next generation of nurses will master more than basic knowledge of patient care, providing a stronger foundation for the expansion of nursing science, and imparting the tools nurses need to be effective change agents and to adapt to evolving models of care. As discussed later in this chapter, the committee's recommendation for a more highly educated nursing workforce must be paired with overall improvements to the education system and must include competencies in such areas as leadership, basic health policy, evidence-based care, quality improvement, and systems thinking. Moreover, even as the breadth and depth of content increase within prelicensure curricula, the caring essence and human connectedness nurses bring to patient care must be preserved. Nurses need to continue to provide holistic, patient-centered care that goes beyond physical health needs to recognize and respond to the social, mental, and spiritual needs of patients and their families. Other fundamental elements of nursing education, such as ethics and integrity, need to remain intact as well.

The Goal and a Plan for Achieving It

In the committee's view, increasing the percentage of the current nursing workforce holding a BSN from 50 to 100 percent in the near term is neither practical nor achievable. Setting a goal of increasing the percentage to 80 percent by 2020 is, however, bold, achievable, and necessary to move the nursing workforce to an expanded set of competencies, especially in the domains of community and public health, leadership, systems improvement and change, research, and health policy.

The committee believes achieving the goal of 80 percent of the nursing workforce having a BSN is possible in part because much of the educational capacity needed to meet this goal exists. RNs with an ADN or diploma degree have a number of options for completing the BSN, as presented below. The combination of these options and others yet to be developed will be needed to meet the 80 percent goal—no one strategy will provide a universal solution. Technologies, such as the use of simulation and distance learning through online courses, will have to play a key role as well. Above all, what is needed to achieve this goal is the will of nurses to return to

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higher education, support from nursing employers and others to help fund nursing education, the elevation of educational standards, an education system that recognizes the experience and previous learning of returning students, and regional collaboratives of schools of nursing and employers to share financial and human resources.

While there are challenges associated with shortages of nurse faculty and clinical education sites (discussed below), these challenges are less problematic for licensed RNs pursuing a BSN than for prelicensure students, who require more intense oversight and monitoring by faculty. Additionally, most of what ADN-prepared nurses need to move on to a baccalaureate degree can be taught in a classroom or online, with additional tailored clinical experience. Online education creates flexibility and provides an additional skill set to students who will use technology into the future to retrieve and manage information.

Over the course of its deliberations and during the forum on education held in Houston, the committee learned about several pathways that are available to achieve the goal of 80 percent of the nursing workforce having a BSN (additional innovations discussed at the forum on education can be found in the forum summary on the CD-ROM in the back of this report). For RNs returning to obtain their BSN, a number of options are possible, including traditional RN-to-BSN programs. Many hospitals also have joint arrangements with local universities and colleges to offer onsite classes. Hospitals generally provide stipends to employees as an incentive to continue their education. Online education programs make courses available to all students regardless of where they live. For prospective nursing students, there are traditional 4-year BSN programs at a university, but there are also community colleges now offering 4-year baccalaureate degrees in some states (see the next section). Educational collaboratives between universities and community colleges, such as the Oregon Consortium for Nursing Education (described in Box 4-2), allow for automatic and seamless transition from an ADN to a BSN program, with all schools sharing curriculum, simulation facilities, and faculty. As described below, this type of model is goes beyond the conventional articulation agreement between community colleges and universities. Beyond traditional nursing schools, new providers of nursing education are entering the market, such as proprietary/for-profit schools. These programs are offering new models and alternatives for delivering curriculum and reaching RNs and prospective students, although each of these schools should be evaluated for its ability to meet nursing accreditation standards, including the provision of clinical experiences required to advance the profession.

Two other important programs designed to facilitate academic progression to higher levels of education are the LPN-to-BSN and ADN-to-MSN programs. The ADN-to-MSN program, in particular, is establishing a significant pathway to advanced practice and faculty positions, especially at the community college level. Financial support to help build capacity for these programs will be important, including funding for grants and scholarships for nurses wishing to pursue these pathways. By the same token, the committee believes that diploma programs should be phased out over the next 10 years and should consolidate their resources with those of community college or preferably university programs offering the baccalaureate degree. Additionally, there are federal resources currently being used to support diploma schools that could better be used to expand baccalaureate and higher education programs.

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BOX 4-2
The Oregon Consortium for Nursing Education (OCNE)

SHARING RESOURCES TO PREPARE THE NEXT GENERATION OF NURSES

OCNE is an outgrowth of a great need in Oregon for a new kind of nurse. That new nurse is capable of independent decision making while practicing in acute care settings and able to marshal the best available evidence while providing leadership within changing systems.
—Christine A. Tanner, PhD, RN, A. B. Youmans-Spaulding distinguished professor, School of Nursing, Oregon Health & Science University, Portland, Oregon

In 2006, when Basilia Basin, BSN, RN, entered nursing school at Mount Hood Community College in Gresham, Oregon, near Portland, she was not sure whether she would pursue a bachelor's degree. A paycheck was important, she thought, and if she could obtain an associate's degree and a license after 3 years of schooling, why stay on for a fourth year to get her bachelor's? She took her time answering the question, but in the end she went for "the opportunity for professional development," she said.

Ms. Basin was in the first class of nursing students affiliated with the Oregon Consortium for Nursing Education (OCNE; www.ocne.org), a partnership, formed in 2003, between the five geographically dispersed campuses of Oregon Health & Science University (OHSU) and eight community colleges across Oregon. The 13 campuses share a standard, competency-based curriculum that was developed by faculty at full-partner community colleges and the university. The model makes the best use of scarce resources by pooling faculty, classrooms, and clinical education resources in a state with urban, rural, and frontier settings (Gubrud-Howe et al., 2003; Tanner et al., 2008). Community college nursing students can obtain their associate's degree in 3 years and continue for another year at OHSU to receive their baccalaureate without leaving their rural communities. This is facilitated through a seamless co-enrollment process across types of schools and financial aid transfers from the community college to the university. The overarching goal is twofold: to broaden and strengthen the professional competency of new nurses like Ms. Basin and to use scarce resources wisely to address the nursing shortage.

Ms. Basin took her nursing licensure examination after she attained her associate's degree, remaining dually enrolled at Mount Hood and OHSU. "It was quite a unique experience," she said, "working as a nurse and being in school to become a nurse."

That experience is one that Christine A. Tanner, PhD, RN, FAAN, would like to make less unique for nursing students in her state. "We created a system that makes the best use of faculty resources, clinical training sites, and the strengths of the community college systems and the university," said Dr. Tanner, A. B. Youmans-Spaulding distinguished professor at OHSU's nursing school. Using resources more efficiently was not her sole aim, however. The nation needs "a new kind of nurse," she said, one competent in the skills needed for care in the 21st century. But only 21 percent of nurses receiving an associate's degree nationwide go on to obtain a bachelor's degree (HRSA, 2006), leaving the nation with an insufficient supply of nurses who can become faculty, advanced practice registered nurses, or clinicians prepared for a future health care system that emphasizes community-based care.

Dr. Tanner knew that nursing schools needed a new kind of curriculum. She and her OHSU colleagues met with representatives of the community colleges and agreed to craft a single nursing curriculum that would span all 13 campuses. The first course in the program, after prerequisites, is health promotion. It introduces students to clinical decision making and nursing leadership—"learning to think like a nurse," as Dr. Tanner put it—as they relate to prevention and wellness. Students then move on to courses in chronic illness management and acute care. Those who remain enrolled for the bachelor's take courses in population-based care, epidemiology, leadership, and outcome management.

Although the number of nursing students per faculty member in Oregon nearly doubled between 2001 and 2008 (Oregon Center for Nursing, 2009), 95 to 100 percent of graduates of OCNE schools pass the nursing licensure exam (the national average is 88 percent [(NCSBN, 2009)]). Of students in the OCNE system who attain an associate's degree, 45 percent receive a bachelor's degree. One important result is that nurses with a baccalaureate are becoming more widely distributed in rural areas.

Dr. Tanner is working on educational redesign with the Center to Champion Nursing in America, funded by The Robert Wood Johnson Foundation, and its state partnerships of nursing and other stakeholders concerned about the nursing shortage. Ten state partnerships have committed to adopting

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the model; five states—Hawaii, New York, North Carolina, California, and New Mexico—have already begun. Dr. Tanner is consulting with faculty members in at least ten other states, and the nation's largest urban public university system, the City University of New York, is adopting the model as well.

Robyn Alper, MA, BSN, RN, an OCNE graduate now working as a nurse for a county in northern Oregon, may personify the OCNE ideal. "The students coming out of OCNE have the skill to practice anywhere, but with an eye toward being a leader in the profession," Ms. Alper said. "I feel I can go out into the community—not with every skill perfectly honed, but I know how to find what I need to get my job done."

The committee anticipates that it will take a few years to build the educational capacity needed to achieve the goal of 80 percent of the nursing workforce being BSN-prepared by 2020, but also emphasizes that existing BSN completion programs have capacity that is far from exhausted. Regional networks of schools working together, along with health care organizations, may best facilitate reaching this goal. Moreover, the committee believes this clearly defined goal will stimulate stakeholders to take action. Examples of such action include academic and health care organizations/employers partnering to achieve strategic alignment around workforce development; government and foundations introducing funding opportunities for scholarships to build faculty and provide tuition relief; state boards of nursing increasing the use of earmarks on licensure fees to offset the cost of education; and states developing statewide policy agendas and political action plans with identified leaders in nursing, government, and business to adopt measures to meet the goal.

The Role of Community Colleges

Community colleges play a key role in attracting students to the nursing education pipeline. Specifically, they provide an opportunity for students who may not have access to traditional university baccalaureate programs because of those programs' lack of enrollment capacity, distance, or cost.

Community colleges have an important role to play in ensuring that more BSN-prepared nurses are available in all regions of the United States and that nursing education at the associate level is high quality and affordable and prepares ADN nurses to move on to higher levels of education. Currently, ADN- and BSN-prepared nurses are not evenly distributed nationwide. BSN-prepared RNs are found more commonly in urban areas, while many rural and other medically underserved communities depend heavily on nurses with associate's degrees to staff their hospitals, clinics, and long-term care facilities (Cronenwett, 2010). Figure 4-2 shows the highest nursing or nursing-related education by urban/rural residence. According to a study by the Urban Institute, "medical personnel, including nurses, tend to work near where they were trained" (Bovjberg, 2009; see Figure 4-3). This suggests that state and community investments in nursing education (e.g., building nursing school capacity, building infrastructure to support that capacity, funding the purchase of technology, and offering scholarships) may be an effective way to reduce local and regional shortages. Community colleges are the predominant educational institutions in rural and medically underserved areas. Therefore, they must either join educational collaboratives or develop innovative and easily accessible programs that seamlessly connect students to schools offering the BSN and higher degrees, or they must develop their own BSN programs (if feasible within state laws and regulations). Community colleges must foster a culture that promotes and values academic progression and should encourage their students to continue their education through strategies that include making them aware of the full range of

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educational pathways and opportunities available to them (e.g., ADN-to-MSN and online RN-to-BSN programs). Box 4-3 describes a community college in Florida where nursing students can take advantage of lower costs and online classes to receive a BSN degree.

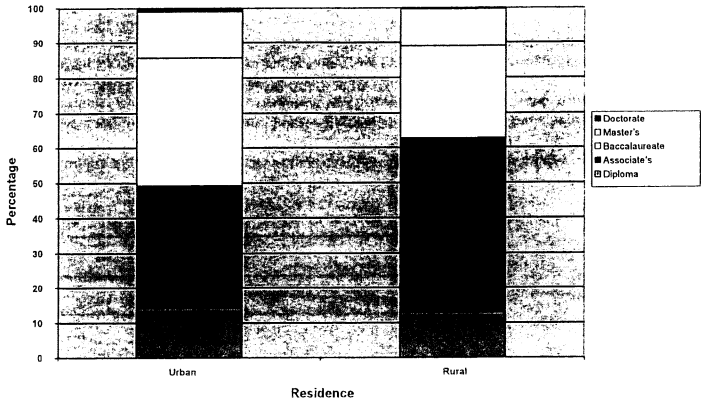

FIGURE 4-2 Highest nursing or nursing-related education by urban/rural residence.
SOURCE: Calculations performed using the data and documentation for the 2004 National Sample of Registered Nurses, available from the Health Resources and Services Administration's (HRSA) Geospatial Data Warehouse (HRSA, 2010a).

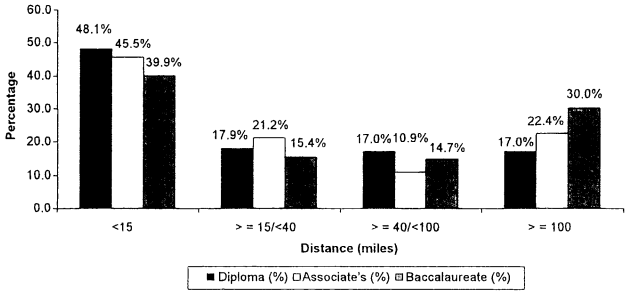

FIGURE 4-3 Distance between nursing education program and workplace for early-career nurses (graduated 2007–2008).
SOURCE: RWJF, 2010a. Reprinted with permission from Lori Melichar, RWJF.

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BOX 4-3
Community Colleges Offering the BSN

THE COLLEGE OF NURSING AT ST. PETERSBURG COLLEGE AND OTHERS OPEN THE DOOR TO THE BACHELOR'S DEGREE IN NURSING

The more education a nurse has, the better the patient outcomes you're going to see.
—Jean Wortock, PhD, MSN, ARNP, dean and professor, College of Nursing at St. Petersburg College, St. Petersburg, Florida

Tamela Monroe was 33 and working in sales in 1997 when she decided to pursue a career in nursing. She looked into the associate's degree program at a campus of St. Petersburg Junior College about a mile from her home in Palm Harbor, Florida. She did not consider the bachelor's of science in nursing (BSN) program at the University of South Florida (USF) in Tampa; she had started working as a nurse's aide and felt she could not give up her job to go to school full time. "I was just starting out in nursing," she said. "And to lose any more money would not have been a good thing." She earned her associate's degree in 2001.

When St. Petersburg Junior College changed its name to St. Petersburg College in 2002 and became the first baccalaureate-granting community college in Florida, Ms. Monroe pursued the BSN there. She was a licensed registered nurse (RN) working in a cardiac progressive care unit; classes were held in the community hospital where she worked. She received her bachelor's degree in 2004, and went on to USF to obtain her master's degree in 2006. Now 46, she is a clinical nurse leader in an orthopedic and neuroscience unit in a Tampa-area facility, as well as an adjunct instructor in nursing at Saint Petersburg College.

The first community college in Florida to grant baccalaureate degrees, St. Petersburg College enrolled the first students in its BSN program in 2002. Now, its 613 BSN students and 687 associate's degree in nursing students can take classes on campus or online. Nine community colleges in Florida offer the BSN, and at least three other states are working on allowing their community colleges to offer baccalaureates, including BSNs.

Ms. Monroe is grateful to have earned a BSN at a cost 20 percent lower than the university's tuition, and she sees this as an important development in nursing education. "It presents an opportunity for nurses in this area who might not have the finances or the time to travel all the way to a larger campus," she said.

Some critics argue that in granting baccalaureates, community colleges are reaching beyond the bounds of their original mission of granting 2-year degrees as a stepping stone to a university education. Other opponents say that community college enrollments—and funds—are already stretched to the limit. In Michigan, for instance, critics say that community college tuition for the BSN will have to rise to avoid the need for more state funding (Lane, 2009).

Still, many nurses are praising the quality, convenience, flexibility, and affordability of the BSN programs available at community colleges. Jean Wortock, PhD, MSN, ARNP, dean and professor of nursing at Saint Petersburg College, said her school's BSN program is opening up an important channel for Florida nurses to advance their education in a state where 46 percent of qualified applicants to BSN programs were turned away in 2009 because of faculty shortages and other factors (Florida Center for Nursing, 2010). "We strongly encourage all of our baccalaureate graduates to go on for master's degrees," she said. "And a number of ours have."

Dr. Wortock said that St. Petersburg College and USF have worked closely in the past 9 years to determine the degrees each institution would offer: "We're offering some that they prefer not to offer so that they can focus more on master's programs in a particular field." St. Petersburg College now offers 22 bachelor's degrees, and even though both institutions have RN-to-BSN programs, the St. Petersburg nursing school has had high enough enrollments to allow the hiring of eight full-time faculty members with doctorates to teach in its BSN program.

Dr. Wortock has talked to nurses at community colleges in California, Washington, and Michigan about how her school took the lead in offering the BSN in Florida. And while she acknowledged that the movement is controversial, it is a movement nonetheless. "It will give us a cadre of graduates and nurses that are much more prepared for research and evidence-based practice," she said.

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Barriers to Meeting Undergraduate Educational Needs

Although the committee believes the capacity needed to ensure a nursing workforce that is 80 percent BSN-prepared by 2020 can be attained using the approaches outlined above, getting there will not be easy. Nursing schools across the United States collectively turn away tens of thousands of qualified applicants each year because of a lack of capacity (Kovner and Djukic, 2009)—a situation that makes filling projected needs for more and different types of nurses difficult. Figure 4-4 shows the breakdown of numbers of qualified applicants who are turned away from ADN and BSN programs.

An examination of the root causes of the education system's insufficient capacity to meet undergraduate educational needs reveals four major barriers: (1) the aging and shortage of nursing faculty; (2) insufficient clinical placement opportunities of the right kind or duration for prelicensure nurses to learn their profession; (3) nursing education curricula that fail to impart relevant competencies needed to meet the future needs of patients and to prepare nurses adequately for academic progression to higher degrees; and (4) inadequate workforce planning, which stems from a lack of the communications, data sources, and information systems needed to align educational capacity with market demands. This final root cause—inadequate workforce planning—affects all levels of nursing education and is the subject of Chapter 6.

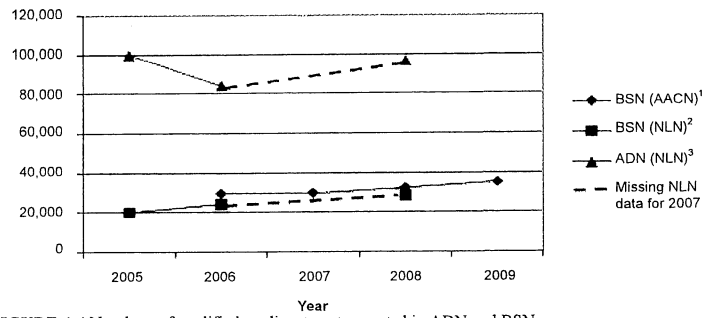

FIGURE 4-4 Numbers of qualified applicants not accepted in ADN and BSN programs.
NOTES:
[1]Number of qualified applicants not accepted in baccalaureate generic RN programs, based on AACN data in *Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing* (2006-07, Table 37; 2007-08, Table 39; 2008-09, Table 38; 2009-2010, Table 39).
[2]Number of qualified applicants not accepted in baccalaureate generic RN and RN-to-BSN programs, based on National League for Nursing data in *Nursing Data Review* (2004-05, Tables 3 & 6; 2005-06, Tables 2 & 5; 2007-08; Tables 2 & 5).
[3]Number of qualified applicants not accepted in associate's degree RN programs, based on National League for Nursing data in *Nursing Data Review* (2004-05, Tables 3 & 6; 2005-06, Tables 2 & 5; 2007-08; Tables 2 & 5).
The definition of "qualified" varies from nursing program to nursing program and is based on each program's admission requirements and completion standards at the schools that were surveyed.
SOURCE: RWJF, 2010b. Reprinted with permission from Lori Melichar, RWJF.

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Aging and Shortage of Nursing Faculty

There are not enough nursing faculty to teach the current number of nursing students, let alone the number of qualified applicants who wish to pursue nursing. The same forces that are leading to deficits in the numbers and competencies of bedside nurses affect the capacity of nursing faculty as well (Allan and Aldebron, 2008). According to a survey by the NLN, 84 percent of U.S. nursing schools tried to hire new faculty in the 2007–2008 academic year; of those, four out of five found it "difficult"[5] to recruit faculty, and one out of three found it "very difficult." The principal difficulties included "not enough qualified candidates" (cited by 46 percent) and the inability to offer competitive salaries (cited by 38 percent). The survey concluded that "post-licensure programs were much more likely to cite a shortage of faculty, whereas pre-licensure programs reported that lack of clinical placement settings were [sic] the biggest impediment to admitting more students. Specifically, almost two thirds (64 percent) of doctoral programs and one half of RN-BSN and master's programs identified an insufficient faculty pool to draw from as the major constraint to expansion, in contrast to one third of prelicensure programs" (NLN, 2010a).

Age is also a contributing factor to faculty shortages. Nursing faculty tend to be older than clinical nurses because they must meet requirements for an advanced degree in order to teach. Figure 4-5 shows that the average age of nurses who work as faculty as their principal nursing position—the position in which a nurse spends the majority of his or her working hours[6]—is 50 to 54. By contrast, the median age of the total RN workforce is 46. More than 19 percent of RNs whose principal position is faculty are aged 60 or older, while only 8.7 percent of nurses who have a secondary position as faculty—those who hold a nonfaculty (e.g., clinical) principal position—are aged 60 or older. Nurses who work as faculty as their secondary position tend to be younger; among nurses under age 50, more work as faculty as their secondary than as their principal position (HRSA, 2010b). Moreover, the average retirement age for nursing faculty is 62.5 (Berlin and Sechrist, 2002); as a result, many full-time faculty will be ready to retire soon. Given the landscape of the health care system and the fragmented nursing education system, the current pipeline cannot easily replenish this loss, let alone meet the potential demand for more educators. In addition to the innovative strategies of the Veterans Affairs Nursing Academy (VANA) and Gulf Coast Health Services Steering Committee (GCHSSC) for responding to faculty shortages (discussed later in this chapter), a potential opportunity to relieve faculty shortages could involve the creation of programs that would allow MSN, DNP, and PhD students to teach as nursing faculty interns, with mentoring by full-time faculty.

Effects of the first degree at entry into the profession Nurses who enter the profession with an associate's degree are less likely than those who enter with a bachelor's degree to advance to the graduate level over the course of their career (Cleary et al., 2009). Figure 4-6 gives an overview of the highest educational degree obtained by women and men who hold the RN license. It includes RNs who are working as nurses and those who have retired, have changed professions, or are no longer working. According to an analysis by Aiken and colleagues (2009),

[5] "Difficult" is the sum of schools responding either "somewhat difficult" or "very difficult." Personal communication, Kathy A. Kaufman, Senior Research Scientist, Public Policy, National League for Nursing, September 8, 2010.

[6] Personal communication, Joanne Spetz, Professor, Community Health Systems, University of California, San Francisco, September 2, 2010.

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nurses whose initial degree is the ADN are just as likely as BSN-prepared nurses to seek another degree. Approximately 80 percent of the time, however, ADN graduates fail to move beyond a BSN. Therefore, the greatest number of nurses with a master's or doctorate, a prerequisite for serving as faculty, received a BSN as their initial degree. Since two-thirds of current RNs received the ADN as their initial degree, Aiken's analysis suggests that currently "having enough faculty (and other master's prepared nurses) to enable nursing schools to expand enrollment is a mathematical improbability" (Aiken et al., 2009). A separate analysis of North Carolina nurses led to a similar conclusion (Bevill et al., 2007). Table 4-2 shows the length of time it takes those nurses who do move on to higher levels of education to progress from completing initial nursing education to completing the highest nursing degree achieved.

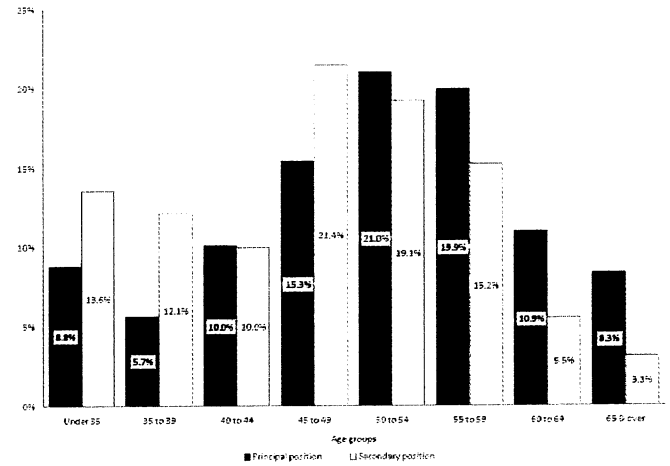

FIGURE 4-5 Age distribution of nurses who work as faculty.
SOURCE: HRSA, 2010b.

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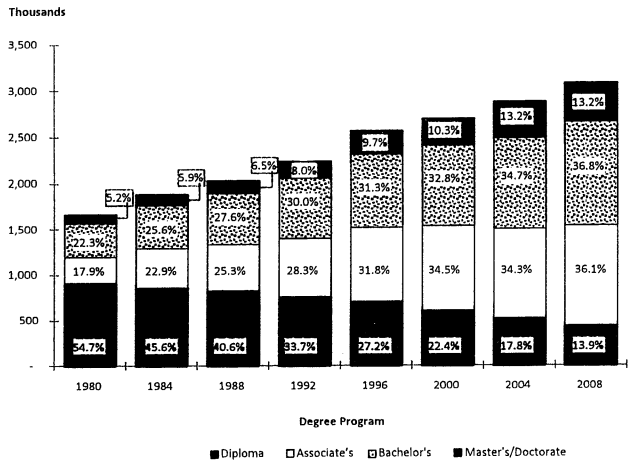

FIGURE 4-6 Distribution of the registered nurse population by highest nursing or nursing-related educational preparation, 1980–2008.
NOTES: The totals in each bar may not equal the estimated numbers for RNs in each survey year because of incomplete information provided by respondents and the effect of rounding. Only those who provided information on initial RN educational preparation to surveyors were included in the calculations used for this figure.
SOURCE: HRSA, 2010b.

TABLE 4-2 Years Between Completion of Initial and Highest RN Degrees

	Highest Nursing or Nursing-Related Degree		
Initial RN Education	Bachelor's	Master's	Doctorate
Diploma	10.5	13.9	15.6
Associate's	7.5	11.5	12.5
Bachelor's	—	8.2	12.4

NOTE: Average years between diploma and ADN not calculated due to larger than average rates of missing data. Too few cases to report estimated percent (fewer than 30 respondents).
SOURCE: HRSA, 2010b.

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Salary disparities Another factor that contributes to the current nursing faculty shortage is salary disparities between nurses working in education and those working in clinical service (Gilliss, 2010). As shown in Table 4-3, the average annual earnings of nurses who work full time as faculty (most with either a master's or doctoral degree) total $63,949. By contrast, nurse practitioners (NPs) (with either a master's or doctoral degree) average just over $85,000 (see Table 4-4). Section 5311 of the Affordable Care Act (ACA) offers an incentive designed to offset lower faculty salaries by providing up to $35,000 in loan repayments and scholarships for eligible nurses who complete an advanced nursing degree and serve "as a full-time member of the faculty of an accredited school of nursing, for a total period, in the aggregate, of at least 4 years."[7] However, the ACA does not provide incentives for nurses to develop the specific educational and clinical competencies required to teach.

TABLE 4-3 Average Annual Earnings of Nurses Who Work Full Time as Faculty in Their Principal Nursing Position, 2008

	Annual Earnings ($)
All Faculty	63,985
Earnings by type of program	
Faculty in diploma/ADN programs	62,689
Faculty in BSN programs	64,789
Earnings by faculty job title	
Instructor/lecturer	54,944
Professor	69,691

SOURCE: HRSA, 2010b.
NOTE: Only registered nurses who provided earnings information were included in the calculations used for this table.

[7] *Patient Protection and Affordable Care Act*, HR 3590 § 5311, 111th Congress.

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instruction. Early results suggest the DEU can dramatically increase capacity and have a positive effect on satisfaction among students and nursing staff. A multisite study funded by RWJF is currently under way to evaluate outcomes of the DEU model.

DEUs offer benefits for the nursing schools, the hospitals, the faculty, and the students. Because the hospital employs the clinical instructors, the nursing school can increase its enrollment without increasing costs. The hospital benefits by training students it can hire after their graduation and licensure. Students benefit by having consistent clinical instructors each day, something not guaranteed under the traditional preceptorship model. As the case study in Box 4-4 shows, the benefits of DEUs extend beyond the academic environment to the practice setting as well.

BOX 4-4
The Dedicated Education Unit

A New Model of Education to Increase Enrollment Without Raising Costs

Our clinical instructors want the patients to go home with the best outcomes and the students to leave here with the best learning experiences. These students will be the ones taking care of us in the future, and we want them to be very well prepared.
—Cindy Lorion, MSN, RN, nurse manager, neurovascular and orthopedic units, Providence St. Vincent Medical Center, Portland, Oregon

Jamie Sharp, a 21-year-old University of Portland (UP) nursing student who has performed clinical rotations in a variety of units, remembers a particularly unpleasant experience in a psychiatric unit where she felt she was "in the way" of her nurse preceptors. This was in stark contrast to her experience on a neurovascular unit at Providence St. Vincent Medical Center, where she had just one clinical instructor, a nurse who was eager to teach her.

That neurovascular unit was a dedicated education unit (DEU). Created in Australia in the late 1990s and launched in the United States at UP in 2003, the DEU model joins a school of nursing with units at local hospitals, where experienced staff nurses become clinical instructors of juniors and seniors in the bachelor's degree program. Each instructor teaches no more than two students at a time, but the DEU can be used around the clock.

With a DEU, a nursing school can "cultivate a unit" as an excellent learning environment, said UP's dean of nursing, Joanne Warner, PhD, RN, FAAN. Most important, she added, is "the expertise of the nurses there—they know the clinical procedures, the current medications, the policies of the hospital." The DEU differs from a usual clinical rotation in the relationship that develops between instructor and student, something that cannot take place when a preceptor has eight students that change from week to week. The instructor gets to know the strengths and weaknesses of the student and supports the student in building confidence and relevant knowledge and skills.

Ms. Sharp was paired with Cathy Mead, ADN, RN, a nurse with 25 years of experience in the unit who received clinical instructor training from the nursing school. Her instruction is overseen by both a university faculty member and the unit's nurse manager.

Dr. Warner said that the benefits to her school and to students are quite tangible: "We have tripled our enrollment. If we had a traditional model I would not have the budget to hire the clinical faculty needed." The number of students on clinical rotations increased from 227 in 14 units in 2002, before the DEUs were implemented, to 333 in 6 units in 2006, after the DEUs were instituted (Moscato et al., 2007). Now, up to 60 percent of a UP nursing student's clinical rotations take place in DEUs. But equally important, the students report learning more in DEUs and are seeking clinical placements on them.

It might appear that the university profits far more than the hospital—especially since nearly 40,000 qualified applicants were turned away from baccalaureate nursing programs in 2009 because of shortages of faculty and clinical teaching sites (AACN, 2009c)—but that is not the case, said Cindy Lorion, MSN, RN, nurse manager of the neurovascular and orthopedic units at Providence St. Vincent Medical Center. The clinical instructors are enthusiastic about their new role. They receive adjunct faculty

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appointments at UP, gaining such benefits as library access but no additional pay from the university (some but not all facilities increase a clinical instructor's salary).

Ms. Lorion has seen an increase in evidence-based practice and in the retention of nurses, as well as better-prepared graduates, many of whom seek jobs at the hospital. She also said that "a village" grows around the students, with everyone from physicians to nurses' aides taking part in "raising" them.

The partnership has led to changes in teaching and in clinical care. After a student made an error by injecting a medication into the wrong tube, the hospital changed its policy on syringe placement, and the school added a "tubes lab" to its courses.

A limited number of available clinical training sites in some areas may hamper widespread use of the model, and some units may take students on reluctantly, requiring a change in organizational culture. Nonetheless, more than 100 schools of nursing participated in an international symposium on DEUs in 2007, and more than 20 are developing their own DEUs.

After 25 years as a nurse, Ms. Mead is pursuing her bachelor's degree. "I definitely have to keep it fresh," she said of the challenge of working with students like Ms. Sharp. "And not everyone can say that after being on the same unit for years."

Need for Updated and Adaptive Curricula

A look at the way nursing students are educated at the prelicensure level[11] shows that most schools are not providing enough nurses with the required competencies in such areas as geriatrics and culturally relevant care to meet the changing health needs of the U.S. population (as outlined in Chapter 2) (AACN and Hartford, 2000). The majority of nursing schools still educate students primarily for acute care rather than community settings, including public health and long-term care. Most curricula are organized around traditional medical specialties (e.g., maternal–child, pediatrics, medical–surgical, or adult health) (McNelis and Ironside, 2009). The intricacies of care coordination are not adequately addressed in most prelicensure programs. Nursing students may gain exposure to leading health care disciplines and know something about basic health policy and available health and social service programs, such as Medicaid. However, their education often does not promote the skills needed to negotiate with the health care team, navigate the regulatory and access stipulations that determine patients' eligibility for enrollment in health and social service programs, or understand how these programs and health policies impact health outcomes. Nursing curricula need to be reexamined and updated. They need to be adaptive enough to undergo continuous evaluation and improvement based on new evidence and a changing science base, changes and advances in technology, and changes in the needs of patients and the health care system.

Many nursing schools have dealt with the rapid growth of health research and knowledge by adding layers of content that require more instruction (Ironside, 2004). A wide range of new competencies also are being incorporated into requirements for accreditation (CCNE, 2009; NLNAC, 2008). For example, new competencies have been promulgated to address quality and patient safety goals (Cronenwett et al., 2007; IOM, 2003a). Greater emphasis on prevention, wellness, and improved health outcomes has led to new competency requirements as well (Allan et al., 2005). New models of care being promulgated as a result of health care reform will need to be introduced into students' experiences and will require competencies in such areas as care coordination. These models, many of which could be focused in alternative settings such as schools and workplaces, will create new student placement options that will need to be tested for

[11] Available evidence is based on evaluation of BSN programs and curricula. Evidence was not available for ADN or diploma programs.

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scalability and compared for effectiveness with more traditional care settings. (See also the discussion of competencies later in the chapter.)

The explosion of knowledge and decision-science technology also is changing the way health professionals access, process, and use information. No longer is rote memorization an option. There simply are not enough hours in the day or years in an undergraduate program to continue compressing all available information into the curriculum. New approaches must be developed for evaluating curricula and presenting fundamental concepts that can be applied in many different situations rather than requiring students to memorize different lists of facts and information for each situation.

Just as curricula must be assessed and rethought, so, too, must teaching–learning strategies. Most nurse faculty initially learned to be nurses through highly structured curricula that were laden with content (NLN Board of Governors, 2003), and too few have received advanced formal preparation in curriculum development, instructional design, or performance assessment. Faculty, tending to teach as they were taught, focus on covering content (Benner et al., 2009; Duchscher, 2003). They also see curriculum-related requirements as a barrier to the creation of learning environments that are both engaging and student-centered (Schaefer and Zygmont, 2003; Tanner, 2007).

GRADUATE NURSING EDUCATION

Even absent passage of the ACA, the need for APRNs, nurse faculty, and nurse researchers would have increased dramatically under any scenario (Cronenwett, 2010). Not only must schools of nursing build their capacity to prepare more students at the graduate level, but they must do so in a way that fosters a unified, competency-based approach with the highest possible standards. Therefore, building the science of nursing education research, or how best to teach students, is an important emphasis for the field of nursing education. For APRNs, graduate education should ensure that they can contribute to primary care and help respond to shortages, especially for those populations who are most underserved. For nurse researchers, a focus on fundamental improvements in the delivery of nursing care to improve patient safety and quality is key.

Numbers and Distribution of Graduate-Level Nurses

As of 2008, more than 375,000 women and men in the workforce had received a master's degree in nursing or a nursing-related field, and more than 28,000 had gone on to receive either a doctorate in nursing or a nursing-related doctoral degree in a field such as public health, public administration, sociology, or education[12] (see Table 4-5) (HRSA, 2010b). Master's degrees prepare RNs for roles in nursing administration and clinical leadership or for work in advanced practice roles (discussed below) (AARP, 2010 [see Annex 1-1]). Many nursing faculty, particularly clinical instructors, are prepared at the master's level. Doctoral degrees include the DNP and PhD. A PhD in nursing is a research-oriented degree designed to educate nurses in a wide range of scientific areas that may include clinical science, social science, policy, and education. Traditionally, PhD-educated nurses teach in university settings and conduct research

[12] Nursing-related doctoral degrees are defined by the National Sample Survey of Registered Nurses (NSSRN) as non-nursing degrees that are directly related to a nurse's career in the nursing profession. "Nursing-related degrees include public health, health administration, social work, education, and other fields" (HRSA, 2010b).

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to expand knowledge and improve care, although they can also work in clinical settings and assume leadership and administrative roles in health care systems and academic settings.

TABLE 4-5 Estimated Distribution of Master's and Doctoral Degrees as Highest Nursing or Nursing-Related Educational Preparation, 2000–2008

	Estimated Distribution		
Degree	2000	2004	2008
Master's	257,812	350,801	375,794
Master's of science in nursing (MSN)	202,639	256,415	290,084
Nursing-related master's degree	55,173	94,386	85,709
Percent of master's degrees that are nursing (MSN)	78.6	73.1	77.2
Doctoral	17,256	26,100	28,369
Doctorate in nursing	8,435	11,548	13,140
Nursing-related doctoral degree	8,821	14,552	15,229
Percent of doctorates that are nursing	48.9	44.2	46.3

SOURCE: HRSA, 2010b.

The DNP is the complement to other practice doctorates, such as the MD, PharmD, doctorate of physical therapy, and others that require highly rigorous clinical training. Nurses with DNPs are clinical scholars who have the capacity to translate research, shape systems of care, potentiate individual care into care needed to serve populations, and ask the clinical questions that influence organizational-level research to improve performance using informatics and quality improvement models. The DNP is a relatively new degree that offers nurses an opportunity to become practice scholars in such areas as clinical practice, leadership, quality improvement, and health policy. The core curriculum for DNPs is guided by the AACN's *Essentials of Doctoral Education for Advanced Nursing Practice*.[13]

Schools of nursing have been developing DNP programs since 2002, but only in the last 5 years have the numbers of graduates approached a substantial level (Raines, 2010). Between 2004 and 2008 the number of programs offering the degree increased by nearly 40 percent, as is shown in Figure 4-7. At this point, more evidence is needed to examine the impact DNP nurses will have on patient outcomes, costs, quality of care, and access in clinical settings. It is also difficult to discern how DNP nurses could affect the provision of nursing education and whether they will play a significant role in easing faculty shortages. While the DNP provides a promising opportunity to advance the nursing profession, and some nursing organizations are promoting this degree as the next step for APRNs, the committee cannot comment directly on the potential role of DNP nurses because of the current lack of evidence on outcomes.

[13] See http://www.aacn.nche.edu/dnp/pdf/essentials.pdf.

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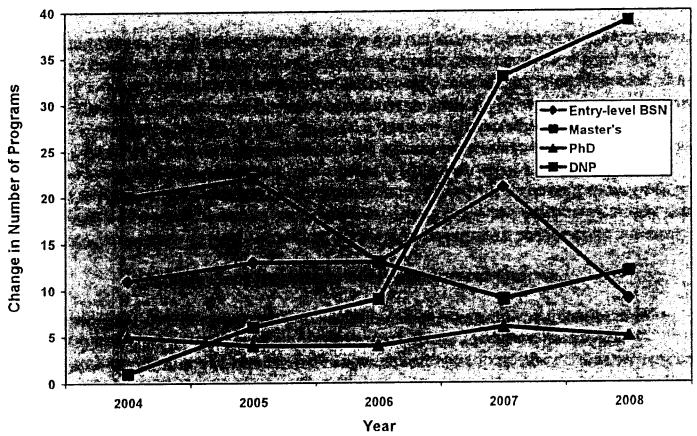

FIGURE 4-7 Growth trends in different nursing programs.
NOTE: BSN = bachelor's of science in nursing; DNP = doctor of nursing practice.
SOURCES: AACN, 2005, 2006, 2007, 2008a, 2009b.

Although 13 percent of nurses hold a graduate degree, fewer than 1 percent (28,369 nurses) have a doctoral degrees in nursing or a nursing-related field, the qualification needed to conduct independent research (HRSA, 2010b). In fact, only 555 students graduated with a PhD in nursing in 2009, a number that has remained constant for the past decade (AACN, 2009a). As noted, key roles for PhD nurses include teaching future generations of nurses and conducting research that becomes the basis for improvements in nursing practice. As the need for nursing education and research and for nurses to engage with interprofessional research teams has grown, the numbers of nurses with a PhD in nursing or a related field have not kept pace (see Figure 4-7 for trends in the various nursing programs). The main reasons for this lag are (1) an inadequate pool of nurses with advanced nursing degrees to draw upon, (2) faculty salaries and benefits that are not comparable to those of nurses with advanced nursing degrees working in clinical settings, and (3) a culture that promotes obtaining clinical experience prior to continuing graduate education.

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Preparation of Advanced Practice Registered Nurses

Nurses prepared at the graduate level to provide advanced practice services include those with master's and doctoral degrees. APRNs serve as NPs, certified nurse midwives (CNMs), clinical nurse specialists (CNSs), and certified registered nurse anesthetists (CRNAs). To gain certification in one of these advanced practice areas, nurses must take specialized courses in addition to a basic core curriculum. Credit requirements vary from program to program and from specialty to specialty, but typically range from a minimum of 40 credits for a master's to more than 80 credits for a DNP. Upon completion of required coursework and clinical hours, students must take a certification exam that is administered by a credentialing organization relevant to the specific specialization, such as the American Nursing Credentialing Center (for NPs and CNSs), the American Midwifery Certification Board (for CNMs), or the National Board on Certification and Recertification of Nurse Anesthetists (for CRNAs).

Nurses who receive certification, including those serving in all advanced practice roles, provide added assurance to the public that they have acquired the specialized professional development, training, and competencies required to provide safe, quality care for specific patient populations. For example, NPs and CNSs may qualify for certification after completing a master's degree, post-master's coursework, or doctoral degree through an accredited nursing program, with specific advanced coursework in areas such as health assessment, pharmacology, and pathophysiology; additional content in health promotion, disease prevention, differential diagnosis, and disease management; and at least 500 hours of faculty-supervised clinical training within a program of study (ANCC, 2010a, 2010c).

Certification is time-limited, and maintenance of certification requires ongoing acquisition of both knowledge and experience in practice. For example, most advanced practice certification must be renewed every 5 years (NPs, CNSs); requirements include a minimum of 1,000 practice hours in the specific certification role and population/specialty. These requirements must be fulfilled within the 5 years preceding submission of the renewal application (ANCC, 2010b). CRNAs are recertified every 2 years and must be substantially engaged in the practice of nurse anesthesia during those years, in addition to completing continuing education credits (NBCRNA, 2009). Recertification for CNMs is shifting from 8 to 5 years and also involves a continuing education requirement (AMCB, 2009).

As the health care system grows in complexity, expectations are that APRNs will have competence in expanding areas such as technology, genetics, quality improvement, and geriatrics. Coursework and clinical experience requirements are increasing to keep pace with these changes. Jean Johnson, Dean of the School of Nursing at The George Washington University, notes that in terms of education, this is a time of major transition for APRNs.[14] With the DNP, some nursing education institutions are now able to offer professional parity with other health disciplines that are shifting, or have already shifted, to require doctorates in their areas of practice, such as pharmacy, occupational and physical therapy, and speech pathology. As discussed above, DNP programs allow nurses to hone their expertise in roles related to nurse executive practice, health policy, informatics, and other practice specialties. (It should be noted, however, that throughout this report, the discussion of APRNs does not distinguish between those with master's and DNP degrees who have graduated from an accredited program.)

[14] Personal communication, Jean Johnson, Dean, School of Nursing, George Washington University, September 3, 2010.

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Research Roles

Graduate-level education produces nurses who can assume roles in advanced practice, leadership, teaching, and research. For the latter role, a doctoral degree is required, yet as noted above, fewer than 1 percent of nurses have achieved this level of education. This number is insufficient to meet the crucial need for research in two key areas: nursing education and nursing science.

Research on Nursing Education

At no time in recent history has there been a greater need for research on nursing education. As health care reform progresses, basic and advanced nursing practices are being defined by the new competencies alluded to above and discussed in the next section, yet virtually no evidence exists to support the teaching approaches used in nursing education.[15]

Additionally, little research has focused on clinical education models or clinical experiences that can help students achieve these competencies, even though clinical education constitutes the largest portion of nurses' educational costs. Likewise, little evidence supports appropriate student/faculty ratios. Yet current clinical education models and student/faculty ratios are limiting capacity at a time when the need for new nurses is projected to increase. The paucity of evidence in nursing education and pedagogy calls for additional research and funding to ascertain the efficiency and effectiveness of approaches to nursing education, advancing evidence-based teaching and interprofessional knowledge. Chapter 7 outlines specific research priorities that could shape improvements to nursing education.

In a recent editorial, Broome (2009) highlighted the need for three critical changes required to "systematically build a...science that could guide nurse educators to develop high quality, relevant, and cost-effective models of education that produce graduates who can make a difference in the health system":

- funding to support nursing education research, potentially via mechanisms through the Health Resources and Services Administration (HRSA);
- multidisciplinary research training programs, including postdoctoral training to prepare a cadre of nurses dedicated to developing the science of nursing education; and
- efforts to foster the development of PhD programs that have faculty expertise to mentor a new generation of nursing education researchers.

Research on Nursing Science

The expansion of knowledge about the science of nursing is key to providing better patient care, improving health, and evaluating outcomes. Along with an adequate supply of qualified nurses, meeting the nation's growing health care needs requires continued growth in the science of delivering effective care for people and populations and designing health systems. Nurse scientists are a critical link in the discovery and translation of knowledge that can be generated

[15] Some faculty development programs and training opportunities are offered through universities and professional organizations, such as the AACN and the NLN. Additionally, the NLN offers a certification program for nurse educators, who can publically confirm knowledge in the areas of pedagogy, learning, and the complex encounter between educator and student. This certification program can provide a basis for innovation and the continuous quality improvement of nursing education.

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by nurses and other health scientists. To carry out this crucial work, a sustainable supply of and support for nurse scientists will be necessary (IOM, 2010).

The research conducted by nurse scientists has led to many fundamental improvements in the provision of care. Advances have been realized, for example, in the prevention of pressure ulcers; the reduction of high blood pressure among African American males; and the models described elsewhere in this report for providing transitional care after hospital discharge and for promoting health and well-being among young, disadvantaged mothers and their newborns. Yet nursing's research capacity has been largely overlooked in the development of strategies for responding to the shortage of nurses or effecting the necessary transformation of the nursing profession. The result has been a serious mismatch between the urgent need for knowledge and innovation to improve care and the nursing profession's ability to respond to that need, as well as a limitation on what nursing schools can include in their curricula and what is disseminated in the clinical settings where nurses engage.

A 2005 report of the National Research Council, *Advancing the Nation's Health Needs: NIH's Research Training Program*, focuses on nursing research. It identifies four important barriers to the future of the field: an aging cadre of nursing science researchers, longer times required to complete doctoral degrees, increasing demands on nursing faculty to also meet workforce demands, and an increasing emphasis on clinical doctoral programs over those aimed at training researchers (NRC, 2005). Overcoming these barriers will be essential to achieving the transformation of the nursing profession that this report argues is essential to a transformed health care system.

COMPETENCY-BASED EDUCATION

Competencies that are well known to the nursing profession, such as care management and coordination, patient education, public health intervention, and transitional care, are likely to dominate in a reformed health care system. As Edward O'Neil, Director, Center for the Health Professions at the University of California, San Francisco, pointed out however, "these traditional competencies must be reinterpreted for students into the settings of the emergent care system, not the one that is being left behind. This will require faculty to not only teach to these competencies but also creatively apply them to health environments that are only now emerging" (O'Neil, 2009). Emerging new competencies in decision making, quality improvement, systems thinking, and team leadership must become part of every nurse's professional formation from the prelicensure through the doctoral level.

A review of medical school education found that evidence in favor of competency-based education is limited but growing (Carraccio et al., 2002). Nursing schools also have embraced the notion of competency-based education, as noted earlier in the chapter in the case study on the Oregon Consortium for Nursing Education (Box 4-2). In addition, Western Governors University uses competency-based education exclusively, allowing nursing students to move through their program of study at their own pace. Mastery of the competency is achieved to the satisfaction of the faculty without the normal time-bound semester structure (IOM, 2010).

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Defining Core Competencies

The value of competency-based education in nursing is that it can be strongly linked to clinically based performance expectations. It should be noted that "competencies" here denotes not task-based proficiencies but higher-level competencies that represent the ability to demonstrate mastery over care management knowledge domains and that provide a foundation for decision-making skills under variety of clinical situations across all care settings.

Numerous sets of core competencies for nursing education are available from a variety of sources. It has proven difficult to establish a single set of competencies that cover all clinical situations, across all settings, for all levels of students. However, there is significant overlap among the core competencies that exist because many of them are derived from such landmark reports as *Recreating Health Professional Practice for a New Century* (O'Neil and Pew Health Professions Commission, 1998) and *Health Professions Education: A Bridge to Quality* (IOM, 2003b). The competencies in these reports focus on aspects of professional behavior (e.g., ethical standards, cultural competency) and emphasize areas of care (e.g., prevention, primary care), with overarching goals of (1) providing patient-centered care, (2) applying quality improvement principles, (3) working in interprofessional teams, (4) using evidence-based practices, and (5) using health information technologies.

Two examples of sets of core competencies come from the Oregon Consortium for Nursing Education[16] and the AACN. The former set features competencies that promote nurses' abilities in such areas as clinical judgment and critical thinking; evidence-based practice; relationship-centered care; interprofessional collaboration; leadership; assistance to individuals and families in self-care practices for promotion of health and management of chronic illness; and teaching, delegation, and supervision of caregivers. The AACN's set of competencies is outlined in *Essentials for Baccalaureate Education* and highlights such areas as "patient-centered care, interprofessional teams, evidence-based practice, quality improvement, patient safety, informatics, clinical reasoning/critical thinking, genetics and genomics, cultural sensitivity, professionalism, practice across the lifespan, and end-of-life care" (AACN, 2008b) While students appear to graduate with ample factual knowledge of these types of core competencies, however, they often appear to have little sense of how the competencies can be applied or integrated into real-world practice situations (Benner et al., 2009).

Imparting emerging competencies, such as quality improvement and systems thinking, is also key to developing a more highly educated workforce. Doing so will require performing a thorough evaluation and redesign of educational content, not just adding content to existing curricula. An exploration of the educational changes required to teach all the emerging competencies required to meet the needs of diverse patient populations is beyond the scope of this report.

Defining an agreed-upon set of core competencies across health professions could lead to better communication and coordination among disciplines (see the discussion of the Interprofessional Education Collaborative below for an example of one such effort). Additionally, the committee supports the development of a unified set of core competencies across the nursing profession and believes it would help provide direction for standards across nursing education. Defining these core competencies must be a collaborative effort among nurse educators, professional organizations, and health care organizations and providers. This effort

[16] See http://www.ocne.org/.

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should be ongoing and should inform regular updates of nursing curricula to ensure that graduates at all levels are prepared to meet the current and future health needs of the population.

Assessing Competencies

Changes in the way competencies are assessed are also needed. In 2003, the IOM's *Health Professions Education: A Bridge to Quality* called for systemwide changes in the education of health professionals, including a move on the part of accrediting and certifying organizations for all health professionals toward mandating a competency-based approach to education (IOM, 2003a). Steps are already being taken to establish competency-based assessments in medical education. In its 2009 report to Congress on *Improving Incentives in the Medicare Program*, the Medicare Payment Advisory Commission highlighted an initiative of the Accreditation Council for Graduate Medical Education to require greater competency-based assessment of all residency programs that train physicians in the United States (MedPAC, 2009). The National Council of State Boards of Nursing (NCSBN) has considered various challenges related to competency assessment and is considering approaches to ensure that RNs can demonstrate competence in the full range of areas that are required for the practice of nursing.[17]

A competency-based approach to education strives to make the competencies for a particular course explicit to students and requires them to demonstrate mastery of those competencies (Harden, 2002). Performance-based assessment then shows whether students have both a theoretical grasp of what they have learned and the ability to apply that knowledge in a real-world or realistically simulated situation. The transition-to-practice or nurse residency programs discussed in Chapter 3 could offer an extended opportunity to reinforce and test core competencies in real-world settings that are both safe and monitored.

Lifelong Learning and Continuing Competence

Many professions, such as nursing, that depend heavily on knowledge are becoming increasingly technical and complex (The Lewin Group, 2009). No individual can know all there is to know about providing safe and effective care, which is why nurses must be integral members of teams that include other health professionals. Nor can a single initial degree provide a nurse with all she or he will need to know over an entire career. Creating an expectation and culture of lifelong learning for nurses is therefore essential.

From Continuing Education to Continuing Competence

Nurses, physicians, and other health professionals have long depended on continuing education programs to maintain and develop new competencies over the course of their careers. Yet the 2009 IOM study *Redesigning Continuing Education in the Health Professions* cites "major flaws in the way [continuing education] is conducted, financed, regulated, and evaluated" and states that the evidence base underlying current continuing education programs is "fragmented and undeveloped." These shortcomings, the report suggests, have hindered the identification of effective educational methods and their integration into coordinated, comprehensive programs that meet the needs of all health professionals (IOM, 2009). Likewise, the NCSBN has found that there is no clear link between continuing education requirements and

[17] Personal communication, Kathy Apple, CEO, NCSBN, May 30, 2010.

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continued competency. [18] A new vision of professional development is needed that enables learning both individually and from a collaborative, team perspective and ensures that "all health professionals engage effectively in a process of lifelong learning aimed squarely at improving patient care and population health" (IOM, 2009).

This new comprehensive vision is often termed "continuing competence." The practice setting, like the academic setting, is challenged by the need to integrate traditional and emerging competencies. Therefore, building the capacity for lifelong learning—which encompasses both continuing competence and advanced degrees—requires ingenuity on the part of employers, businesses, schools, community and government leaders, and philanthropies. The case study in Box 4-5 describes a program that extends the careers of nurses by training them to transition from the acute care to the community setting.

BOX 4-5
Nursing for Life: The RN Career Transition Program

A NEW PROGRAM EXTENDS THE WORKING LIFE OF AGING NURSES BY TRAINING THEM TO WORK IN COMMUNITY SETTINGS

I still have a tremendous amount to offer here. I can see myself working well into my 60s.
—Sheri Morris, MN, RN, graduate of Nursing for Life, Lambertville, Michigan

At age 62 Jackie Tibbetts, MS, RN, CAGS, was thinking, naturally, about retirement. She was nearing the end of a 39-year teaching career when a close friend became ill, and her proximity to her friend's care and eventual death made her realize she still had a great deal to offer. She felt compelled to return to nursing, her first profession.

Ms. Tibbetts now provides skilled nursing care at a retirement community in a suburb of Boston. She made the move to long-term care through the Nursing for Life: RN Career Transition program at Michigan State University (MSU) College of Nursing, an outgrowth of a 2002 online refresher course the school offered. Because she had maintained her registered nurse (RN) license, she was eligible for the course, and with a background in rehabilitation she determined that the long-term care setting would be a good fit. Ms. Tibbetts received online education and performed a clinical practicum near her Massachusetts home. Now 64, she plans to work as a nurse "as long as I'm able," she said.

In 2006 the Blue Cross Blue Shield of Michigan Foundation, in concert with the College of Nursing at MSU, set out to broaden the opportunities for Michigan's, and the nation's, aging nursing workforce. "We began to think about some of the needs of mid-to-late-career nurses still working in acute care and looking to move away from that work, for the physical intensity of it," said Terrie Wehrwein, PhD, RN, NEA-BC, associate professor at the school. The Blue Cross Blue Shield of Michigan Foundation and the College of Nursing at MSU were among the first recipients of a grant from Partners Investing in Nursing's Future, a joint venture of the Northwest Health Foundation and The Robert Wood Johnson Foundation. The program began in 2008 as a pilot project to train licensed RNs to work in four community settings that may be less physically demanding than acute care—home care, long-term care, hospice, and ambulatory care—and that are open to any licensed nurse, not just those in Michigan. (Two new tracks, in case management and quality and safety management, are being developed.)

The program has two components: an online, self-paced didactic course has seven core modules, plus seven modules specific to each specialty, and an 80-hour clinical practicum pairs the nurse, ideally, with a single preceptor in the area of study. Nurses have 1 year to finish the online course and are encouraged to complete the practicum within 5 weeks.

The program has attracted not only aging nurses but also younger ones wanting to change work settings. And Michigan is not the only state that benefits; of the 28 nurses who have completed the program, about 10 percent live out of state. (Michigan residents who cannot afford the $1250 tuition may be eligible for aid through the state's No Worker Left Behind program. Other states may provide similar assistance.)

After receiving a bachelor's degree in nursing in 1974 and a master's in 1982, Shari Morris, MN, RN, left the profession in 1990 to home-school her four sons. She took a Minnesota refresher course in 2006, when she was 54, and got a job in a pediatrician's office. She realized she would need further training to advance in ambulatory care and enrolled in Nursing for Life. For her clinical practicum she chose two pediatric clinics in a nearby hospital.

When asked what impact the program has had on her ability to remain a nurse, she said, "I think, probably, courage." The course gave her the self-assurance to apply for a job in teaching when she could not find an opening in ambulatory care; she is now an instructor in nursing at a Michigan community college.

"I felt confident to step out of the first setting I'd been in 17 years and go into another arena, without any difficulties," Ms. Morris said.

[18] Personal communication, Kathy Apple, CEO, NCSBN, May 30, 2010.

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Interprofessional Education

The importance of interprofessional collaboration and education has been recognized since the 1970s (Alberto and Herth, 2009). What is new is the introduction of simulation and web-based learning—solutions that can be used to can break down traditional barriers to learning together, such as the conflicting schedules of medical and APRN students or their lack of joint clinical learning opportunities. Simulation technology offers a safe environment in which to learn (and make mistakes), while web-based learning makes schedule conflicts more manageable and content more repeatable. If all nursing and medical students are educated in aspects of interprofessional collaboration, such as knowledge of professional roles and responsibilities, effective communication, conflict resolution, and shared decision making, and are exposed to working with other health professional students through simulation and web-based training, they may be more likely to engage in collaboration in future work settings. Further, national quality and safety agendas, including requirements set by the Joint Commission, the Commission on Collegiate Nursing Education, the NLN, and the Association of American Medical Colleges (AAMC), along with studies that link disruptive behavior between RNs and MDs to negative patient and worker outcomes (Rosenstein and O'Daniel, 2005, 2008), create a strong incentive to not just talk about but actually work on implementing interprofessional collaboration.

England, Canada, and the United States have made strides to improve interprofessional education by bringing students together from academic health science universities and medical centers (e.g., students of nursing, medicine, pharmacy, social work, physical therapy, and public health, among others) in shared learning environments (Tilden, 2010). Defined as "occasions when two or more professions learn with, from, and about each other to improve collaboration and the quality of care" (Barr et al., 2005), such education is based on the premise that students' greater familiarity with each other's roles, competencies, nomenclatures, and scopes of practice will result in more collaborative graduates. It is expected that graduates of programs with interprofessional education will be ready to work effectively in patient-centered teams where miscommunication and undermining behaviors are minimized or eliminated, resulting in safer, more effective care and greater clinician and patient satisfaction. Interprofessional education is thought to foster collaboration in implementing policies and improving services, prepare students to solve problems that exceed the capacity of any one profession, improve future job satisfaction,

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create a more flexible workforce, modify negative attitudes and perceptions, and remedy failures of trust and communication (Barr, 2002).[19]

The AAMC, the American of Association of Colleges of Osteopathic Medicine, the American Dental Education Association, the American Association of Colleges of Pharmacy, the Association of Schools of Public Health, and the AACN recently formed a partnership called the Interprofessional Education Collaborative. This collaborative is committed to the development of models of collaboration that will provide the members' individual communities with the standards and tools needed to achieve productive interprofessional education practices. These organizations are committed to fulfilling the social contract that every nursing, pharmacy, dental, public health, and medical graduate is proficient in the core competencies required for interprofessional, team-based care, including preventive, acute, chronic, and catastrophic care. The collaborative is also committed to facilitating the identification, development, and deployment of the resources essential to achieving this vision. As a first step, the collaborative is developing a shared and mutually endorsed set of core competencies that will frame the education of the six represented health professions.[20]

Efforts have been made to evaluate the effectiveness of interprofessional education in improving outcomes, including increased student satisfaction, modified negative stereotypes of other disciplines, increased collaborative behavior, and improved patient outcomes. However, the effect of interprofessional education is not easily verified since control group designs are expensive, reliable measures are few, and time lapses can be long between interprofessional education and the behavior of graduates. Barr and colleagues (2005) reviewed 107 evaluations of interprofessional education in published reports and found support for three outcomes: interprofessional education creates positive interaction among students and faculty; encourages collaboration between professions; and results in improvements in aspects of patient care, such as more targeted health promotion advice, higher immunization rates, and reduced blood pressure for patients with chronic heart disease. Reeves and colleagues (2009) reviewed six later studies of varying designs. Four of the studies found that interprofessional education improved aspects of how clinicians worked together, while the remaining two found that it had no effect (Reeves et al., 2008). Although empirical evidence is mixed, widespread theoretical agreement and anecdotal evidence suggest that students who demonstrate teamwork skills in the simulation laboratory or in a clinical education environment with patients will apply those skills beyond the confines of their academic programs.[21]

[19] This paragraph draws upon a paper commissioned by the committee on "The Future of Nursing Education," prepared by Virginia Tilden, University of Nebraska Medical Center College of Nursing (see Appendix I on CD-ROM).
[20] Personal communication, Geraldine Bednash, CEO, AACN, August 12, 2010.
[21] This paragraph draws upon a paper commissioned by the committee on "The Future of Nursing Education," prepared by Virginia Tilden, University of Nebraska Medical Center College of Nursing (see Appendix I on CD-ROM).

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THE NEED TO INCREASE THE DIVERSITY OF THE NURSING WORKFORCE

Chapter 3 highlighted a variety of challenges facing the nursing profession in meeting the changing needs of patients and the health care system. A major challenge for the nursing workforce is the underrepresentation of racial and ethnic minority groups and men in the profession. To better meet the current and future health needs of the public and to provide more culturally relevant care, the nursing workforce will need to grow more diverse. And to meet this need, efforts to increase nurses' levels of educational attainment must emphasize increasing the diversity of the student body. This is a crucial concern that needs to be addressed across all levels of nursing education.

Racial and Ethnic Diversity

Although the composition of the nursing student body is more racially and ethnically diverse than that of the current workforce, diversity continues to be a challenge. Figure 4-8 shows the distribution of minority students enrolled in nursing programs by race/ethnicity and by program type. Their underrepresentation is greatest for pathways associated with higher levels of education. In academic year 2008–2009, for example, ethnic minority groups made up 28.2 percent of ADN, 23.6 percent of BSN, 24.4 percent of master's, and 20.3 percent of doctoral students (NLN, 2009). Even less evidence of diversity is present among nurses in faculty positions (AACN, 2010b).

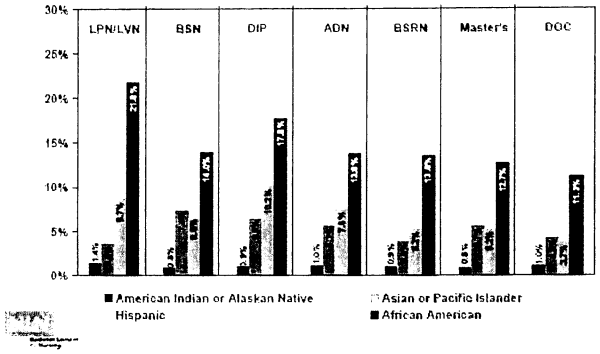

FIGURE 4-8 Percentage of minority students enrolled in nursing programs by race/ethnicity and program type, 2008–2009.
NOTE: ADN = associate's degree programs; BSN = bachelor's of science programs; BSRN = RN-to-BSN programs; DIP = diploma nursing programs; DOC = nursing school programs offering doctoral degrees; LPN = licensed practical nursing programs; LVN = licensed vocational nursing programs.
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In 2003, the Sullivan Commission on Diversity in the Healthcare Workforce was establish to develop recommendations that would "bring about systemic change... [to] address the scarcity of minorities in our health professions." The commission's report, *Missing Persons: Minorities in the Health Professions* (Sullivan Commission on Diversity in the Healthcare Workforce, 2004), offered strategies to increase the diversity of the medical, nursing, and dentistry professions and included recommendations designed to remove barriers to health professions education for underrepresented minority students. The commission's 37 recommendations called for leadership, commitment, and accountability from a wide range of stakeholders—from institutions responsible for educating health professionals to professional organizations and health systems to state and federal agencies and Congress. The recommendations focused on expediting strategies to increase the number of minorities in health professions, improving the education pipeline for health professionals, financing education for minority students, and establishing leadership and accountability to realize the commission's vision to increase the diversity health professionals. The committee believes the implementation of the recommendations from that report hold promise for ensuring a more diverse workforce in the future.

In the nursing profession, creating bridge programs and educational pathways between undergraduate and graduate programs—specifically programs such as LPN to BSN, ADN to BSN, and ADN to MSN—appears to be one way of increasing the overall diversity of the student body and nurse faculty with respect to not only race/ethnicity, but also geography, background, and personal experience. Mentoring programs that support minority nursing students are another promising approach. One example of such a program is the National Coalition of Ethnic Minority Nursing Associations, a group made up of five ethnic minority nursing associations that aims to build the cadre and preparation of ethnic minority nurses and promote equity in health care across ethnic minority populations (NCEMNA, 2010). This program is described at greater length in Chapter 5. Another example of a successful program that has promoted racial and ethnic diversity is the ANA Minority Fellowship Program,[22] started in 1974 under the leadership of Dr. Hattie Bessent. This program has played a crucial role in supporting minority nurses with predoctoral and postdoctoral fellowships to advance research and clinical practice (Minority Fellowship Program, 2010). Programs to recruit and retain more individuals from racial and ethnic minority groups in nursing education programs are needed. A necessary first step toward accomplishing this goal is to create policies that increase the overall educational attainment of ethnic minorities (Coffman et al., 2001).

Gender Diversity

As noted in Chapter 3, the nursing workforce historically has been composed predominantly of women. While the number of men who become nurses has grown dramatically in the last two decades, men still make up just 7 percent of all RNs (HRSA, 2010b). While most disciplines within the health professional workforce have become more gender balanced, the same has not been true for nursing. For example, in 2009 nearly half of medical school graduates were female (The Kaiser Family Foundation - statehealthfacts.org, 2010), a significant achievement of gender parity in a traditionally male-dominated profession. Stereotypes, academic acceptance, and role support are challenges for men entering the nursing profession. These barriers must be overcome if men are to be recruited in larger numbers to help offset the shortage of nurses and fill

[22] See http://www.emfp.org/.

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advanced and expanded nursing roles. Compounding the gender diversity problem of the nursing profession is the fact that fewer men in general are enrolling in higher education programs (Mather and Adams, 2007). While more men are being drawn to nursing, especially as a second career, the profession needs to continue efforts to recruit men; their unique perspectives and skills are important to the profession and will help contribute additional diversity to the workforce.

One professional organization that works to encourage men to join the nursing profession and supports men who do so is the American Assembly for Men in Nursing (AAMN).[23] To increase opportunities for men interested in joining the profession, the AAMN Foundation, in partnership with Johnson & Johnson, has awarded more than $50,000 in scholarships to undergraduate and graduate male nursing students since 2004 (AAMN, 2010b). Additionally, each year the AAMN recognizes the best school or college of nursing for men; in 2009, the honor was given to Monterey Peninsula College in Monterey, California, and Excelsior College in Albany, New York, for their "efforts in recruiting and retaining men in nursing, in providing men a supportive educational environment, and in educating faculty, students and the community about the contributions men have and do make to the nursing profession" (AAMN, 2010a).

SOLUTIONS FROM THE FIELD

This chapter has outlined a number of challenges facing nursing education. These challenges have been the subject of much documentation, analysis, and debate (Benner et al., 2009; Erickson, 2002; IOM, 2003a, 2009; Lasater and Nielsen, 2009; Mitchell et al., 2006; Orsolini-Hain and Waters, 2009; Tanner C. A et al., 2008). Various approaches to responding to these challenges and transforming curricula have been proposed, and several are being tested. The committee reviewed the literature on educational capacity and redesign, heard testimony about various challenges and potential solutions at the public forum in Houston, and chose a number of exemplars for closer examination. Three of these models are described in this section. The committee found that each of these models provided important insight into creative approaches to maximizing faculty resources, encouraging the establishment and funding of new faculty positions, maximizing the effectiveness of clinical education, and redesigning nursing curricula.

Veterans Affairs Nursing Academy

In 2007, the VA launched the Veterans Affairs Nursing Academy (VANA)—a 5-year, $40 million pilot program—with the primary goals of developing partnerships with academic nursing institutes; expanding the number of faculty for baccalaureate programs; establishing partnerships to enhance faculty development; and increasing baccalaureate enrollment to increase the supply of nurses, not solely for the VA, but for the country at large. VANA also was aimed at encouraging interprofessional programs and increasing the retention and recruitment of VA nurses.[24]

[23] See http://www.aamn.org/.

[24] This paragraph, and the three that follow, draw upon a presentation made by Cathy Rick, chief nursing officer for the VA, at the Forum on the Future of Nursing: Education, held in Houston, TX on February 22, 2010 (see Appendix C) and published in *A Summary of the February 2010 Forum on the Future of Nursing: Education* (IOM, 2010).

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Since the program's inception, three cycles of requests for proposals have been sent to more than 600 colleges and schools of nursing, as well as to institutions within the VA system. Fifteen geographically and demographically diverse pilot sites were selected to participate in VANA based on the strength of their proposals.

Each funded VANA partnership is required to have a rigorous evaluation plan to measure outcomes. Outcomes are expected to include increased staff, patient, student, and faculty satisfaction; greater scholarly output; enhanced professional development; better continuity and coordination of care; more reliance on evidence-based practice; and enhanced interprofessional learning. Each selected school is also expected to increase enrollment by at least 20 students a year.

The program has already resulted in 2,700 new students, with 620 receiving the majority of their clinical rotation experiences at the VA. The graduates of this program may include students who have pursued a traditional prelicensure BSN, a BSN through a second-degree program, or a BSN through an RN-to-BSN program. The number of nursing school faculty has increased by 176 and the number of VA faculty by 264.

In addition to the new nurses and faculty, educational innovations have encompassed curriculum revision, including quality and safety standards; DEUs (described earlier in Box 4-4); and a postgraduate baccalaureate nurse residency (see Chapter 3). Other changes include interprofessional simulation training and the development of evidence-based practice committees and programs. Beyond these specific changes and accomplishments, the VANA faculty has worked to develop the program into a single community of learning and to prepare students in a genuinely collaborative practice environment with clinically proficient staff and educators.

Carondolet Health Network

The Carondolet Health Network of Tucson, Arizona, is an example of how employers can offer educational benefits that improve both patient outcomes and the bottom line. Carondelet, which includes four hospitals and other facilities and employs approximately 1,650 nurses, is featured as one of seven cases studies in the Lewin Group's 2009 report *Wisdom at Work: Retaining Experienced RNs and Their Knowledge—Case Studies of Top Performing Organizations*.

After Carondelet became part of Ascension Health in 2002, the Tucson organization embarked on a strategic plan to recruit and retain more nurses. Arizona faces some of the severest nursing shortages in the nation, and most nurses prefer to live and work in higher-paying markets, such as Phoenix or southern California. When Carondelet instituted an on-site BSN program, which it subsidized in exchange for a 2-year work commitment, the response was dramatic. Instead of an anticipated class size of 20 nurses in the first semester of the program, it enrolled 104. Of interest, it was the business case—the opportunity to decrease the amount of money the organization was spending on costly temporary nurses—that tipped the balance in favor of action (The Lewin Group, 2009).

Hospital Employee Education and Training

The Hospital Employee Education and Training (HEET) program was developed through a joint effort of the 1199NW local affiliate of the Service Employees International Union (SEIU) and the Washington State Hospital Association Work Force Institute to help address shortages in nursing and nursing-related positions through education and upgrading of incumbent workers.

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The program is administered through the Washington State Board for Community and Technical Colleges. Across the state, HEET-funded programs support industry-based reform of the education system and include preparation and completion of nursing career ladder programs. HEET seeks to develop educational opportunities that support both employer needs and the career aspirations of health care workers. It features cohort-based programs, distance learning, worksite classes, use of a simulation laboratory for nursing prerequisites, case management, tutoring support for those reentering academia, and nontraditional scheduling of classes to enable working adults to attend and address employee barriers to education.

The findings for this union-inspired initiative demonstrate its potential to increase racial/ethnic diversity in the nursing population. HEET participants represent a pool of potential nurses who are more diverse than the current nursing workforce. Providing on-site classes at hospitals appears to support the participation of working adults who are enrolled in nursing school while continuing to work at least part time. Workers participating in the HEET program have had lower attrition rates and higher rates of course completion compared with community college students in nursing career tracks. The curriculum also blends academic preparation with health care career education, thereby opening the doors of college to workers who might not otherwise enroll or succeed (Moss and Weinstein, 2009).

CONCLUSIONS

The future of access to basic primary care and nursing education will depend on increasing the number of BSN-prepared nurses. Unless this goal is met, the committee's recommendations for greater access to primary care; enhanced, expanded, and reconceptualized roles for nurses; and updated nursing scopes of practice (see Chapter 7) cannot be achieved. The committee believes that increasing the proportion of the nursing workforce with a BSN from the current 50 percent to 80 percent by 2020 is bold but achievable. Achieving this target will help meet future demand for nurses qualified for advanced practice positions and possessing competencies in such areas as community care, public health, health policy, evidence-based practice, research, and leadership. The committee concludes further that the number of nurses holding a doctorate must be increased to produce a greater pool of nurses prepared to assume faculty and research positions. The committee believes a target of doubling the number of nurses with a doctorate by 2020 would meet this need and is achievable.

To achieve these targets, however, will require overcoming a number of barriers. The numbers of educators and clinical placements are insufficient for all the qualified applicants who wish to enter nursing school. There also is a shortage of faculty to teach nurses at all levels. Incentives for nurses at any level to pursue further education are few, and there are active disincentives against advanced education. Nurses and physicians—not to mention pharmacists and social workers—typically are not educated together and yet are increasingly required to cooperate and collaborate more closely in the delivery of care.

To address these barriers, innovative new programs to attract nursing faculty and provide a wider range of clinical education placements must clear long-standing bottlenecks. To this end, market-based salary adjustments must be made for faculty, and more scholarships must be provided to help nursing students advance their education. Accrediting and certifying organizations must mandate demonstrated mastery of clinical skills, managerial competencies, and professional development at all levels. Mandated skills, competencies, and professional development milestones must be updated on a more timely basis to keep pace with the rapidly

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changing demands of health care. All health professionals should receive more of their education in concert with students from other disciplines. Efforts also must be made to increase the diversity of the nursing workforce.

The nursing profession must adopt a framework of continuous lifelong learning that includes basic education, academic progression, and continuing competencies. More nurses must receive a solid education in how to manage complex conditions and coordinate care with multiple health professionals. They must demonstrate new competencies in systems thinking, quality improvement, and care management and a basic understanding of health care policy. Graduate-level nurses must develop an even deeper understanding of care coordination, quality improvement, systems thinking, and policy.

The committee emphasizes further that, as discussed in Chapter 2, the ACA is likely to accelerate the shift in care from the hospital to the community setting. This transition will have a particularly strong impact on nurses, more than 60 percent of whom are currently employed in hospitals (HRSA, 2010b). Nurses may turn to already available positions in primary or chronic care or in public or community health, or they may pursue entirely new careers in emerging fields that they help create. Continuing and graduate education programs must support the transition to a future that rewards flexibility. In addition, the curriculum at many nursing schools, which places heavy emphasis on preparing students for employment in the acute care setting, will need to be rethought (Benner et al., 2009).

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Before October 14, a copy of this figure may be obtained by emailing the RWJF Nursing Research Network at lmelichar@rwjf.org.

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5
Transforming Leadership

Key Message #3: Nurses should be full partners, with physicians and other health professionals, in redesigning health care in the United States.

Strong leadership is critical if the vision of a transformed health care system is to be realized. Yet not all nurses begin their career with thoughts of becoming a leader. The nursing profession must produce leaders throughout the health care system, from the bedside to the boardroom, who can serve as full partners with other health professionals and be accountable for their own contributions to delivering high-quality care while working collaboratively with leaders from other health professions.

In addition to changes in nursing practice and education, discussed in Chapters 3 and 4, respectively, strong leadership will be required to realize the vision of a transformed health care system. Although the public is not used to viewing nurses as leaders, and not all nurses begin their career with thoughts of becoming a leader, all nurses must be leaders in the design, implementation, and evaluation of, as well as advocacy for, the ongoing reforms to the system that will be needed. Additionally, nurses will need leadership skills and competencies to act as full partners with physicians and other health professionals in redesign and reform efforts across the health care system. Nursing research and practice must continue to identify and develop evidence-based improvements to care, and these improvements must be tested and adopted through policy changes across the health care system. Nursing leaders must translate new research findings to the practice environment and into nursing education and from nursing education into practice and policy.

Being a full partner transcends all levels of the nursing profession and requires leadership skills and competencies that must be applied both within the profession and in collaboration with other health professionals. In care environments, being a full partner involves taking responsibility for identifying problems and areas of waste, devising and implementing a plan for improvement, tracking improvement over time, and making necessary adjustments to realize established goals. Serving as strong patient advocates, nurses must be involved in decision making about how to improve the delivery of care.

Being a full partner translates more broadly to the health policy arena. To be effective in reconceptualized roles and to be seen and accepted as leaders, nurses must see policy as something they can shape and develop rather than something that happens to them, whether at the local organizational level or the national level. They must speak the language of policy and engage in the political process effectively, and work cohesively as a profession. Nurses should

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have a voice in health policy decision making, as well as being engaged in implementation efforts related to health care reform. Nurses also should serve actively on advisory committees, commissions, and boards where policy decisions are made to advance health systems to improve patient care. Nurses must build new partnerships with other clinicians, business owners, philanthropists, elected officials, and the public to help realize these improvements.

This chapter focuses on key message #3 set forth in Chapter 1: Nurses should be full partners, with physicians and other health professionals, in redesigning health care in the United States. The chapter begins by considering the new style of leadership that is needed. It then issues a call to nurses to respond to the challenge. The third section describes three avenues—leadership programs for nurses, mentorship, and involvement in the policy-making process—through which that call can be answered. The chapter then issues a call for new partnerships to tap the full potential of nurses to serve as leaders in the health care system. The final section presents the committee's conclusions regarding the need to transform leadership in the nursing profession.

A NEW STYLE OF LEADERSHIP

Those involved in the health care system—nurses, physicians, patients, and others—play increasingly interdependent roles. Problems arise every day that do not have easy or singular solutions. Leaders who merely give directions and expect them to be followed will not succeed in this environment. What is needed is a style of leadership that involves working with others as full partners in a context of mutual respect and collaboration. This leadership style has been associated with improved patient outcomes, a reduction in medical errors, and less staff turnover (Gardner, 2005; Joint Commission, 2008; Pearson et al., 2007). It may also reduce the amount of workplace bullying and disruptive behavior, which remains a problem in the health care field (Joint Commission, 2008; Olender-Russo, 2009; Rosenstein and O'Daniel, 2008). Yet while the benefits of collaboration among health professionals have repeatedly been documented with respect to improved patient outcomes, reduced lengths of hospital stay, cost savings, increased job satisfaction and retention among nurses, and improved teamwork, interprofessional collaboration frequently is not the norm in the health care field. Changing this culture will not be easy.

The new style of leadership that is needed flows in all directions at all levels. Everyone from the bedside to the boardroom must engage colleagues, subordinates, and executives so that together they can identify and achieve common goals (Bradford and Cohen, 1998). All members of the health care team must share in the collaborative management of their practice. Physicians, nurses, and other health professionals must work together to break down the walls of hierarchal silos and hold each other accountable for improving quality and decreasing preventable adverse events and medication errors. All must display the capacity to adapt to the continually evolving dynamics of the health care system.

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Leadership Competencies

Nurses at all levels need strong leadership skills to contribute to patient safety and quality of care. Yet their history as a profession dominated by females can make it easier for policy makers, other health professionals, and the public to view nurses as "functional doers"—those who carry out the instructions of others—rather than "thoughtful strategists"—those who are informed decision makers and whose independent actions are based on education, evidence, and experience. A 2009 Gallup poll of more than 1,500 national opinion leaders,[1] "Nursing Leadership from Bedside to Boardroom: Opinion Leaders' Perceptions," identified nurses as "one of the most trusted sources of health information" (see Box 5-1) (RWJF, 2010a). The Gallup poll also identified nurses as the health professionals that should have greater influence than they currently do in the critical areas of quality of patient care and safety. The leaders surveyed believed that major obstacles prevent nurses from being more influential in health policy decision making. These findings have crucial implications for front-line nurses, who possess critical knowledge and awareness of the patient, family, and community but do not speak up as often as they should.

BOX 5-1
Results of Gallup Poll "Nursing Leadership from Bedside to Boardroom: Opinion Leaders' Perceptions"

- Opinion leaders rate doctors and nurses first and second among a list of options for trusted information about health and health care.
- Opinion leaders perceive patients and nurses as having the least amount of influence on health care reform in the next 5–10 years.
- Reducing medical errors, increasing quality of care, and promoting wellness top the list of areas in which large majorities of opinion leaders would like nurses to have more influence.
- Relatively few opinion leaders say nurses currently have a great deal of influence on increasing access to care, including primary care.
- Opinion leaders identified top barriers to nurses' increased influence and leadership as not being perceived as important decision makers or revenue generators compared with doctors, having a focus on acute rather than preventive care, and not having a single voice on national issues.
- Opinion leaders' suggestions for nurses to take on more of a leadership role were making their voices heard and having higher expectations.

SOURCE: RWJF, 2010a.

[1] Gallup research staff—Richard Blizzard, Christopher Khoury, and Coleen McMurray—conducted telephone surveys with 1,504 individuals, including university faculty, insurance executives, corporate executives, health services leaders, government leaders, and industry thought leaders.

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To be more effective leaders and full partners, nurses need to possess two critical sets of competencies: a common set that can serve as the foundation for any leadership opportunity and a more specific set tailored to a particular context, time, and place. The former set includes, among others, knowledge of the care delivery system, how to work in teams, how to collaborate effectively within and across disciplines, the basic tenets of ethical care, how to be an effective patient advocate, theories of innovation, and the foundations for quality and safety improvement. These competencies also are recommended by the American Association of Colleges of Nursing as essential for baccalaureate programs (AACN, 2008). Leadership competencies recommended by the National League for Nursing and National League for Nursing Accrediting Commission are being revised to reflect similar principles. More specific competencies might include learning how to be a full partner in a health team in which members from various professions hold each other accountable for improving quality and decreasing preventable adverse events and medication errors. Additionally, nurses who are interested in pursuing entrepreneurial and business development opportunities need competencies in such areas as economics and market forces, regulatory frameworks, and financing policy.

Leadership in a Collaborative Environment

As noted in Chapter 1, a growing body of research has begun to highlight the potential for collaboration among teams of diverse individuals from different professions (Paulus and Nijstad, 2003; Pisano and Verganti, 2008; Singh and Fleming, 2010; Wuchty et al., 2007). Practitioners and organizational leaders alike have declared that collaboration is a key strategy for improving problem solving and achieving innovation in health care. Two nursing researchers who have studied collaboration among health professionals define it as:

> a communication process that fosters innovation and advanced problem solving among people who are of different disciplines, organizational ranks, or institutional settings [and who] band together for advanced problem solving [in order to] discern innovative solutions without regard to discipline, rank, or institutional affiliation [and to] enact change based on a higher standard of care or organizational outcomes. (Kinnaman and Bleich, 2004)

Much of what is called collaboration is more likely cooperation or coordination of care. Katzenbach and Smith (1993) argue that truly collaborative teams differ from high-functioning groups that have a defined leader and a set direction, but in which the dynamics of true teamwork are absent. The case study presented in Box 5-2 illustrates just how important it is for health professionals to work in teams to ensure that care is accessible and patient centered.

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BOX 5-2
Arkansas Aging Initiative

A STATEWIDE PROGRAM USES INTERPROFESSIONAL TEAMS TO IMPROVE ACCESS TO CARE FOR OLDER ARKANSANS

This is not about making somebody live to be 100 or 110. This is about quality of life. You can make the end [of life] as great as the beginning. That's my job.
—Amyleigh Overton-McCoy, PhD, GNP-BC, RN, geriatrics nurse practitioner and education director, Texarkana Regional Center on Aging, Texarkana, Texas

Bonnie Sturgeon was an independent 80-year-old in 2005 when shortness of breath began to slow her down. She had been living on her own for decades, driving herself to church and singing in the choir. She went to the Christus St. Michael Health System in Texarkana, Texas, her home town, for a diagnostic workup. There she met Amyleigh Overton-McCoy, PhD, GNP-BC, RN, a geriatrics nurse practitioner with the Arkansas Aging Initiative (AAI).

"When I first went to see Amyleigh, I was there an hour or more," Ms. Sturgeon said. "She asked me every question she could think of, and I wondered how many questions could be asked?" But the intensive interviewing and testing revealed that she had three blocked arteries and had experienced a heart attack. Ms. Sturgeon was scheduled for a triple coronary artery bypass grafting procedure. Five years later, she credits Ms. Overton-McCoy with saving her life. "I've not ever been in her office that she hasn't gone over the past visit, what progress I made, and if I've had any new problems, even the smallest thing."

Patient centeredness, meticulous diagnostics, and wise counsel represent the kind of nursing that might provide a textbook definition of holistic care. This is the kind of care older Arkansans have been receiving since state voters passed the Tobacco Settlement Proceeds Act of 2000, which ordered that state monies from the Tobacco Master Settlement Agreement go toward health care initiatives, including the AAI.

Affiliated with the Donald W. Reynolds Institute on Aging at the University of Arkansas for Medical Sciences (UAMS) in Little Rock, the AAI has two direct service components. First, a team consisting of a geriatrician, an advanced practice registered nurse (APRN), and a social worker provides care at each of eight satellite centers on aging owned and managed by local hospitals (and financially self-supporting through Medicare). The team follows its patients across settings—hospital, clinic, home, and nursing home—as needed. Second, an education component supported by the tobacco settlement funds targets health professionals and students, older adults and their families, and the community at large.

The AAI's director, Claudia J. Beverly, PhD, RN, FAAN, said that these two components are funded separately but go hand in hand in practice. New patients usually see a physician for an initial examination. APRNs are responsible for health promotion and disease prevention—mammograms and flu shots, for example—as well as analyses of current drug regimens. For patients with complex conditions, social workers make referrals and work with families on nursing home placement.

Almost all older Arkansans can now access interprofessional geriatric care within an hour's drive of their home. Patients are quite satisfied with their care and with the team approach (Beverly et al., 2007). Unpublished analyses of the areas around the centers show lower rates of emergency room use and hospitalization and higher rates of health care knowledge among elderly patients.

Physicians at the eight sites report to Dr. Beverly, who is also director of UAMS's Hartford Center of Geriatric Nursing Excellence, which provides some funding to the AAI. She has hired a nurse with a doctorate and a geriatrician to act as associate directors. Developing teamwork has been a priority. "This is such a beautiful case study in how nursing and medicine can work together," she said, "and how, together, we can do good things."

There have been some obstacles: primary care services are dependent upon Medicare funding, and with an annual budget of $2 million to divide among eight sites, additional revenue is needed. There also may not be enough clinicians trained in geriatrics available. And although Dr. Beverly believes that APRNs "should have their own panel of patients," they see only returning patients at the centers. She said funding has been secured to further evaluate how best to use team members.

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The model has continued to evolve from the first center in Northwest Arkansas that Dr. Beverly started as a Robert Wood Johnson Executive Nurse Fellow. That site is developing a program for the training of in-home caregivers, including home health aides and family members. And a new telehealth project will allow patients and clinicians to "see" a specialist electronically. "Economically, this is going to provide a huge benefit to patients," Ms. Overton-McCoy said.

Leadership at Every Level

Leadership from nurses is needed at every level and across all settings. Although collaboration is generally a laudable goal, there are many times when nurses, for the sake of delivering exceptional patient and family care, must step into an advocate role with a singular voice. At the same time, effective leadership also requires recognition of situations in which it is more important to mediate, collaborate, or follow others who are acting in leadership roles. Nurses must understand that their leadership is as important to providing quality care as is their technical ability to deliver care at the bedside in a safe and effective manner. They must lead in improving work processes on the front lines; creating new integrated practice models; working with others, from organizational policy makers to state legislators, to craft practice policy and legislation that allows nurses to work to their fullest capacity; leading curriculum changes to prepare the nursing workforce to meet community and patient needs; translating and applying research findings into practice and developing functional models of care; and serving on institutional and policy-making boards where critical decisions affecting patients are made.

Leadership in care delivery is particularly important in community and home settings where nurses work more autonomously with patients and families than they do in the acute care setting. In community and home settings, nurses provide a direct link connecting patients, their caregivers, and other members of the health care team. Other members of the health care team may not have the time, expertise, or first-hand experience with the patient's home environment and circumstances to understand and respond to patient and family needs. For example, a neurologist may not be able to help a caregiver of an Alzheimer's patient understand or curtail excessive spending habits, or a surgeon may not be able to offer advice to a caregiver on ostomy care—roles that nurses are perfectly positioned to assume. Leadership in these situations sometimes requires nurses to be assertive and to have a strong voice in advocating for patients and their families to ensure that their needs are communicated and adequately met.

Box 5-3 describes a nurse who evolved over the course of her career from thinking that being an effective nurse was all about honing her nursing skills and competencies to realize that becoming an agent of change was an equally important part of her job.

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BOX 5-3
Nurse Profile: Connie Hill

A Nurse Leader Extends Acute Care Nursing Beyond the Hospital Walls

I wanted to make the environment for the child and parents a place where they could feel safe, even though there was a lot of scary stuff going on around them.
—Connie Hill, MSN, RN, director of a 30-bed unit at Children's Memorial Hospital, Chicago

It was at a 2002 meeting at Children's Memorial Hospital in Chicago that Connie Hill, MSN, RN, reviewed the chart of a child who had been on a ventilator in her unit for 2 years. She asked her colleagues why the child had not been discharged. "It wasn't because she was not medically stable," Ms. Hill said recently, "but because there was a lack of community resources to support her." Inadequate community services existed for a child with special needs in Chicago, the third-largest city in the nation? "I was dumbfounded," she recalled. "And I said, 'We need to start a consortium. We need to invite policy makers, state agencies, community leaders.' And people just looked at me, like, 'Okay, Connie. How are we going to get that started?'"

As director of 9 West, the 30-bed Allergy/Pulmonary/Transitional Care Unit, Ms. Hill persisted, and in 2004 the Consortium for Children with Complex Medical Needs was formed. The 75-member coalition of parents, clinicians, advocates, and representatives of government agencies and insurance companies meets quarterly, with the goal of "networking, education, and advocacy" on behalf of the city's special-needs children, some of whom may be on ventilators indefinitely. For example, the group identified poor reimbursement of home health care as a serious obstacle, and the hospital established ties to agencies able to tackle the reimbursement issue. Now, some children can go home to receive care.

Ms. Hill never intended to be a leader. She was working as a staff nurse at the hospital in the mid-1990s when colleagues encouraged her to apply for a clinical manager position in 9 West. She followed their advice, and in late 2000 when her supervisor failed to return from maternity leave, she proposed a "shared leadership model." After a year or so during which she and two other nurses shared the directorship, Ms. Hill was asked to become sole director (some staff were uncomfortable with the decentralized authority, despite good clinical outcomes). She did so, with a modest goal: "I wanted to provide a venue for all nurses to have a voice."

With this goal in mind, Ms. Hill decided in 2008 that 9 West would be a good fit for Transforming Care at the Bedside (TCAB), a national initiative of The Robert Wood Johnson Foundation with the Institute for Healthcare Improvement. Communication between nurses and rotating medical residents was targeted in the hospital's quest to improve the coordination of care (Quisling, 2009). As Ms. Hill said, "It's disheartening when you receive a patient survey and a family says, 'The doctor said this, but then the nurse told me that.'" A procedure was created for staff nurses to provide orientations to residents, who rotate monthly among units, to foster better team communication. Residents are now more likely to confer with 9 West nurses during rounds, Ms. Hill said, increasing satisfaction among nurses, residents, patients, and families.

As a doctoral student at the University of Wisconsin-Milwaukee College of Nursing, Ms. Hill is examining an often neglected population: teens born with HIV, a majority of whom are African American and Hispanic. Now that many HIV-positive children survive into adulthood, they mature sexually and face the stigma attached to the infection. Ms. Hill's study uses PhotoVoice, which involves putting cameras into the hands of HIV-positive teens and asking them for a visual answer to the question, "Where do you see yourself in five years?" "They're writing their own story" in photographs, she said, a story they can use to raise awareness in others and to remind themselves of their own strengths.

Ms. Hill has quite a story herself. As a mother of a grown son, a pediatric nurse who endured many hospitalizations as a child, a researcher whose study is an outgrowth of her advocacy work, and an African American who strives to enhance access to health care for all, she is a woman of both practical ideas and lofty ideals. So when she saw that a child capable of living at home had been in her unit for 2 years, her natural response was to assemble a consortium. Today, that child is doing well at home.

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A CALL FOR NURSES TO LEAD

Leadership does not occur in a social or political vacuum. As Bennis and Nanus (2003) note, the fast pace of change can be managed only if it is accompanied by leaders who can track the context of the "social architecture" to sustain and implement innovative ideas. Creating innovative care models at the bedside and in the community or taking the opportunity to fill a seat in a policy-making body or boardroom requires nurse leaders to develop ideas; approach management; and courageously make decisions within the political, economic, and social context that will make their solutions real and sustainable. A shift must take place in how nurses view their responsibility to those they care for; they must see themselves as full partners with other health professionals, and practice and education environments must socialize and educate them accordingly.

An important aspect of this socialization is mentoring others along the way. More experienced nurses must take the time to show those who are new and less experienced the most effective ways of being an exceptional nurse at the bedside, in the boardroom, and everywhere between. Technology such as chat rooms, Facebook, and even blogs can be used to support the mentoring role.

A crucial part of working within the social architecture is understanding how leadership and practice produce change over time. The nursing profession's history includes many examples of the effect of nursing leadership on changes in systems and improvements in patient care. In the late 1940s and early 1950s, nurse Elizabeth Carnegie led the fight for the racial integration of nursing in Florida by example and through her extraordinary character and organizational skills. Her efforts to integrate the nursing profession were based in her sense of social justice not just for the profession, but also for the care of African American citizens who had little access to a workforce that was highly skilled or provided adequate access to health care services. Also in Florida, in the late 1950s, Dorothy Smith, the first dean of the new University of Florida College of Nursing, developed nursing practice models that brought nursing faculty into the hospital in a joint nursing service. Students thereby had role models in their learning experiences, and staff nurses had the authority to improve patient care. From this system came the patient kardex and the unit manager system that freed nurses from the constant search for supplies that took them away from the bedside. In the 1980s, nursing research by Neville Strumpf and Lois Evans highlighted the danger of using restraints on frail elders (Evans and Strumpf, 1989; Strumpf and Evans, 1988). Their efforts to translate their findings into practice revolutionized nursing practice in nursing homes, hospitals, and other facilities by focusing nursing care on preventing falls and other injuries related to restraint use, and led to state and federal legislation that resulted in reducing the use of restraints on frail elders.

Nurses also have also led efforts to improve health and access to care through entrepreneurial endeavors. For example, Ruth Lubic founded the first free-standing birth center in the country in 1975 in New York City. In 2000, she opened the Family Health and Birth Center in Washington, DC, which provides care to underserved communities (see Box 2-2 in Chapter 2). Her efforts have improved the care of thousands of women over the years. There are many other examples of nurse entrepreneurs, and a nurse entrepreneur network[2] exists that provides networking, education and training, and coaching for nurses seeking to enter the marketplace and business.

[2] See http://www.nurse-entrepreneur-network.com/public/main.cfm.

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Will Student Nurses Hear the Call?

Leadership skills must be learned and mastered over time. Nonetheless, it is important to obtain a basic grasp of those skills as early as possible—starting in school (see Chapter 4). Nursing educators must give their students the most relevant knowledge and practice opportunities to equip them for their profession, while instilling in them a desire and expectation for new learning in the years to come. Regardless of the basic degree with which a nurse enters the profession, faculty should feel obligated to show students the way to their first or next career placement, as well as to their next degree and continuous learning opportunities.

Moreover, students should not wait for graduation to exercise their potential for leadership. In Georgia, for example, health students came together in 2001 under the banner "Lead or Be Led" to create a student-led, interprofessional nonprofit organization that "seeks to make being active in the health community a professional habit." Named Health Students Taking Action Together (HealthSTAT), the group continues to offer workshops in political advocacy, media training, networking, and fundraising. Its annual leadership symposium convenes medical, nursing, public health, and other students statewide to learn about health issues facing the state and work together on developing potential solutions (HealthSTAT, 2010). The National Student Nurses Association (NSNA), initiated in 1998, offers an online Leadership University that allows students to enhance their capacity for leadership through several avenues, such as earning academic credit for participating in the university's leadership activities and discussing leadership issues with faculty. Students work in cooperative relationships with other students from various disciplines, faculty, community organizations, and the public (Janetti, 2003). Box 5-4 profiles two student leaders, one of whom eventually became NSNA president; both represent as well the growing diversity of the nursing profession, a crucial need if the profession is to rise to the challenge of helping to transform the health care system (see Chapter 4).

Looking to the future, nurse leaders will need the skills and knowledge to understand and anticipate population trends. Formal preparation of student nurses may need to go beyond what has traditionally been considered nursing education. To this end, a growing number of schools offer dual undergraduate degrees in partnership with the university's business or engineering school for nurses interested in starting their own business or developing more useful technology. Graduate programs offering dual degree programs with schools of business, public health, law, design, or communications take this idea one step further to equip students with an interest in administrative, philanthropic, regulatory, or policy-making positions with greater competencies in management, finance, communication, system design, or scope-of-practice regulations from the start of their careers.

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BOX 5-4
Nurse Profile: Billy A. Caceres and Kenya D. Haney

BUILDING DIVERSITY IN NURSING, ONE STUDENT AT A TIME

A lot of nurses get surprised that I have this interest in politics, but I think it's okay to go into nursing as a second career.
—Billy A. Caceres, BSN, RN, staff nurse, New York University Langone Medical Center, New York

If we could open up the doors just a little bit wider for foreign nursing students, mothers, nontraditional students, and men, that would make a world of difference to patients.
—Kenya D. Haney, RN, student, University of Missouri, St. Louis, and immediate past president, National Student Nurses Association

Despite improvements to the demographic make up of the nursing workforce in recent decades, the workforce remains predominantly white, female, and middle aged. Racial and ethnic minorities make up 34 percent of the U.S. population but only 12 percent of the registered nurse (RN) workforce, and just 7 percent of RNs are men (AACN, 2010). And diversity matters to patients: many studies have shown that a more diverse health care workforce results in greater access to care for minority populations (IOM, 2004). Two nurses, an African American woman and a Hispanic man, both under age 35, illustrate the growing diversity of the profession and the importance of offering various educational paths as an entry into nursing.

Kenya D. Haney, RN, was a married mother of two in 2004 when she was trying to decide between nursing school and law school. She had taken classes toward a bachelor's degree in communications and knew she would need a more flexible program. She chose the associate's degree in nursing program at St. Louis Community College in Missouri: it offered a part-time option and child care at $2 an hour, which her educational grants covered. If the child care had not been available, she would have waited until her children were older, she said, and then "gone back to finish the communications degree and gone on to law school. There's just not a doubt in my mind."

After graduating, Ms. Haney got a job in intensive care; entered the bachelor's of science in nursing (BSN) program for RNs at the University of Missouri, St. Louis; and joined the Breakthrough to Nursing initiative at the National Student Nurses Association (NSNA). The NSNA initiative aims to increase the number of men entering the profession, recruit and retain nurses of diverse ethnic and racial backgrounds, support nursing students with physical disabilities, and increase enrollment of young and nontraditional students. It works toward these goals by making peers available to students in need of support. Ms. Haney became its director in 2008 and NSNA president in 2009. "You know, we're not the answer to everything," she said of Breakthrough to Nursing. "But we're there for support. Maybe we'll just say, 'You can do this. You're not alone, and you really are needed.'"

Billy Caceres, BSN, RN, already had a bachelor's degree in politics and communications and a job in event planning for a New York City nonprofit when he made the decision to pursue a BSN. As an undergraduate at New York University (NYU), he had volunteered to raise awareness of sexual assault and substance abuse on campus and wanted to learn more about health. He applied and was accepted to NYU's College of Nursing in its 15-month accelerated program for students with a bachelor's in another field. Soon he became involved in the Hartford Geriatric Nursing Institute at NYU.

As a nurse, Mr. Caceres has encountered bias at times from patients, especially older women, some of whom feel uncomfortable being cared for by a man. "I don't get offended," he said. "But sometimes I think, What if nobody else was around? What would you do? I'm just trying to provide care for you." He has just begun his first job as a hospital staff nurse, in a New York City orthopedics unit, and hopes one day to merge his interests in geriatrics and health policy, he said.

Both Ms. Haney and Mr. Caceres intend to pursue graduate degrees, perhaps even the doctorate. If so, they will be models for a new generation: only 23 percent of students in research-focused doctoral programs in nursing are from minority backgrounds, and only 7 percent are men (AACN, 2010). Regardless, the two have taken significant steps. As Ms. Haney said, "Sometimes it's that initial barrier of getting into nursing school that can hurt so many. But the NSNA is a way to bring us together to see that we have one common goal, and that is to be professional nurses. Basically, it's for the patient."

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Will Front-Line Nurses Hear the Call?

Given their direct and sustained contact with patients, front-line nurses, along with their unit or clinic managers, are uniquely positioned to design new models of care to improve quality, efficiency, and safety. Tapping that potential will require developing a new workplace culture that encourages and supports leaders at the point of care (whether a hospital or the community) and requires all members of a health care team to hold each other accountable for the team's performance; nurses must also be equipped with the communication, conflict resolution, and negotiating skills necessary to succeed in leadership and partnership roles. For example, one new quality and safety strategy requires checklists to be completed before certain procedures, such as inserting a catheter, are begun. Nurses typically are asked to enforce adherence to the checklist. If another nurse or a physician does not wash his/her hands or contaminates a sterile field, nurses must possess the basic leadership skills to remind their colleague of the protocol and stop the procedure, if necessary, until the checklist is followed. And again, nurses must help and mentor each other in their roles as expert clinicians and patient advocates. No one can build the capabilities of an exceptional and effective nurse like another exceptional and effective nurse.

Will Community Nurses Hear the Call?

Nurses working in the community have long understood that to be effective in contributing to improvements in the entire community's health, they must assume the role of social change agent. Among other things, community and public health nurses must promote immunization, good nutrition, and physical activity; detect emergency health threats; and prevent and respond to outbreaks of communicable diseases. In addition, they need to be prepared to assume roles in dealing with public health emergencies, including disaster preparedness, response, and recovery. Recent declines in the numbers of community and public health nurses, however, have made the leadership imperative for these nurses much more challenging.

Community and public health nurses learn to expect the unexpected. For example, a school nurse alerted health authorities to the arrival of the H1N1 influenza virus in New York City in 2009 (RWJF, 2010c). Likewise, an increasing number of nurses are being trained in incident command as part of preparedness for natural disasters and possible terrorist attacks. This entails understanding the roles of and working with community, state, and federal officials to assure the health and safety of the public. For example, when the town of Chehalis, south of Seattle, experienced a 100-year flood in 2007, a public health nurse called the secretary of Washington State's Department of Health, Mary Selecky, to ask how to "deal with and dispose of dead cows, an unforeseen challenge [for] a public health nurse. The nurse knew she needed [to provide] tetanus shots and portable toilets but had not anticipated other, less common, aspects of the emergency" (IOM, 2010).

The profile in Box 5-5 illustrates how nurses lead efforts that provide critical services for communities. The profile also shows how nurses can also become leaders and social change agents in the broader community by serving on the boards of health-related institutions. The importance of this role is discussed in the next section.

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BOX 5-5
Nurse Profile: Mary Ann Christopher

CULTIVATING NEIGHBORHOOD NURSING AT THE VISITING NURSE ASSOCIATION OF CENTRAL JERSEY

I make decisions within the context of really understanding the impact of service delivery. I think I can see opportunities quickly, because I'm seeing it more from a nurse's perspective, but also a nurse who grew up on a community-based side [of health care delivery].
—Mary Ann Christopher, MSN, RN, FAAN, president and chief executive officer, Visiting Nurse Association of Central Jersey, Red Bank, New Jersey

At the Visiting Nurse Association of Central Jersey (VNACJ), president and chief executive officer Mary Ann Christopher, MSN, RN, FAAN, maintains a $100 million annual budget, a 4,000-patient daily census, and a 1,700-person staff. Services available to residents in 10 central New Jersey counties include home care, primary care, wellness services, mental health care, rehabilitation, homeless services, and hospice and palliative care. Yet despite the size and complexity of the 98-year-old organization, Ms. Christopher's primary objective has remained simple in her 27-year career there. "People need to know that you stand for what you say you stand for," she said. And what the VNACJ stands for is local communities "driving" the services provided. Ms. Christopher has called it Neighborhood Nursing, a collaborative model in which nurses are assigned to specific neighborhoods so they and community members can respond to what they identify as the most pressing health issues.

As an example of the model, she cites a VNACJ nurse who noticed that many residents of a retirement community were exhibiting signs of congestive heart failure. The nurse proposed that the VNACJ set up a kiosk that would contain a telehealth monitor. The device would permit residents to check their weight, oxygen saturation, and blood pressure levels and automatically transmit the values to a cardiac nurse. If a patient's indicators were outside the desired range, the nurse and patient would converse remotely, in real time, and patients needing a medication adjustment would be visited. The VNACJ funded the idea, and outcomes are being monitored.

Ms. Christopher said that the aims of such an initiative are both immediate and long term. In the short run, the VNACJ hopes to reduce rates of emergency room (ER) use and repeated hospitalizations—expensive and inefficient means of managing chronic illness. As for the long-term goal, the VNACJ nurses strive to give individuals as well as entire communities greater control over their health. After the telehealth kiosk was set up, for example, residents began paying attention to one another's weight and blood pressure levels.

Ms. Christopher has secured grants to test a wide range of such ideas. For example, the Mobile Outreach Program has reduced rates of ER use among deinstitutionalized mentally ill and homeless patients; funded in the mid-1980s by The Robert Wood Johnson Foundation and the State of New Jersey, it is now supported by local governments. The Mobile Outreach Program is the VNACJ initiative Ms. Christopher is the most proud of and the one, she said, that may be the most replicable.

In 1998 the Balanced Budget Act resulted in a 15 percent reduction in revenues and left the VNACJ with only $100,000 in reserve. Now, even with $24 million in reserve, Ms. Christopher worries about declines in federal, state, and philanthropic funding, especially in light of the recent increases in un- and underinsured patients being seen as a result of the recession. Still, she said that the agency's focus on providing services the community values, even as those values change, has kept the association fiscally sound.

Not all CEOs of visiting nurse associations are nurses (those in New York City and Boston, for example, are not). Ms. Christopher said she can see why it matters that she is a nurse. First, she knows well what nurses can do. She has cultivated an atmosphere of honoring staff ideas (such as the cardiac monitoring initiative). As a result, the VNACJ has a turnover rate of less than 5 percent for nurses. Second, Ms. Christopher is sought after to serve on governing boards and advisory groups and is the only RN on the board of trustees at the University of Medicine and Dentistry of New Jersey. She believes that her nursing expertise, keen sense of community, and fiscal responsibility give her "legitimacy at any table I'm at...being a guardian for what's best for patients and communities."

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Will Chief Nursing Officers Hear the Call?

Although chief nursing officers (CNOs) typically are part of the hierarchical decision-making structure in that they have authority and responsibility for the nursing staff, they need to move up in the reporting structure of their organizations to increase their ability to contribute to key decisions. Not only is this not happening, however, but CNOs appear to be losing ground. A 2002 survey by the American Organization of Nurse Executives (AONE) showed that 55 percent of CNOs reported directly to their institution's CEO, compared with 60 percent in 2000. More CNOs described a direct reporting relationship to the chief operating officer instead. Such changes in reporting structure can limit nurse leaders' involvement in decision making about the most important product of hospitals—patient care. Additionally, the AONE survey showed that most CNOs (70 percent) have seen their responsibilities increase even as they have moved down in the reporting structure (Ballein Search Partners and AONE, 2003). CNOs face growing issues of contending not only with increased responsibilities, but also with budget pressures and difficulties with staffing, retention, and turnover levels during a nursing shortage (Jones et al., 2008).

Nurses also are underrepresented on institution and hospital boards, either their own or others. A biennial survey of hospitals and health systems conducted in 2007 by the Governance Institute found that only 0.8 percent of voting board members were CNOs, compared with 5.1 percent who were vice presidents for medical affairs (Governance Institute, 2007). More recently, a 2009 survey of community health systems found that nurses made up only 2.3 percent of their boards, compared with 22.6 percent who were physicians (Prybil et al., 2009).[3] While most boards focus mainly on finance and business, health care delivery, quality, and responsiveness to the public—areas in which the nature of their work gives nurses particular expertise—also are considered key (Center for Healthcare Governance, 2007). A 2007 survey found that 62 percent of boards included a quality committee (Governance Institute, 2007). A 2006 survey of hospital presidents and CEOs showed the impact of such committees. Those institutions with a quality committee were more likely to adopt various oversight practices; they also experienced lower mortality rates for six common medical conditions measured by the Agency for Healthcare Research and Quality's (AHRQ) Inpatient Quality Indicators and the State Inpatient Databases (Jiang et al., 2008).

The growing attention of hospital boards to quality and safety issues reflects the increased visibility of these issues in recent years. Several states and the Centers for Medicare and Medicaid Services, for example, are increasing their oversight of specific preventable errors ("never events"), and new payment structures in health care reform may be based on patient outcomes and satisfaction (Hassmiller, 2009; IOM, 2000; King, 2009; Wachter, 2009). Given their expertise in quality and safety improvement, nurses are more likely than many other board members to understand the issues involved and often can educate other members about these issues (Mastal et al., 2007). This is one area, then, in which nurse board members can have a significant impact. Recognizing this, the 2009 survey of community health systems mentioned above specifically recommended that community health system boards consider appointing

[3] It should be noted that, while there are many more physicians than nurses on hospital boards, health care providers still are generally underrepresented.

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expert nursing leaders as voting board members to strengthen clinical input in deliberations and decision-making processes (Prybil et al., 2009).

More CNOs need to prepare themselves and seek out opportunities to serve on the boards of health-related institutions. If decisions are taking place about patient care and a nurse is not at the decision-making table, important perspectives will be missed. CNOs should also promote leadership activities among their staff, encouraging them to secure important decision-making positions on committees and boards, both internal and external to the organization.

Will Nurse Researchers Hear the Call?

Nurse researchers must develop new models of quality care that are evidence based, patient centered, affordable, and accessible to diverse populations. Developing and imparting the science of nursing is also an important contribution to nurses' ability to deliver high-quality, safe care. Additionally, nurses must serve as advocates and implementers for the program designs they develop. Academic–service partnerships that typically involve nursing schools and nearby, often low-income communities are a first step toward implementation. Given that a nursing school does not exist in every community, however, such partnerships cannot achieve change on the scale needed to transform the health care system. Nurse researchers must become active not only in studying important care delivery questions but also in translating research findings into practice and developing and setting the policy agendas. Their leadership is vital in ensuring that new state- and federal-level policies are based on evidence and will help increase quality and access while decreasing costs and health care disparities. The Affordable Care Act (ACA) provides opportunities for demonstration projects and pilot programs directed at various elements of nursing. If these projects and programs do not adequately track nursing inputs and intended/unintended outcomes, they cannot hope to achieve their potential.

Nurse researchers should seek funding from the National Institute for Nursing Research and other institutes of the National Institutes of Health, as do scientists from other disciplines, to help increase the evidence base for improved models of care. Funding might also be secured from other government entities, such as AHRQ and the Health Resources and Services Administration (HRSA) and local and national foundations, depending on the research topic. To be competitive in these efforts, nurses should hone their analytical skills with training in such areas as statistics and data analysis, econometrics, biometrics, and other qualitative and quantitative research methods that are appropriate to their research topics. Mark Pauly, codirector of The Robert Wood Johnson Foundation's Interdisciplinary Nursing Quality Research Initiative, argues that, for nursing research to achieve parity with other health services research in terms of acceptability, it must be managed by interprofessional teams that include both nurse scholars and scholars from methodological and modeling disciplines. For nurse researchers to achieve parity with other health services researchers, they must develop the skills and initiative to take leadership roles in this research.[4]

[4] Personal communication, Mark Pauly, Bendheim Professor, Professor of Health Care Management, Professor of Business and Public Policy, Professor of Insurance and Risk Management, and Professor of Economics, Wharton School of the University of Pennsylvania, and Codirector of The Robert Wood Johnson Foundation's Interdisciplinary Nursing Quality Research Initiative, June 25, 2010.

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Will Nursing Organizations Hear the Call?

The Gallup poll of 1,500 opinion leaders referenced earlier in this chapter also highlighted fragmentation in the leadership of nursing organizations as a challenge. Responding opinion leaders predicted that nurses will have little influence on health care reform over the next 5 to 10 years (see Figure 5-1). By contrast, they believed that nurses should have more input and impact in areas such as planning, policy development, and management (Figure 5-2) (RWJF, 2010a). No one expects all professional health organizations to coordinate their public agendas, actions, or messaging for every issue. But nursing organizations must continue to collaborate and work hard to develop common messages, including visions and missions, with regard to their ability to offer evidence-based solutions for improvements in patient care. Once common ground has been established, nursing organizations will need to activate their membership and constituents to work together to take action and support shared goals. When policy makers and other key decision makers know that the largest group of health professionals in the country is in agreement on important issues, they listen and often take action. Conversely, when nursing organizations and their members disagree with one another on important issues, decisions are not made, as the decision makers often are unsure of which side to take.

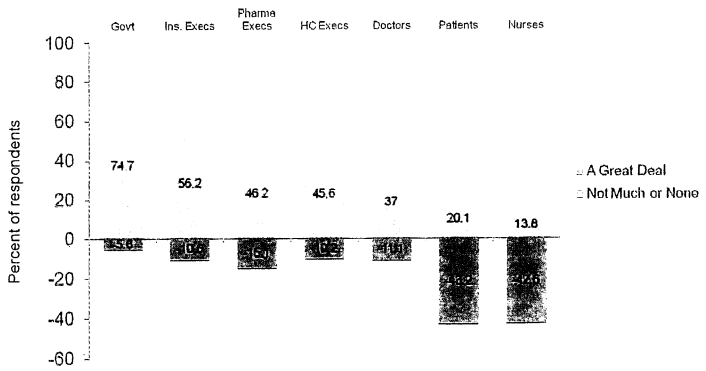

FIGURE 5-1 Opinion leaders' predictions of the amount of influence nurses will have on health care reform.
SOURCE: RWJF, 2010b. Reprinted with permission from Frederick Mann, RWJF.

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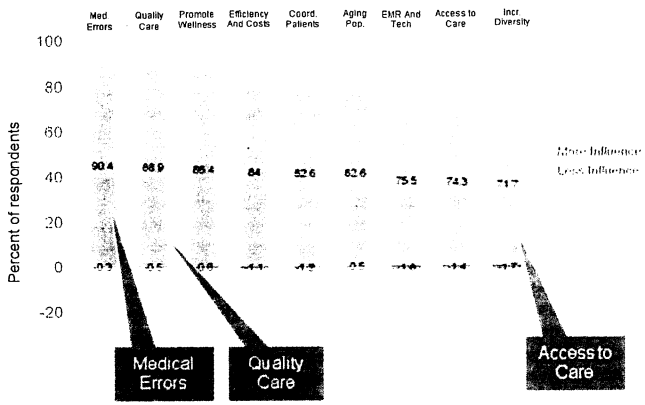

FIGURE 5-2 Opinion leaders' views on the amount of influence nurses should have on various areas of health care.
SOURCE: RWJF, 2010b. Reprinted with permission from Frederick Mann, RWJF.

Quality and safety are important areas in which professional nursing organizations have great potential to serve as leaders. The Nursing Alliance for Quality Care (NAQC)[5] is a Robert Wood Johnson Foundation–funded effort with the mission of advancing the quality, safety, and value of patient-centered health care for all individuals, including patients, their families, and the communities where patients live. Based at The George Washington University School of Nursing, the organization stresses the need for nurses to advocate actively for and be accountable to patients for high-quality and safe care. The establishment of the NAQC "is based on the assumption that only with a stronger, more unified 'voice' in nursing policy will dramatic and sustainable achievements in quality and safety be achieved for the American public" (George Washington University Medical Center, 2010).

ANSWERING THE CALL

The call for nurses to assume leadership roles can be answered through leadership programs for nurses; mentorship; and involvement in the policy-making process, including political engagement.

[5] See http://www.gwumc.edu/healthsci/departments/nursing/naqc/.

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Leadership Programs for Nurses

Leadership is not necessarily innate; many individuals develop into leaders. Sometimes that development comes through experience. For example, nurse leaders at the executive level historically earned their way to their position through their competence, rather than obtaining formal preparation through a business school. However, development as a leader can also be achieved through more formal education and training programs. The wide range of effective leadership programs now available for nurses is illustrated by the examples described below. The challenge is to better utilize these opportunities to develop a greater number of nursing leaders.

Integrated Nurse Leadership Program

The Integrated Nurse Leadership Program (INLP),[6] funded by the Gordon and Betty Moore Foundation, works with hospitals in the San Francisco Bay area that wish to remodel their professional culture and systems of care to improve care while dealing more effectively with continual change. The program develops hospital leaders, offers training and technical assistance, and provides grants to support the program's implementation. INLP has found that the development of stable, effective leadership in nursing-related care is associated with better-than-expected patient care outcomes and improvements in nurse recruitment and retention. The impact of the program will be evaluated to produce models that can be replicated in other parts of the country.

Fellows Program in Management for Nurse Executives at Wharton[7]

When the Johnson & Johnson Company and the Wharton School joined in 1983 to offer a senior nurse executive management fellowship, the program concentrated on helping senior nursing leaders manage their departments by providing them, for example, intense training in accounting (Shea, 2005). The Wharton Fellows program has changed in many ways since then in response to the evolving health care environment, according to a 2005 review (Shea, 2005). For example, the program has strengthened senior nursing executives' ability to argue for quality improvement on the basis of solid evidence, including financial documentation and probabilistic decision making. The program also aims to improve such leadership competencies as systems thinking, negotiation, communications, strategy, analysis, and the development of learning communities. Its offerings will likely undergo yet more changes as hospital chief executive and chief operating officers increasingly come from the ranks of the nursing profession.

[6] See http://futurehealth.ucsf.edu/Public/Leadership-Programs/Home.aspx?pid=35.
[7] See http://executiveeducation.wharton.upenn.edu/open-enrollment/health-care-programs/Fellows-Program-Management-Nurse-Executives.cfm.

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Robert Wood Johnson Foundation Executive Nurse Fellows Program

The Robert Wood Johnson Foundation Executive Nurse Fellows Program[8] is an advanced leadership program for nurses in senior executive roles who wish to lead improvements in health care from local to national levels. It provides a 3-year in-depth, comprehensive leadership development experience for nurses who are already serving in senior leadership positions. The program is designed to cultivate and expand fellows' capacity to lead teams and organizations. The fellowship program includes curriculum and program activities that provide opportunities for executive coaching and mentoring, team-based and individual leadership projects, professional development that incorporates best practices in leadership, as well as access to online communities and leadership networks. Through the program, fellows will to master 20 leadership competencies that cover a broad range of knowledge and skills that can be used when "leading self, leading others, leading the organization and leading in health care" (RWJF Executive Nurse Fellows, 2010).

Best on Board

Best on Board[9] is an education, testing, and certification program that helps prepare current and prospective leaders to serve on the governing board of a health care organization. Its CEO, Connie Curran, is a registered nurse (RN) who chaired a hospital nursing department, was the dean of a medical college, and founded her own national management and consulting services firm. A 2010 review cites the growing recognition by blue ribbon panels and management researchers that nurses are an untapped resource for the governing bodies of health care organizations. The authors argue that while nurses have many qualities that make them natural assets to any health care board, they must also "understand the advantages of serving on boards and what it takes to get there" (Curran and Totten, 2010).

Robert Wood Johnson Foundation Health Policy Fellows and Investigator Awards Programs

While not limited to nurses, The Robert Wood Johnson Foundation Health Policy Fellows and Investigator Awards programs[10] offer nurses, other health professionals, and behavioral and social scientists "with an interest in health [the opportunity] to participate in health policy processes at the federal level" (RWJF Scholars, Fellows & Leadership Programs, 2010). Fellows work on Capitol Hill with elected officials and congressional staff. The goal is for fellows to use their academic and practice experience to inform the policy process and to improve the quality of policies enacted. Investigators are funded to complete innovative studies of topics relevant to current and future health policy. Participants in both programs receive intensive training to improve the content and delivery of messages intended to improve health policy and practice. This training is critical, as investigators are often called upon to testify to Congress about the issues they have explored. The health policy fellows bring their more detailed understanding of how policies are formed back to their home organizations. In this way, they are more effective leaders as they strive to bring about policy changes that lead to improvements in patient care.

[8] See http://www.executivenursefellows.org.
[9] See http://www.bestonboard.org.
[10] See http://www.rwjfleaders.org/programs/robert-wood-johnson-foundation-health-policy-fellow.

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American Nurses Credentialing Center Magnet Recognition Program

Although not an individual leadership program, the American Nurses Credentialing Center (ANCC) Magnet Recognition Program[11] recognizes health care organizations that advance nursing excellence and leadership. In this regard, achieving Magnet status indicates that the nursing workforce within the institution has attained a number of high standards relating to quality and standards of nursing practice. These standards, as designated by the Magnet process, are called "Forces of Magnetism." According to ANCC, "the full expression of the Forces embodies a professional environment guided by a strong visionary nursing leader who advocates and supports development and excellence in nursing practice. As a natural outcome of this, the program elevates the reputation and standards of the nursing profession" (ANCC, 2010). Some of these Forces include quality of nursing leadership, management style, quality of care, autonomous nursing care, nurses as teachers, interprofessional relationships, and professional development.

Mentorship[12]

Leadership is also fostered through effective mentorship opportunities with leaders in nursing, other health professions, policy, and business. All nurses have a responsibility to mentor those who come after them, whether by helping a new nurse become oriented or by taking on more formal responsibilities as a teacher of nursing students or a preceptor. Nursing organizations (membership associations) also have a responsibility to provide mentoring and leadership guidance, as well as opportunities to share expertise and best practices, for those who join.

Fortunately, a number of nursing associations have organized networks to support their membership and facilitate such opportunities:

- The American Association of Colleges of Nursing (AACN) conducts an expertise survey that is used to identify subject matter experts across topic areas within its membership; it also maintains a list of nursing education experts. Names of these experts are shared with members on request. These resources also are used to identify experts to serve on boards, respond to media requests, and serve in other capacities. In addition, AACN offers an annual executive leadership development program and a new deans mentoring program to further promote and foster leadership.

[11] See http://www.nursecredentialing.org/Magnet/ProgramOverview.aspx.
[12] This section draws on personal communication in 2010 with Susan Gergely, Director of Operations, American Organization of Nurse Executives; Beverly Malone, CEO, National League for Nursing; Robert Rosseter, Chief Communications Officer, American Association of Colleges of Nursing; and Pat Ford Roegner, CEO, American Academy of Nursing.

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- The National League for Nursing (NLN) has established an Academy of Nurse Educators whose members are available to serve as mentors for NLN members. NLN engages these educators in a variety of mentoring programs, from a National Scholarly Writing Retreat to the Johnson & Johnson mentoring program for new faculty.
- While AONE does not have a formal mentoring program, it has developed online learning communities where members are encouraged to interact, post questions, and learn from each other. These online communities facilitate collaboration; encourage the sharing of knowledge, best practices, and resources; and help members discover solutions to day-to-day challenges in their work.
- The American Academy of Nursing keeps a detailed list of nurse "Edge Runners"[13] that describes the programs nursing leaders have developed and the outcomes of those programs. Edge Runner names and contact information are prominently displayed so that learning and mentoring can take place freely.[14]
- The American Nurses Association just passed a resolution at its 2010 House of Delegates to develop a mentoring program for novice nurses. The program has yet to be developed.
- Over the years, the National Coalition of Ethnic Minority Nurse Associations (NCEMNA) has offered numerous workshops, webinars, and educational materials to develop its members' competencies in leadership, policy, and communications. NCEMNA's highly regarded Scholars program[15] promotes the academic and professional development of ethnic minority investigators, in part through a mentoring program. It serves as a model worth emulating throughout the nursing profession.

Involvement in Policy Making

Nurses may articulate what they want to happen in health care to make it more truly patient centered and to improve quality, access, and value. They may even have the evidence to support their conclusions. As with any worthy cause, however, they must engage in the policy-making process to ensure that the changes they believe in are realized. To this end, they must be able to envision themselves as leaders in that process and seek out new partners who share their goals.

The challenge now is to motivate all nurses to pursue leadership roles in the policy-making process. Political engagement is one avenue they can take to that end. As Bethany Hall-Long, a nurse who was elected to the Delaware State House of Representatives in 2002 and is now a state senator, writes, "political actions may be as simple as voting in local school board elections or sharing research findings with state officials, or as complex as running for elected office" (Hall-Long, 2009). For example, engaging school board candidates about the fundamental role of school nurses in the management of chronic conditions among students can make a difference at budget time. And if the goal is broader, perhaps to locate more community health clinics within schools, achieving buy-in from the local school board is absolutely vital. As Hall-Long writes,

[13] The Edge Runner program is a component of the American Academy of Nursing's Raise the Voice campaign, funded by The Robert Wood Johnson Foundation. The Edge Runner designation recognizes nurses who have developed innovative, successful models of care and interventions to address problems in the health care delivery system or unmet health needs in a population.
[14] See AAN's Edge Runner Directory, http://www.aannet.org/custom/edgeRunner/index.cfm?pageid=3303&showTitle=1.
[15] See http://www.ncemna.org/scholarships.asp.

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however, "since nurses do not regularly communicate with their elected officials, the elected officials listen to non-nursing individuals" (Hall-Long, 2009).

Political engagement can be a natural outgrowth of nursing experience. When Marilyn Tavenner first started working in an intensive care unit in Virginia, she thought, "If I were the head nurse or the nurse manager, I would make changes. I would try to influence that unit and that unit's quality and staffing." After she became a nurse manager, she thought, "I wouldn't mind doing this for the entire hospital." After succeeding for several years as a director of nursing, she was encouraged by a group of physicians to apply for the CEO position of her hospital when it became available. Eventually, Timothy Kaine, governor of Virginia from 2006 to 2010, recruited her to be the state's secretary of health and human resources. In February 2010, Ms. Tavenner was named deputy administrator for the federal Centers for Medicare and Medicaid Services. Like many nurses, she had never envisioned working in government. But she realized that she wanted to have an impact on health care and health care reform. She wanted to help the uninsured find resources and access to care. For her, that meant building on relationships and finding opportunities to work in government.[16]

Other notable nurses who have answered the call to serve in government include Sheila Burke, who served as chief of staff to former Senate Majority Leader Robert Dole, has been a member of the Medicare Payment Advisory Commission, and now teaches at Georgetown and Harvard Universities; and Mary Wakefield, who was named administrator of HRSA in 2009 and is the highest-ranking nurse in the Obama Administration. Speaker of the House Nancy Pelosi's office has had back-to-back nurses from The Robert Wood Johnson Foundation Health Policy Fellows Program as staffers since 2007, providing a significant entry point for the development of new health policy leaders. Additionally, in 1989 Senator Daniel Inouye established the Military Nurse Detailee fellowship program. This 1-year fellowship provides an opportunity for a high-ranking military nurse, who holds a minimum of a master's degree, to gain health policy leadership experience in Senator Inouye's office. The fellowship rotates among three branches of service (Army, Navy, and Air Force) annually.[17] During the Clinton Administration, Beverly Malone served as deputy assistant secretary for health in the Department of Health and Human Services (HHS). In 2002, Richard Carmona, who began his education with an associate's degree in nursing from the Bronx Community College in New York, was appointed surgeon general by President George W. Bush. Shirley Chater led the reorganization of the Social Security Administration in the 1990s. Carolyne Davis served as head of the Health Care Finance Administration (predecessor of the Centers for Medicare and Medicaid Services) in the 1980s during the implementation of a new coding system that classifies hospital cases into diagnosis-related groups (DRGs). From 1979 to 1981, Rhetaugh Dumas was the first nurse, the first woman, and the first African American to serve as a deputy director of the National Institute of Mental Health (Sullivan, 2007). Nurses also have served as regional directors of HHS and as senior advisors on health policy to HHS.

As for elected office, there were three nurse members of the 111th Congress—Eddie Bernice Johnson (D-TX), Lois Capps (D-CA), and Carolyn McCarthy (D-NY)—all of whom had a hand

[16] This paragraph draws on personal communication with Marilyn Tavenner, principal deputy administrator and chief operating officer, Centers for Medicare and Medicaid Services, May 11, 2010.
[17] Personal communication, Corina Barrow, Lieutenant Colonel, Army Nurse Corps, Nurse Corps Detailee, Office of Senator Daniel Inouye (D-HI), August 25, 2010.

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in sponsoring and supporting health care–focused legislation, from AIDS research to gun control. Lois Capps organized and co-chairs the Congressional Nursing Caucus (which also includes members who are not nurses). The group focuses on mobilizing congressional support for health-related issues. Additionally, 105 nurses have served in state legislatures, including Paula Hollinger of Maryland, who sponsored one of the nation's first stem cell research bills. None of these nurses waited to be asked; they pursued their positions, both elected and appointed, because they knew they had the expertise and experience to make changes in health care.

Very little in politics is accomplished without preparation or allies. Health professionals point with pride to multiple aspects of the Prescription for Pennsylvania initiative, a state health care reform initiative that preceded the ACA and is also described in Box 5-6. As is clear from a detailed 2009 review, success was not achieved overnight; smaller legislative and regulatory victories set the stage starting in the late 1990s. Even some apparent legislative failures built the foundation for future successes because they caused nurses to spend more time meeting face to face with physicians who had organized opposition to various measures. As a result, nursing leaders developed a better sense of where they could achieve compromises with their opponents. They also found a new ally in the Chamber of Commerce to counter opposition from some sections of organized medicine (Hansen-Turton et al., 2009).

Hansen-Turton and colleagues draw three major lessons from this experience. First, nurses must build strong alliances within their own professional community, an important lesson alluded to earlier in this chapter. Pennsylvania's nurses were able to speak with a unified voice because they first worked out among themselves which issues mattered most to them. Second, nurses must build relationships with key policy makers. Pennsylvania's nurses developed strong relationships with several legislators from both major political parties and earned the support of two successive sitting governors: Thomas Ridge (Republican) and Edward Rendell (Democrat). Third, nurses must find allies outside the nursing profession, particularly in business and other influential communities. Pennsylvania's nurses gained a strong ally in the Chamber of Commerce when they were able to demonstrate how expanding regulations to allow nurses to do all they were educated and demonstrably capable of doing would help lower health care costs (Hansen-Turton et al., 2009).

Perhaps the most important lesson to draw from the Pennsylvania experience lies in the way the campaign was framed. The focus of attention was on achieving quality care and cost reductions. A closer examination of the issues showed that achieving those goals required, among other things, expanding the roles and responsibilities of nurses. What drew the greatest amount of political support for the Prescription for Pennsylvania campaign was the shared goal of getting more value out of the health care system—quality care at a sustainable price. The fact that the campaign also expanded nursing practice was secondary. Those expansions are likely to continue as long as the emphasis is on quality care and cost reduction. Similarly, the committee believes that the goal in any transformation of the health care system should be achieving innovative, patient-centered, high-value care. If all stakeholders—from legislators, to regulators, to hospital executives, to insurance companies—act from a patient-centered point of reference, they will see that many of the solutions they are seeking require a transformation of the nursing profession.

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BOX 5-6
Prescription for Pennsylvania

A GOVERNOR'S LEADERSHIP IMPROVES ACCESS TO CARE FOR RESIDENTS OF A RURAL STATE

If we look at the workforce and the health care needs of an aging population, we're insane if we don't try to figure out how we can make sure that we have an adequate number of [clinicians] with the skill and knowledge to work together.

—Ann S. Torregrossa, Esq., director, Governor's Office of Health Care Reform for the Commonwealth of Pennsylvania

When Pennsylvania Governor Edward Rendell took office in 2003, one-twelfth of the state's 12 million residents had no access to health care, 80 percent of health care expenditures went to treating chronic illnesses, and $3 billion was spent annually on avoidable hospitalizations of chronically ill patients. Pennsylvanians were 11 percent more likely than all other Americans to use the emergency room (ER).

On his first day in office, Governor Rendell established the Office of Health Care Reform to begin to address residents' access to affordable, high-quality health care. In January 2007 he announced a major new blueprint for that reform, Prescription for Pennsylvania (known as Rx for PA, www.rxforpa.com), which would promote access to care for all Pennsylvanians and reduce the state's skyrocketing health care expenses.

In the 3-plus years since, many initiatives have been undertaken, including:

- expanding health insurance coverage for the uninsured;
- improving access to electronic health information through the Pennsylvania Health Information Exchange;
- establishing a chronic illness commission, which in 2008 recommended, among other proposals, the patient-centered medical home;
- addressing workforce shortages through the Pennsylvania Center for Health Careers;
- establishing seven "learning collaboratives" that involve about 800 providers and 1 million patients and teach a variety of providers to collaborate on primary care teams; and
- expanding the legal scope of practice for physician assistants, advanced practice registered nurses (APRNs), clinical nurse specialists, certified nurse midwives, and dental hygienists (although legislation is still needed to allow APRNs to prescribe medications independently).

This last strategy has had an impact on access to care, particularly for the uninsured and underinsured. There are now 51 retail clinics that use APRNs in urban, suburban, and rural areas, and they provide care to 60 percent of the state's uninsured, said Ann S. Torregrossa, Esq., who in 2005 was named deputy director and in 2009 director of the Office of Health Care Reform. Ms. Torregrossa said that of 300,000 visits to such clinics, about half would have been ER visits. Retail clinics have been shown to reduce costs and improve access to care (Mehrotra et al., 2009).

Other outcome data after the first year of Rx for PA show an increase in the number of people with diabetes receiving eye and foot examinations and a doubling of the number of children with asthma who have a plan in place for controlling exacerbations (Pennsylvania Governor's Office, 2009). There are about 250 nurse-managed health centers nationwide and 27 in Pennsylvania; many are affiliated with schools of nursing and provide care at a 10 percent lower cost than other models—including a 15 percent reduction in ER use and a 25 percent reduction in prescription drug costs (according to unpublished data from the National Nursing Centers Consortium [NNCC]).

Tine Hansen-Turton, MGA, JD, CEO of the NNCC and vice president of the Public Health Management Corporation, a nonprofit institute, said that nurses involved in Rx for PA have a great deal to teach clinicians and leaders in other states as they grapple with health care reform (Hansen-Turton et al., 2009). The nurse-managed health centers in particular offer a preventive care model that improves access to care. And Pennsylvanians have given high marks to the care they have received from APRNs, Ms. Hansen-Turton said, adding, "It's all about access."

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A CALL FOR NEW PARTNERSHIPS

Having enough nurses and having nurses with the right skills and competencies to care for the population is an important societal issue. Having allies from outside the profession is important to achieving this goal. More nurses need to reach out to new partners in arenas ranging from business, government, and philanthropy to state and national medical associations to consumer groups. Additionally, nurses need to fortify alliances that are made through personal connections and relationships. Just as important, society needs to understand its stake in ensuring that nurses are effective full partners and leaders in the quest to deliver quality, high-value care that is accessible to diverse populations. The full potential of the nursing profession in care, leadership, and research must be tapped to deal with the wide range of health care challenges the nation will face in the coming years.

Eventually, to transform the way health care is delivered in the United States, nurses will have to move not just out of the hospital, but also out of health care organizations entirely. For example, nurses are underrepresented on the boards of private nonprofit and philanthropic organizations, which do not provide health care services but often have a large impact on health care decisions. The Commonwealth Fund and the Kaiser Family Foundation, for instance, have no nurses on their boards, although they do have physicians. Without nurses, vital ground-level perspectives on quality improvement, care coordination, and health promotion are likely missing. On the other hand, AARP provides a positive example. At least two nurses at AARP have served in the top leadership and governance roles (president and chair) in the past 3 years. Nurses serve on the health and long-term services policy committee, and the senior vice president of the Public Policy Institute is also a nurse. AARP's commitment to nursing is clear through its sponsorship, along with The Robert Wood Johnson Foundation, of the Center to Champion Nursing.

CONCLUSIONS

Enactment of the ACA will provide unprecedented opportunities for change in the U.S. health care system for the foreseeable future. Strong leadership on the part of nurses, physicians, and others will be required to devise and implement the changes necessary to increase quality, access, and value and deliver patient-centered care. If these efforts are to be successful, all nurses, from students, to bedside and community nurses, to CNOs and members of nursing organizations, to researchers, must develop leadership competencies and serve as full partners with physicians and other health professionals in efforts to improve the health care system and the delivery of care. Nurses must exercise these competencies in a collaborative environment in all settings, including hospitals, communities, schools, boards, and political and business arenas. In doing so, they must not only mentor others along the way, but develop partnerships and gain allies both within and beyond the health care environment.

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6
Meeting the Need for Better Data on the Health Care Workforce

> ***Key Message #4: Effective workforce planning and policy making require better data collection and an improved information infrastructure.***
>
> *Planning for fundamental, wide-ranging changes in the preparation and deployment of the nursing workforce will require comprehensive data on the numbers and types of professionals currently available and required to meet future needs. Such data are needed across the health professions if a fundamental transformation of the health care system is to be achieved. Major gaps exist in currently available workforce data. Filling these gaps should be a priority for the National Health Workforce Commission and other structures and resources authorized under the Affordable Care Act.*

Chapters 3 through 5 have argued for the need to transform the nursing profession to achieve the vision of a reformed health care system set forth in Chapter 1. Achieving this vision, however, will also require a balance of skills and perspectives among physicians, nurses, and other health professionals. Yet data are lacking on the numbers and types of health professionals currently employed, where they are employed, and in what roles. Understanding of the impact of bundled payments, medical homes, accountable care organizations, health information technology, comparative effectiveness, patient engagement, and safety, as well as the growing diversification of the American population, will not be complete without information on and analysis of the contributions of the various types of health professionals that will be needed. For cost-effectiveness comparisons, for example, different team configurations, continuing education and on-the-job training programs, incentives, and work flow arrangements—all of which affect the efficient use of the health care workforce—must be evaluated. Having these data is a vital first step in the development of accurate models for projecting workforce capacity. Those projections in turn are needed to inform the transformation of nursing practice and education argued for in Chapters 3 and 4, respectively.

Awareness of impending shortages of nurses, primary care physicians, geriatricians, and dentists and in many of the allied health professions has led to a growing consensus among policy makers that strengthening the health care workforce in the United States is an urgent need. This consensus is reflected in the creation of a National Health Workforce Commission (NHWC) under the Affordable Care Act (ACA) whose mission is, among other things, to "[develop] and [commission] evaluations of education and training activities to determine whether the demand for health care workers is being met," and to "[identify] barriers to improved coordination at the

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Federal, State, and local levels and recommend ways to address such barriers."[1] The ACA also authorizes a National Center for Workforce Analysis, as well as state and regional workforce centers, and provides funding for workforce data collection and studies. The committee believes these initiatives will prove most successful if they analyze workforce needs across the professions—as the Department of Veterans Affairs (VA) did in the 1990s (see Chapter 3)—rather than focusing on one profession at a time. Furthermore, national trend data are not granular enough by themselves to permit accurate projections of regional needs.

This chapter addresses key message #4 set forth in Chapter 1: Effective workforce planning and policy making require better data collection and an improved information infrastructure. The chapter first provides a closer look at what is known about the workforce in two areas of urgent need: primary care providers and nurses. It then examines gaps in currently available workforce data. The third section describes the experience of one regional workforce plan in Texas that aims to maintain the right numbers and types of nurses to meet its needs. The final section presents the committee's conclusions about the need for better data on the health care workforce.

CURRENT ESTIMATES OF PRIMARY CARE PROVIDERS AND NURSES

Primary Care Projections

The United States has nearly 400,000 primary care providers (Bodenheimer and Pham, 2010). As noted in Chapter 3, physicians account for 287,000 of these providers, nurse practitioners for 83,000, and physician assistants for 23,000 (HRSA, 2008; Steinwald, 2008). While the numbers of nurse practitioners and physician assistants are steadily increasing, the number of medical students and residents entering primary care has declined in recent years (Naylor and Kurtzman, 2010). In fact, a 2008 survey of medical students found only 2 percent planned careers in general internal medicine, a common entry point into primary care (Hauer et al., 2008).

There is a great deal of geographic variation in where primary care providers work. About 65 million Americans live in areas that are officially identified as primary care shortage areas according to the Health Resources and Services Administration (HRSA) (Rieselbach et al., 2010). For example, while one in five U.S. residents live in rural areas, only one in ten physicians practice in those areas (Bodenheimer and Pham, 2010). A 2006 survey of all 846 federally funded community health centers (CHCs) by Rosenblatt and colleagues (2006) found that 46 percent of direct care providers in rural CHCs were nonphysician clinicians, including nurse practitioners, nurse midwives, and physician assistants; in urban clinics, the figure was 38.9 percent. The contingent of physicians was heavily dependent on international medical graduates and loan forgiveness programs. Even so, the vacancies for physicians totaled 428 full-time equivalents (FTEs), while those for nurses totaled 376 FTEs (Rosenblatt et al., 2006). Expansion of programs that encourage health care providers to practice primary care, especially those from underrepresented and culturally diverse backgrounds, will be needed to keep pace with the demand for community-based care. For further discussion of variation in the geographic distribution of primary care providers, see the section on expanding access to primary care in Chapter 3.

[1] *Patient Protection and Affordable Care Act*, HR 3590 § 5101, 111th Congress.

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In 2008, the Government Accountability Office determined that there were few projections of the future need for primary care providers, and those that existed were substantially limited (Steinwald, 2008). Arguably, it is simpler to project the future supply of health professionals than to project future demand for their services. It is difficult to predict, for example, the pattern of increased demand for primary care after full implementation of the ACA adds 32 million newly insured people to the health care system. Will there be a short, marked spike in demand, or will the surge be of longer duration that leaves more time to adapt? Given that there are more than 6,000 health professions primary care shortage areas nationwide (HRSA, 2010), the question remains of whether growing demand for primary care can best be met by an increased number of providers or by better distribution of existing providers.

Nursing Workforce Projections

Trend data consistently point to a substantial shortfall in the numbers of nurses in the near future. HRSA has calculated a shortfall of as many as 1 million FTEs by 2020 (HRSA, 2004). However, that projection is almost certainly too high because it depends on extrapolating today's unsustainable growth rates for health care to the future. A more conservative estimate from 2009 suggests a shortage of 260,000 registered nurses (RNs) by 2025; by comparison, the last nursing shortage peaked in 2001 with a vacancy rate of 126,000 FTEs (Buerhaus, 2009). Yet this more conservative projection is almost certainly too low because the new law is "highly likely to increase demand for health care services and hence for nurses" (RWJF, 2010a). Figure 6-1 shows a forecast of supply and demand for FTE RNs, 2009–2030. For a more detailed examination of the projected nursing shortage based on the numbers and composition of the workforce, the effects of health reform on the demand for RNs, and the degree to which the RN workforce measures up to this anticipated demand, see Appendix F (on CD-ROM).

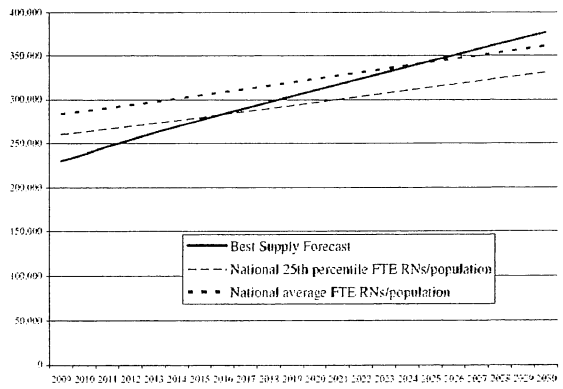

FIGURE 6-1 Forecast supply of and demand for full-time equivalent (FTE) RNs, 2009–2030.
SOURCE: Spetz, 2009. Reprinted with permission from Joanne Spetz. Copyright 2009 by the author.

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The urgency of the situation is masked by current economic conditions. Nursing shortages have historically eased somewhat during difficult economic times, and the past few years of financial turmoil have been no exception (Buerhaus et al., 2009). Nursing is seen as a stable profession—a rare point of security in an unsettled economy. A closer look at the data, however, shows that during the past two recessions, more than three-quarters of the increase in the employment of RNs is accounted for by women and men over age 50, and there are currently more than 900,000 nurses over age 50 in the workforce (BLS, 2009). Meanwhile, the trend from 2001 to 2008 among middle-aged RNs was actually negative, with 24,000 fewer nurses aged 35 to 49. In a hopeful sign for the future, the number of nurses under age 35 increased by 74,000. In terms of absolute numbers, however, the cohorts of younger nurses are still vastly outnumbered by their older Baby Boom colleagues. In other words, the past practice of dependence on a steady supply of older nurses to fill the gaps in the health care system will eventually fail as a strategy (Buerhaus et al., 2009).

Additionally, a 2008 review by Aiken and Cheung (2008) explains in detail why international migration will no longer be as effective in plugging gaps in the nursing workforce of the United States as it has in the past. Since 1990, recurring shortages have been addressed by a marked increase in the recruitment of nurses from other countries, and the United States is now the major importer of RNs in the world. Figure 6-2 compares trends in new licenses between U.S.- and foreign-educated RNs from 2002 to 2008. Although exact figures are difficult to come by, foreign recruitment has resulted in the addition of tens of thousands of RNs each year. However, the numbers are insufficient to meet the projected demand for hundreds of thousands of nurses in the coming years. U.S. immigration policy would have to substantially favor nursing over all other professional categories, and the migration would exacerbate the current global nursing shortage to politically untenable levels (Aiken and Cheung, 2008).

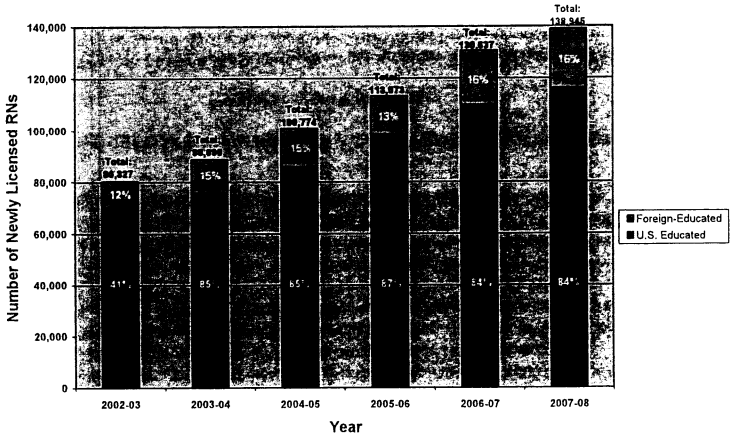

FIGURE 6-2 Trends in new licenses, U.S.- and foreign-educated RNs, 2002–2008.
SOURCE: NCSBN, 2010.

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GAPS IN CURRENT WORKFORCE DATA

As the committee considered how best to inform health care workforce policy and development, it realized it could not answer several basic questions about the workforce numbers and composition that will be needed by 2025. How many primary care providers does the nation require to deliver on its promise of more accessible, quality health care? What are the various proportions of physicians, nurses, physician assistants, and other providers that can be used to meet that need? What is the current educational capacity to meet the need, and how quickly can it be ramped up? Yet The Robert Wood Johnson Foundation Nursing Research Network, when consulted by the committee, suggested that these projections could be reliably generated within 5 years if better national and regional data were collected to support workforce prediction models (RWJF, 2010b).

Research on the health care workforce to inform policy deliberations is fragmented and dominated by historical debates over what numbers of a particular health profession are needed and the extent (if at all) to which government should be involved in influencing the supply of and demand for health professionals. The methods used to develop projection models are notoriously deficient and focus on single professions, typically assuming the continuation of current practice and utilization patterns. Projection models do not allow policy makers to test and evaluate the impact of different policy scenarios on supply and demand estimates; whether and how health outcomes are associated with various health professions; and whether interprofessional team-based care is more efficient, lowers costs, and leads to safer care and improved patient outcomes.

In a paper prepared for the committee, Julie Sochalski and Jonathan Weiner emphasize the importance of collecting data that allow for flexible workforce projections. Meeting the need for adequate numbers of RNs "to support health care delivery reform will require a wholesale paradigm shift in the framework and context used to prepare and deploy the RN workforce and to forecast future requirements" (Sochalski and Weiner, 2010).

The Robert Wood Johnson Foundation Nursing Research Network assessed for the committee the quantity and quality of workforce data across health professions and suggested three key areas of need:

- **Core data sets on health care workforce supply and demand**—Researchers should develop and routinely update core data sets that facilitate analysis of the supply, demand, and distribution of the health care workforce across health professions. To this end, technical assistance and partnerships with licensure boards, educational organizations, and professional associations at the national, state, and local levels will be necessary.
- **Surveillance of health care workforce market conditions**—Researchers should develop a workforce surplus/shortage surveillance system that provides regular and frequent data (e.g., every 6–12 months) on key workforce indicators. This system would employ surveillance methods similar to those of other economic monitoring systems designed to track trends and provide early warning of changes in the marketplace. The development of such a system will require partnerships with public and private employers and organizations.
- **Health care workforce effectiveness research**—Researchers should develop data and support research to evaluate the impact of new models of care delivery on the health care workforce and the impact of workforce configurations on health care costs, quality, and

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access. This effort should include coordination with other federal agencies to ensure that key data elements are incorporated into federal surveys, claims data, and clinical data. Research should include evaluation of strategies for increasing the efficient education, preparation, and distribution of the health care workforce. Finally, workforce research needs to be included in federal pilot and demonstration projects involving payment innovation, introduction of new technologies, team-based care models, and other advances.

A major barrier to more strategic health care workforce planning efforts is insufficient basic data on the activities performed by health professionals. While claims data can yield information on the services provided by physicians and some allied health professionals, the efforts of other health professionals, including nurses—is invisible in most federal data sets.

As discussed above, the ACA authorizes the NHWC. It also authorizes a National Center for Workforce Analysis, as well as state and regional workforce centers, and provides funding for workforce data collection and studies. A priority for these new structures and resources should be systematic monitoring of health care workforce shortages and surpluses, review of the data and methods needed to predict future workforce needs, and coordination of the collection of data relating to the health care workforce in federal surveys and in the private sector. These three functions must be actively assumed by the federal government to build the necessary capacity for workforce planning in the United States. The NHWC has the potential to build a robust workforce data infrastructure and a high-level analytic capacity.

HRSA's Bureau of Primary Care and Bureau of Health Professions conduct some monitoring—primarily for nurses, primary care clinicians, mental health professionals, dentists, and pharmacists—for purposes of designating health professional shortage areas/facilities and medically underserved areas/populations and informing funding decisions to support clinician training. Thus, HRSA is well positioned to assume leadership in directing resources needed to build a data infrastructure to support health care workforce research.

One currently available resource for examining the role of providers in primary care is the National Provider Indicator (NPI). While the NPI is a mechanism for tracking billing services, this data source at the Centers for Medicare and Medicaid Services (CMS) could be thought of as an opportunity to collect workforce data and conduct research on those nurses who bill for services, primarily nurse practitioners. The committee believes the NPI presents a unique opportunity to track and measure nurse practitioners with regard to their practice, such as where they are located, how many are billing patients, what kinds of patients they are seeing, and what services they are providing. These data would be a significant contribution to the supply data currently being collected, adding to the knowledge base about practice partnerships, utilization of services, and primary care shortages. The committee encourages CMS to make these data available in a useful way to workforce researchers and others who might contribute to this knowledge base.

The NHWC needs to develop predictions for a range of assumptions about future delivery systems and patterns, including the future workforce supply across the professions (see Figure 6-3 for factors to consider) and the demand for services that can be provided by more than one profession or specialty (see Figure 6-4 for factors to consider). The following example illustrates the complexity of developing workforce projections and the depth of the data needs with respect to a single profession, as well as the innovative solutions the Gulf Coast region of Texas found for meeting its nursing needs. The committee commends this example to the

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NHWC while encouraging it to extend this innovation by looking at workforce needs across professions.

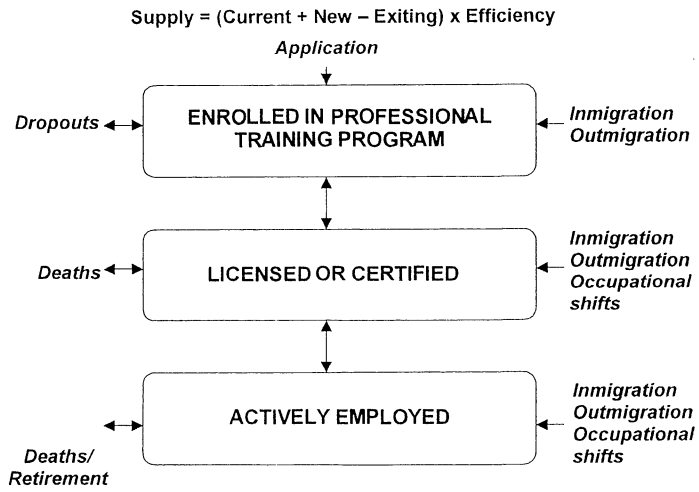

FIGURE 6-3 Factors to consider when assessing the health care workforce supply.
SOURCE: Moore, 2000. Adapted from Figure 3, page 84. Reprinted with permission from Jean Moore, Center for Health Workforce Studies, University of Albany.

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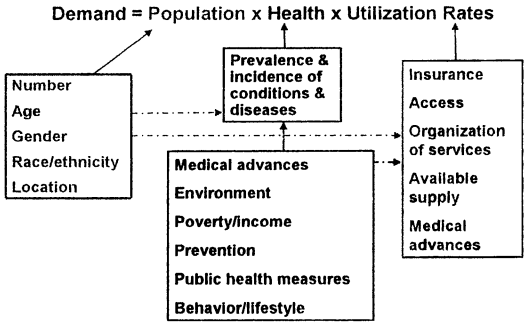

FIGURE 6-4 Factors to consider when assessing health care workforce demand.
SOURCE: Salsberg, 2009.

GULF COAST HEALTH SERVICES STEERING COMMITTEE

In the 1990s, a group of CEOs of Houston-area businesses and philanthropic groups formed the Gulf Coast Health Services Steering Committee (GCHSSC) [2] to address a local nursing shortage. This partnership brings together executives from area hospitals, health care systems, and academic institutions. The group was determined to work together to develop regional solutions to workforce challenges that affected the 13 counties of the greater Houston area. One of the four initial areas of focus for the GCHSSC was building educational capacity to accommodate more nursing students. The other three focus areas addressed legislation and regulations, advancing health careers, and improving the work environment where nurses practice. Building educational capacity remains a central focus of the GCHSSC to this day. Thanks to its efforts, more than $30 million was infused into Houston area nursing schools from 2001 to 2008.[3]

Use of Data

One of the first things the GCHSSC's educational capacity work group decided to do was to start tracking the numbers of enrollments, graduates, and qualified applicants who are turned away from nursing schools in the greater Houston area. The GCHSSC quickly concluded that

[2] See http://www.gchssc.com/.
[3] This section draws on personal communication in March 2010 with Mary Koch, Health Services Liason, Workforce Solutions/Houston-Galveston Area Council; and Michael Jhin, who was CEO of St. Luke's Episcopal Hospital at the time the GCHSSC launched.

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nursing schools were graduating the bulk of their students at the wrong time. Nearly all students graduated in May and took their licensing exam shortly thereafter. Yet this is the time that hospitals—still the major employers of nurses in the Houston area—have their lowest number of inpatient admissions; the highest number of inpatient admissions typically occurs in January and February. The GCHSSC therefore approached the nursing schools about implementing rolling admissions so that entry-level nurses would graduate in the fall, winter, and spring. Results thus far are promising. The GCHSSC projects that the spring surge in graduates will nearly disappear in the next 2 years.

Increased Student Enrollment

The various initiatives undertaken by the GCHSSC have resulted in a 73 percent increase in student enrollment in Houston prelicensure nursing programs, from 2,211 in fall 1998 to 3,829 in fall 2008. Several schools are opening branch campuses and offering online programs to further increase the pool of eligible students. With an eye toward increasing both the numbers and diversity of the nursing student body, the University of Houston has launched a nursing program in Victoria, Texas, a city located about 120 miles outside of Houston. Victoria has a population of 60,000, approximately 45 percent of which is Hispanic (U.S. Census Bureau, 2010). Meanwhile, the University of Texas at Austin has developed an online nursing program that partners with health care institutions and enrolls students from across the state. The GCHSSC is identifying which institutions from the Gulf Coast area have joined with this online program so they can participate in developing a workforce plan for the region.

Faculty Shortage

The GCHSSC is addressing the local nursing faculty shortage in several ways. Nursing schools in three major area universities—the University of Texas Health Science Center at Houston, the University of Texas Medical Branch at Galveston, and the Houston campus of Texas Woman's University—have launched accelerated master's of science in nursing (MSN) programs. In tracking the employment of these MSN graduates, however, the GCHSSC has concluded that most will be working in hospitals and not taking teaching positions. It is easy to understand why. Local hospitals pay RNs with an MSN degree 40 to 60 percent higher salaries than MSN-credentialed professors receive. The GCHSSC is working to address this problem.

Meanwhile, the George Foundation, a local philanthropic organization, is helping the University of Texas School of Nursing at Houston launch an accelerated PhD nursing program. Starting in fall 2010, a cohort of 10 MSN-prepared nurses will begin the program with the aim of completing their degree in 3 years. All students will receive an annual stipend of $60,000, allowing them to attend full time. In return, the new PhDs must teach for at least 3 years at the University of Texas School of Nursing at Houston or in any other nursing education program in the Gulf Coast region. This program is similar to programs in New Jersey and California that are funded by The Robert Wood Johnson Foundation and the Gordon and Betty Moore Foundation, respectively.[4]

[4] See http://www.njni.org/?county=42 and http://www.moore.org/nursing.aspx.

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CONCLUSIONS

Taking into account the need to transform the way health care is delivered in the United States and the observations and goals outlined in Chapters 3 through 5, policy makers must have reliable, sufficiently granular data on workforce supply and demand, both present and future, across the health professions. In the context of this report, such data are essential for determining what changes are needed in nursing practice and education to advance the vision for health care set forth in Chapter 1. Major gaps exist in currently available data on the health care workforce. A priority for the NHWC and other structures and resources authorized under the ACA should be systematic monitoring of the supply of health care workers, review of the data and methods needed to develop accurate predictions of future workforce needs, and coordination of the collection of data on the health care workforce. The building of an infrastructure for the collection and analysis of workforce data is a crucial need if the overarching goal of a transformed health care system is to be realized.

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The Future of Nursing: Leading Change, Advancing Health
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Part III

A Blueprint for Action

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The Future of Nursing: Leading Change, Advancing Health
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7
Recommendations and Research Priorities

Reflecting the charge to the committee, the purpose of this report is to consider reconceptualized roles for nurses, ways in which nursing education system can be designed to educate nurses who can meet evolving health care demands, the role of nurses in creating innovative solutions for health care delivery, and ways to attract and retain well-prepared nurses in a variety of settings. The report comes at a time of opportunity in health care resulting from the passage of the Affordable Care Act (ACA), which will provide access to care for an additional 32 million Americans. In the preceding chapters, the committee has described both barriers and opportunities in nursing practice, education, and leadership. It has also discussed the workforce data needed to guide policy and workforce planning with respect to the numbers, types, and mix of professionals that will be required in an evolving health care environment.

The primary objective of the committee in fulfilling its charge was to define a blueprint for action that includes recommendations for changes in public and institutional policies at the national, state, and local levels. This concluding chapter presents the results of that effort. The committee's recommendations are focused on maximizing the full potential and vital role of nurses in designing and implementing a more effective and efficient health care system, as envisioned by the committee in Chapter 1. The changes recommended by the committee are intended to advance the nursing profession in ways that will ensure that nurses are educated and prepared to meet the current and future demands of the health care system and those it serves.

This chapter first provides some context for the development of the committee's recommendations. It details what the committee considered to be its scope and focus, the nature of the evidence that supports its recommendations, cost considerations associated with the recommendations, and how the recommendations might be implemented. The chapter then presents recommendations for nursing practice, education, and leadership, as well as improved collection and analysis of interprofessional health care workforce data, that resulted from the committee's review of the evidence.

CONSIDERATIONS THAT INFORMED THE COMMITTEE'S RECOMMENDATIONS

As discussed throughout this report, the challenges facing the health care system and the nursing profession are complex and numerous. Challenges to nursing practice include regulatory barriers, professional resistance to expanded scopes of practice, health system fragmentation, insurance company policies, high turnover among nurses, and a lack of diversity in the nursing workforce. With regard to nursing education, there is a need for greater numbers, better preparation, and more diversity in the student body and faculty, the workforce, and the cadre of researchers. Also needed are new and relevant competencies, lifelong learning, and interprofessional education. Challenges with regard to nursing leadership include the need for leadership competencies among nurses, collaborative environments in which nurses can learn

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and practice, and engagement of nurses at all levels—from students to front-line nurses to nursing executives and researchers—in leadership roles. Finally, comprehensive, sufficiently granular workforce data are needed to ascertain the necessary balance of skills among nurses, physicians, and other health professionals for a transformed health care system and practice environment.

Solutions to some of these challenges are well within the purview of the nursing profession, while solutions to others are not. A number of constraints affect the profession and the health care system more broadly. While legal and regulatory constraints affect scopes of practice for advanced practice registered nurses, the major cross-cutting constraints originate in limitations of available resources—both financial and human. These constraints are not new, nor are they unique to the nursing profession. The current economic landscape has magnified some of the challenges associated with these constraints while also reinforcing the need for change. To overcome these challenges, the nursing workforce needs to be well educated, team oriented, adaptable, and able to apply competencies such as those highlighted throughout this report, especially those relevant to leadership.

The nursing workforce may never have the optimum numbers to meet the needs of patients, nursing students, and the health care system. To maximize the available resources in care environments, providers need to work effectively and efficiently with a team approach. Teams need to include patients and their families, as well as a variety of health professionals, including nurses, physicians, pharmacists, physical and occupational therapists, medical assistants, and social workers, among others. Care teams need to make the best use of each member's education, skill, and expertise, and health professionals need to practice to the full extent of their license and education. Just as physicians delegate to registered nurses, then, registered nurses should delegate to front-line caregivers such as nursing assistants and community health workers. Moreover, technology needs to facilitate seamless care that is centered on the patient, rather than taking time away from patient care. In terms of education, efforts must be made to expand the number of nurses who are qualified to serve as faculty. Meanwhile, curricula need to be evaluated, and streamlined and technologies such as high-fidelity simulation and online education need to be utilized to maximize available faculty. Academic–practice partnerships should also be used to make efficient use of resources and expand clinical education sites.

In conducting its work and evaluating the challenges that face the nursing profession, the committee took into account a number of considerations that informed its recommendations and the content of this report. The committee carefully considered the scope and focus of the report in light of its charge (see Box P-1 in the preface to the report), the evidence that was available, costs associated with its recommendations, and implementation issues. Overall, the committee's recommendations are geared toward advancing the nursing profession as a whole, and are focused on actions required to best meet long-term future needs rather than needs in the short term.

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Scope and Focus of the Report

Many of the topics covered in this report could have been the focus of the entire report. As indicated in Chapter 4, for example, the report could have focused entirely on nursing education. Given the nature of the committee's charge and the time allotted for the study, however, the committee had to cover each topic at a high level and formulate relatively broad recommendations. This report could not be an exhaustive compendium of the challenges faced by the nursing workforce, nor was it meant to serve as a step-by-step guide detailing solutions to all of those challenges.

Accordingly, the committee limited its recommendations to those it believed had the potential for greatest impact and could be accomplished within the next decade. Taken together, the recommendations are meant to provide a strong foundation for the development of a nursing workforce whose members are well educated and well prepared to practice to the full extent of their education, to meet the current and future health needs of patients, and to act as full partners in leading change and advancing health. Implementation of these recommendations will take time, resources, and a significant commitment from nurses and other health professionals; nurse educators; researchers; policy makers and government leaders at the federal, state, and local levels; foundations; and other key stakeholders.

An emphasis of the committee's deliberations and this report is nurses' role in advancing care in the community, with a particular focus on primary care. While the majority of nurses currently practice in acute care settings, and much of nursing education is directed toward those settings, the committee sees primary care and prevention as central drivers in a transformed health care system, and therefore chose to focus on opportunities for nurses across community settings. The committee believes nurses have the potential to play a vital role in improving the quality, accessibility, and value of health care, and ultimately health in the community, beyond their critical contributions to acute care. The current landscape also directed the committee's focus on primary care; concern over an adequate supply of primary care providers has been expressed and demand for primary care is expected to grow as millions more Americans gain insurance coverage through implementation of the ACA (see Chapters 1 and 2). Additionally, many provisions of the ACA focus on improving access to primary care, offering further opportunities for nurses to play a role in transforming the health care system and improving patient care.

The committee recognizes that improved primary care is not a panacea and that acute care services will always be needed. However, the committee sees primary care in community settings as an opportunity to improve health by reaching people where they live, work, and play. Nurses serving in primary care roles could expand access to care, educate people about health risks, promote healthy lifestyles and behaviors to prevent disease, manage chronic diseases, and coordinate care.

The committee also focused on advanced practice registered nurses in its discussion of some topics, most notably scope of practice. Recognizing the importance of primary care as discussed above, the committee viewed the potential contributions of these nurses to meeting the great need for primary care services if they could practice uniformly to the full extent of their education and training.

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Available Evidence

The charge to the committee called for the formulation of a set of bold national-level recommendations—a considerable task. To develop its recommendations, the committee examined the available published evidence, drew on committee members' expert judgment and experience, consulted experts engaged in The Robert Wood Johnson Foundation Nursing Research Network, and commissioned the papers that appear in Appendixes F through J on CD-ROM in the back of this report. The committee also called on foremost experts in nursing, nursing research, and health policy to provide input, perspective, and expertise during its public workshops and forums (described in Appendix C).

In addition to the peer-reviewed literature and newly commissioned research, the committee considered anecdotal evidence and self-evaluations for emerging models of care being implemented across the country. Evidence to support the diffusion of a variety of promising innovative models informed the committee's deliberations and recommendations. Many of these innovations are highlighted as case studies throughout the report, and others are discussed in the appendixes. These case studies offer real-life examples of successful innovations that were developed by nurses or feature nurses in a leadership role, and are meant to complement the peer-reviewed evidence presented in the text. The committee believes these case studies contribute to the evidence base on how nurses can serve in reconceptualized roles to directly affect the quality, accessibility, and value of care. Cumulatively, the case studies and nurse profiles demonstrate what is possible and what the future of nursing could look like under ideal circumstances in which nurses would be highly educated and well prepared by an education system that would promote seamless academic progression, in which nurses would be practicing to the full extent of their education and training, and in which they would be acting as full partners in efforts to redesign the health care system.

The committee drew on a wealth of sources of evidence to support its recommendations. The recommendations presented are based on the best evidence available. There is a need, however, to continue building the evidence base in a variety of areas. The committee identified several research priorities to build upon its recommendations. For example, data are lacking on the work of nurses and the nursing workforce in general, primarily because of a dearth of large and well-designed studies explicitly exploring these issues. Accordingly, the committee calls for research in a number of areas that would yield evidence related to the future of nursing to address some of the shortcomings in the data it encountered. Boxes 7-1 through 7-3 list research questions that are directly connected to the recommendations and the discussion in Chapters 3 through 5. The committee believes that answers to these research questions are needed to help advance the profession.

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BOX 7-1
Research Priorities for Transforming Nursing Practice

Scope of Practice

- Comparison of costs, quality outcomes and access associated with a range of primary care delivery models.
- Examination of the impact of expanding the range of providers allowed to certify patients for home health services and for admission to hospice or a skilled nursing facility.
- Examination of the impact of expanding the range of providers allowed to perform initial hospital admitting assessments.
- Capture of intended and unintended consequences of alternative reimbursement mechanisms for APRNs, Physicians and other providers of primary care.
- Exploration of the impact of alternative payment reform policies on the organization and effectiveness of care teams, and on the role RNs, PAs and APRNs play on care teams.
- Capture of the impact of health insurance exchanges on the role of APRNs in the provision of primary care in the U.S.

Residencies

- Identification of the key features of residencies that result in nurses acquiring confidence and competency at a reasonable cost.
- Analysis of the possible unintended consequences of reallocating federal, state and/or facility budgets to support residencies and other nursing training opportunities.

Teamwork

- Identification of the main barriers to collaboration between nurses and other health care staff in a range of settings.
- Identification and testing of new or existing models of care teams that have the potential to add value to the healthcare system if widely implemented.
- Identification and testing of educational innovations that have the potential to increase health care professionals' ability to serve as productive, collaborative care team members.

Technology

- Identification and testing of new and existing technologies intended to support nursing decision-making and care delivery.
- Capture of the costs and benefits of a range of care technologies intended to support nursing decision-making and care delivery.
- Identification of the contributions various health care professionals make to the design and development, purchase, implementation, and evaluation of devices and information technology products.
- Development of a measure of "meaningful use" of IT by nurses.

Value

- Capture of the impact changes made to the system of care delivery have on costs and quality over the next 5-10 years.
- Capture of the costs of implementing the IOM recommendations.
- Capture of the impact the implementation of the IOM recommendations on the cost and quality of healthcare provided in the United States.
- Analysis of the intended and unintended effects of increasing payment for primary care provided by physicians and other providers.

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BOX 7-2
Research Priorities for Transforming Nursing Education

- Identification of the combination of salary, benefits and job attributes that result in the most highly qualified nurses being recruited and retained in faculty positions.
- Analysis of how alternative nurse faculty/student ratios affect instruction and acquisition of knowledge.
- Capture of how optimal nurse faculty/student ratios vary with implementation of new or existing teaching technologies, including distance learning.
- Identification of the features of online, simulation, and tele-health nursing education that most cost-effectively expand nursing educational capacity.
- Capture of the experience in nursing schools that include *new* curriculum related to expanded clinical settings, evidence-based practice, and inter-professional and patient-centered care.
- Identification and evaluation of new and existing models of nursing education implemented to ensure that nurses acquire fundamental competencies needed to lead and engage in continuous quality improvement initiatives.
- Identification or development of an assessment tool to ensure nurses have acquired the *full* range of competence required to practice nursing in undergraduate, pos-traduate and continuing education.
- Analysis of the impact of a range of strategies for increasing the number of nurses with a doctorate on the supply of nurse faculty, scientists and researchers.
- Identification of the staff and environmental characteristics that best support the success of diverse nurses working to acquire doctoral degrees.
- Identification and testing of new and existing models of education to support nurses' engagement in team-based, patient-centered care to diverse populations, across the lifespan, in a range of settings.
- Development of workforce demand models that can predict regional faculty shortages.

BOX 7-3
Research Priorities for Transforming Nursing Leadership

- Identification of the personal and professional characteristics most critical to leadership of healthcare organizations such as accountable care organizations/healthcare homes/medical homes/clinics.
- Identification of the skills and knowledge most critical to leaders of healthcare organizations such as accountable health care organizations/healthcare homes/medical homes/clinics.
- Identification of the personal and professional characteristics most important to leaders of quality improvement initiatives in hospitals and other settings.
- Identification of the characteristics of mentors that have been (or could be) most successful in recruiting and training diverse nurses and nurse faculty.
- Identification of the influence of nursing on important healthcare decisions at all levels.
- Identification of the unique contributions nurses make to health care committees or boards.

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Costs Associated with the Recommendations

The current state of the U.S. economy and its effects on federal, state, and local budgets pose significant challenges to transforming the health care system. These fiscal challenges also will heavily influence the implementation of the committee's recommendations. While providing cost estimates for each recommendation was beyond the scope of this study, the committee does not deny that there will be costs—in some cases sizable—associated with implementing its recommendations. These costs must be carefully weighed against the potential for long-term benefit. Expanding the roles and capacity of the nursing profession will require significant up-front financial resources, but this investment, in the committee's view, will help secure a strong foundation for a future health care system that can provide high-quality, accessible, patient-centered care. Based on its expert opinion and the available evidence, the committee believes that, despite the fiscal challenges, implementation of its recommendations is necessary to increase the quality, accessibility, and value of care through the contributions of nurses.

Implementation of the Recommendations

Each of the recommendations presented in this report is supported by a level of evidence necessary to warrant its implementation. This does not mean, however, that the evidence currently available to support the committee's recommendations is sufficient to guide or motivate their implementation. The research priorities presented in Boxes 7-1 through 7-3 constitute key evidence gaps that need to be filled to convince key stakeholders that each recommendation is fundamental to the transformation of care delivered by nurses. For example, to be convinced to purchase equipment necessary to expand the number of nurses that can be educated using expensive new teaching technologies, such as high-fidelity simulation, distance learning, and online education modalities, decision makers in nursing schools will likely need evidence for the impact of these technologies on increasing the capacity of the nursing education system, as well as assurance that these technologies are an effective way to educate students. Likewise, before agreeing to reorganize care and training in a way that supports nursing residencies, hospitals will likely want to understand the true costs of such programs, as well as the key ingredients for their success. And before state political leaders can be persuaded to enact legislation to expand and standardize the scope of practice for advanced practice registered nurses, they will need messages to convey to their constituents about what these changes will mean for acquiring timely access to high-quality primary care services.

The committee urges the health services research community to embark on research agendas that can produce the evidence needed to guide the implementation of its recommendations. At the same time, the committee recognizes, from the work of Mary Naylor and colleagues (2009), that a strong evidence base, even if supported by the results of multiple randomized clinical trials funded by the National Institutes of Health, will not be sufficient to propel a new model, policy, or practice to a position of widespread acceptance and implementation. "Health care is rich in evidence-based innovations, yet even when such innovations are implemented successfully in one location, they often disseminate slowly—if at all. Diffusion of innovations is a major challenge in all industries including health care" (Berwick, 2003).

Experience with the Transitional Care Model (TCM), described in Chapter 2, illustrates this point. In this case, barriers intrinsic to the way care is currently organized, regulated, reimbursed, and delivered have delayed the ability of a cost-effective, quality-enhancing model to improve the lives of the chronically ill. Learning from barriers to diffuse evidence-based health care

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interventions within health systems, Naylor and colleagues identified several ingredients crucial to successful diffusion. First, the model or innovation should be a good fit in response to a critical need, either within an organization or nationwide. Second, without strong champions, especially those with decision-making power, there is very little chance of widespread adoption. The researchers learned the hard way the cost of failure to engage all stakeholders in a project—early, continually, and throughout. Engagement with the media is especially important. An understanding of the landscape is necessary as well and should guide efforts to market the innovation to others. Milestones and measures of success are important to all team members and throughout the entire diffusion process. Finally, flexibility, or the willingness to adapt the model or innovation to meet environmental or organizational demands, increases the probability of success (Naylor et al., 2009).

Planning for the implementation of the committee's recommendations is beyond the scope of this report. However, the committee urges health care providers, organizations, and policy makers to carry out the eight recommendations presented below to enable nurses to lead in the transformation of the health care system and advance the health of patients and communities throughout the nation.

CONCLUSIONS

The committee believes the implementation of its recommendations will help establish the needed groundwork in the nursing profession to further the work of nurses in innovating and improving patient care. The committee sees its recommendations as the building blocks required to expand innovative models of care, as well as to improve the quality, accessibility, and value of care, through nursing. The committee emphasizes that the synergistic implementation of all of its recommendations as a whole will be necessary to truly transform the nursing profession into one that is capable of leading change to advance the nation's health.

RECOMMENDATIONS

Recommendation 1: Remove scope-of-practice barriers. *Advanced practice registered nurses should be able to practice to the full extent of their education and training. To achieve this goal, the committee recommends the following actions.*

For the Congress:

- Expand the Medicare program to include coverage of advanced practice registered nurse services that are within the scope of practice under applicable state law, just as physician services are now covered.
- Amend the Medicare program to authorize advanced practice registered nurses to perform admission assessments, as well as certification of patients for home health care services and for admission to hospice and skilled nursing facilities.
- Extend the increase in Medicaid reimbursement rates for primary care physicians included in the ACA to advanced practice registered nurses providing similar primary care services.

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- Limit federal funding for nursing education programs to programs in states that have adopted the National Council of State Boards of Nursing advanced practice registered nurse model rules and regulations (Article XVIII, Chapter 18).

For state legislatures:

- Reform scope-of-practice regulations to conform to the National Council of State Boards of Nursing advanced practice registered nurse model rules and regulations (Article XVIII, Chapter 18).
- Require third-party payers that participate in fee-for-service payment arrangements to provide direct reimbursement to advanced practice registered nurses who are practicing within their scope of practice under state law.

For the Centers for Medicare and Medicaid Services:

- Amend or clarify the requirements for hospital participation in the Medicare program to ensure that advanced practice registered nurses are eligible for clinical privileges, admitting privileges, and membership on medical staff.

For the Office of Personnel Management:

- Require insurers participating in the Federal Employees Health Benefits Program to include coverage of those services of advanced practice registered nurses that are within their scope of practice under applicable state law.

For the Federal Trade Commission and the Antitrust Division of the Department of Justice:

- Review existing and proposed state regulations concerning advanced practice registered nurses to identify those that have anticompetitive effects without contributing to the health and safety of the public. States with unduly restrictive regulations should be urged to amend them to allow advanced practice registered nurses to provide care to patients in all circumstances in which they are qualified to do so.

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Recommendation 2: Expand opportunities for nurses to lead and diffuse collaborative improvement efforts. *Private and public funders, health care organizations, nursing education programs, and nursing associations should expand opportunities for nurses to lead and manage collaborative efforts with physicians and other members of the health care team to conduct research and to redesign and improve practice environments and health systems. These entities should also provide opportunities for nurses to diffuse successful practices.*

To this end:

- The Center for Medicare and Medicaid Innovation should support the development and evaluation of models of payment and care delivery that use nurses in an expanded and leadership capacity to improve health outcomes and reduce costs. Performance measures should be developed and implemented expeditiously where best practices are evident to reflect the contributions of nurses and ensure better-quality care.
- Private and public funders should collaborate, and when possible pool funds, to advance research on models of care and innovative solutions, including technology, that will enable nurses to contribute to improved health and health care.
- Health care organizations should support and help nurses in taking the lead in developing and adopting innovative, patient-centered care models.
- Health care organizations should engage nurses and other front-line staff to work with developers and manufacturers in the design, development, purchase, implementation, and evaluation of medical and health devices and health information technology products.
- Nursing education programs and nursing associations should provide entrepreneurial professional development that will enable nurses to initiate programs and businesses that will contribute to improved health and health care.

Recommendation 3: Implement nurse residency programs. *State boards of nursing, accrediting bodies, the federal government, and health care organizations should take actions to support nurses' completion of a transition-to-practice program (nurse residency) after they have completed a prelicensure or advanced practice degree program or when they are transitioning into new clinical practice areas.*

The following actions should be taken to implement and support nurse residency programs:

- State boards of nursing, in collaboration with accrediting bodies such as the Joint Commission and the Community Health Accreditation Program, should support nurses' completion of a residency program after they have completed a prelicensure or advanced practice degree program or when they are transitioning into new clinical practice areas.
- The Secretary of Health and Human Services should redirect all graduate medical education funding from diploma nursing programs to support the implementation of nurse residency programs in rural and critical access areas.
- Health care organizations, the Health Resources and Services Administration and Centers for Medicare and Medicaid Services, and philanthropic organizations should fund the development and implementation of nurse residency programs across all practice settings.

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- Health care organizations that offer nurse residency programs and foundations should evaluate the effectiveness of the residency programs in improving the retention of nurses, expanding competencies, and improving patient outcomes.

Recommendation 4: Increase the proportion of nurses with a baccalaureate degree to 80 percent by 2020. *Academic nurse leaders across all schools of nursing should work together to increase the proportion of nurses with a baccalaureate degree from 50 to 80 percent by 2020. These leaders should partner with education accrediting bodies, private and public funders, and employers to ensure funding, monitor progress, and increase the diversity of students to create a workforce prepared to meet the demands of diverse populations across the lifespan.*

- The Commission on Collegiate Nursing Education, working in collaboration with the National League for Nursing Accrediting Commission, should require all nursing schools to offer defined academic pathways, beyond articulation agreements, that promote seamless access for nurses to higher levels of education.
- Health care organizations should encourage nurses with associate's and diploma degrees to enter baccalaureate nursing programs within 5 years of graduation by offering tuition reimbursement, creating a culture that fosters continuing education, and providing a salary differential and promotion.
- Private and public funders should collaborate, and when possible pool funds, to expand baccalaureate programs to enroll more students by offering scholarships and loan forgiveness, hiring more faculty, expanding clinical instruction through new clinical partnerships, and using technology to augment instruction. These efforts should take into consideration strategies to increase the diversity of the nursing workforce in terms of race/ethnicity, gender, and geographic distribution.
- The U.S. Secretary of Education, other federal agencies including the Health Resources and Services Administration, and state and private funders should expand loans and grants for second-degree nursing students.
- Schools of nursing, in collaboration with other health professional schools, should design and implement early and continuous interprofessional collaboration through joint classroom and clinical training opportunities.
- Academic nurse leaders should partner with health care organizations, leaders from primary and secondary school systems, and other community organizations to recruit and advance diverse nursing students.

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Recommendation 5: Double the number of nurses with a doctorate by 2020. *Schools of nursing, with support from private and public funders, academic administrators and university trustees, and accrediting bodies, should double the number of nurses with a doctorate by 2020 to add to the cadre of nurse faculty and researchers, with attention to increasing diversity.*

- The Commission on Collegiate Nursing Education and the National League for Nursing Accrediting Commission should monitor the progress of each accredited nursing school to ensure that at least 10 percent of all baccalaureate graduates matriculate into a master's or doctoral program within 5 years of graduation.
- Private and public funders, including the Health Resources and Services Administration and the Department of Labor, should expand funding for programs offering accelerated graduate degrees for nurses to increase the production of master's and doctoral nurse graduates and to increase the diversity of nurse faculty and researchers.
- Academic administrators and university trustees should create salary and benefit packages that are market competitive to recruit and retain highly qualified academic and clinical nurse faculty.

Recommendation 6: Ensure that nurses engage in lifelong learning. *Accrediting bodies, schools of nursing, health care organizations, and continuing competency educators from multiple health professions should collaborate to ensure that nurses and nursing students and faculty continue their education and engage in lifelong learning to gain the competencies needed to provide care for diverse populations across the lifespan.*

- Faculty should partner with health care organizations to develop and prioritize competencies so curricula can be updated regularly to ensure that graduates at all levels are prepared to meet the current and future health needs of the population.
- The Commission on Collegiate Nursing Education and the National League for Nursing Accrediting Commission should require that all nursing students demonstrate a comprehensive set of clinical performance competencies that encompass the knowledge and skills needed to provide care across settings and the lifespan.
- Academic administrators should require all faculty to participate in continuing professional development and to perform with cutting-edge competence in practice, teaching, and research.
- All health care organizations and schools of nursing should foster a culture of lifelong learning and provide resources for interprofessional continuing competency programs.
- Health care organizations and other organizations that offer continuing competency programs should regularly evaluate their programs for adaptability, flexibility, accessibility, and impact on clinical outcomes and update the programs accordingly.

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Recommendation 7: Prepare and enable nurses to lead change to advance health. *Nurses, nursing education programs, and nursing associations should prepare the nursing workforce to assume leadership positions across all levels, while public, private, and governmental health care decision makers should ensure that leadership positions are available to and filled by nurses.*

- Nurses should take responsibility for their personal and professional growth by continuing their education and seeking opportunities to develop and exercise their leadership skills.
- Nursing associations should provide leadership development, mentoring programs, and opportunities to lead for all their members.
- Nursing education programs should integrate leadership theory and business practices across the curriculum, including clinical practice.
- Public, private, and governmental health care decision makers at every level should include representation from nursing on boards, on executive management teams, and in other key leadership positions.

Recommendation 8: Build an infrastructure for the collection and analysis of interprofessional health care workforce data. *The National Health Care Workforce Commission, with oversight from the Government Accountability Office and the Health Resources and Services Administration, should lead a collaborative effort to improve research and the collection and analysis of data on health care workforce requirements. The Workforce Commission and the Health Resources and Services Administration should collaborate with state licensing boards, state nursing workforce centers, and the Department of Labor in this effort to ensure that the data are timely and publicly accessible.*

- The Workforce Commission and the Health Resources and Services Administration should coordinate with state licensing boards, including those for nursing, medicine, dentistry, and pharmacy, to develop and promulgate a standardized minimum data set across states and professions that can be used to assess health care workforce needs by demographics, numbers, skill mix, and geographic distribution.
- The Workforce Commission and the Health Resources and Services Administration should set standards for the collection of the minimum data set by state licensing boards; oversee, coordinate, and house the data; and make the data publicly accessible.
- The Workforce Commission and the Health Resources and Services Administration should retain, but bolster, the Health Resources and Services Administration's registered nurse sample survey by increasing the sample size, fielding the survey every other year, expanding the data collected on advanced practice registered nurses, and releasing survey results more quickly.
- The Workforce Commission and the Health Resources and Services Administration should establish a monitoring system that uses the most current analytic approaches and data from the minimum data set to systematically measure and project nursing workforce requirements by role, skill mix, region, and demographics.
- The Workforce Commission and the Health Resources and Services Administration should coordinate workforce research efforts with the Department of Labor, state and

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regional educators, employers, and state nursing workforce centers to identify regional health care workforce needs, and establish regional targets and plans for appropriately increasing the supply of health professionals.

- The Government Accountability Office should ensure that the Workforce Commission membership includes adequate nursing expertise.

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the NRN (described below), and GYMR public relations. Each committee meeting and public forum provided an opportunity for distinguished experts to submit articles and reports relevant to their presentations. Finally, committee members and the public were invited to submit articles and reports that would further support the committee's work. In total, the committee's database of relevant documents included almost 400 articles and reports.

Nursing is a frequently studied profession. Since the 1923 release of the Goldmark Report, funded by the Rockefeller Foundation, hundreds of public and private commissions and task forces have examined many facets of the profession, including its education system, diversity, scope of practice, workforce capacity, and relationship to other health professions and the public (Goldmark, 1923). The primary driver for this interest in the profession is nurses' essential role in caring for the sick and supporting the well. A number of factors affect the implementation of recommendations contained in previous reports, such as the exclusion of nurses from their production; the failure of the profession itself, through a lack of either resources or political will, to act on the recommendations; or the failure to redirect the focus from nurses to what is necessary to improve patient care. Additional factors, such as context, time, and place, also influence the success of a study and the implementation of its recommendations.

Since 1997, the IOM has produced at least 20 reports or workshop summaries related directly or indirectly to the nursing profession. They all share at least four common themes: nurses are a critical factor in health care because they are the closest to and spend the most time with patients; nurses need the skills and knowledge to keep patients safe and help them stay healthy or recover from illness; new models of care should be developed to better utilize nurses' skills and knowledge while improving patient care and decreasing costs; and patients receive better care when nurses and other health professionals work together effectively. The last broad-based study of the nursing profession published by the IOM was *Nursing and Nursing Education: Public Policies and Private Actions* (IOM, 1983). More recently, the IOM published *Keeping Patients Safe: Transforming the Work Environment of Nurses* (IOM, 2004). This report describes strategies for improving nurses' work environments and responding to the overwhelming demands they often face, with the ultimate goal of improving the safety and quality of care.

As the committee was conducting this study, a number of additional reports about nursing and nursing education, in particular, were released. Four months prior to the launch of the study, Prime Minister Gordon Brown charged a commission in England to examine the future of nursing and midwifery. The commission's report, *Front Line Care: The Future of Nursing and Midwifery in England* (Prime Minister's Commission on the Future of Nursing and Midwifery in England, 2010) states that nurses and midwives have great potential to influence health and must renew their pledge to society to deliver high-quality, compassionate care, and that they must be well supported to do so. A report released by the Josiah Macy, Jr. Foundation, *Who Will Provide Primary Care and How Will They Be Trained?* (Cronenwett and Dzau, 2010), likewise suggests that nurses are well positioned to improve health and recommends that any barriers preventing nurse practitioners from serving as primary care providers or leading models of primary care delivery be removed.

Several reports emphasize that continuing education is crucial if nurses, and other health professionals, are to deliver high-quality and safe care throughout their careers. They include *Continuing Education in the Health Professions: Improving Healthcare Through Lifelong Learning* (Hager et al., 2008), another report from the Macy Foundation; the IOM's *Redesigning Continuing Education in the Health Professions* (IOM, 2009); and *Lifelong Learning in Medicine and Nursing* (AACN and AAMC, 2010), which was cosponsored by the American

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Association of Colleges of Nursing and the Association of American Medical Colleges. A report specifically addressing the initial education of nurses, published by Dr. Patricia Benner and her team at the Carnegie Foundation, *Educating Nurses: A Call for Radical Transformation* (Benner et al., 2009), calls for a more highly educated nursing workforce, recommending that all entry-level registered nurses (RNs) be prepared at the baccalaureate level and that all RNs earn at least a master's degree within 10 years of initial licensure.

RWJF NURSING RESEARCH NETWORK

To increase the amount, relevance, and accessibility of research available to the committee, RWJF launched a parallel project called the Nursing Research Network (NRN) that generated, synthesized, and disseminated a broad range of research findings. These products both anticipated the committee's information needs and were responsive to requests made by committee members throughout the study process. Many of these products informed the committee's discussions of the present and future of nursing.

Lori Melichar served as research director for the NRN initiative. She supervised the NRN and led efforts to prioritize a research agenda that would meet the committee's information needs. The majority of the NRN's research activities were led and conducted by four research managers from across the country who served as consultants to the committee: Linda Aiken, University of Pennsylvania; Peter Buerhaus, Vanderbilt University; Christine Kovner, New York University; and Joanne Spetz, University of California, San Francisco. Additional researchers and experts were engaged to fill gaps as needed. The production and delivery of NRN products, including reports, research briefs, charts, tables, and commentaries, were coordinated by Patricia (Polly) Pittman, of AcademyHealth and subsequently The George Washington University, and her staff.

The NRN began by providing the committee with a foundational set of 20 articles in the following areas of nursing policy: chronic and long-term care, education policy, expansion of access to primary care, foreign-educated nurses, human resource management (including nurse turnover rates), improvement of quality and safety (including workforce environment and staffing issues), prevention and wellness, promotion of health information technology, cost containment, and workforce estimations. To date, the NRN has produced 6 reports, 48 charts and tables, and 13 research briefs. A broad range of topics has been covered, including estimates of supply and demand, scope of practice, faculty shortages, career ladders, payment systems, health information technology, and physician and patient perceptions of nursing care. All of these products will be available to the public through either RWJF's website or peer-reviewed publications.

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COMMITTEE MEETINGS

The committee convened for five meetings and participated in several conference calls throughout the study to deliberate on the content of this report and its recommendations. To obtain additional information on specific aspects of the study charge, the committee included in three of its meetings technical workshops that were open to the public and held three public forums on the future of nursing and the role of nurses across various settings. Subject matter experts were invited to these public sessions to present information and recommendations for the committee's consideration, answer the committee's questions, and participate in subsequent discussions.

The three technical workshops were held in conjunction with the committee's July, September, and November 2009 meetings. The purpose of these workshops was to gather information on specified topics. The committee determined the topics and speakers based on its information needs. The first meeting included a review and discussion of the committee's charge with the study's sponsor, RWJF; an overview and description of the current nursing workforce and future workforce needs; and an introduction to the NRN and the resources that would be made available to the committee through the network. The second workshop was intended to provide an overview of the Prime Minister's Commission on the Future of Nursing and Midwifery and the efforts in England to transform the nursing profession; a discussion of possible ways for the nursing profession to fulfill its promise; and a review of ongoing health care reform efforts in the United States. The third workshop looked at nurses' role in addressing disparities; ways to ensure quality, access, and value in health care; and reimbursement and financing of care delivered by nurses. The agendas for these three workshops are provided in Boxes A-1 through A-3 at the end of this appendix.

The three public forums were held in locations across the United States to engage a broader range of stakeholders and the public. The first, held in October 2009 at Cedars-Sinai Medical Center in Los Angeles, focused on quality and safety, technology, and interdisciplinary collaboration in acute care settings. The second, held in December 2009 at the Community College of Philadelphia, featured presentations and discussion of achievements and challenges in care in the community and focused on community health, public health, primary care, and long-term care. The final forum, held in February 2010 at the University of Texas M. D. Anderson Cancer Center, featured discussion of three topics in nursing education: what to teach, how to teach, and where to teach. Summaries of each of these forums were published separately and are available on the CD-ROM in the back of this report. The agendas for these forums are provided in Boxes A-4 through A-6 at the end of this appendix, and highlights from the forums appear in Appendix C.

In preparation for each of the forums and to augment the information gathered from presenters and discussants, the committee solicited written testimony through an online questionnaire (see Boxes A-7 through A-9 at the end of this appendix for the specific questions that were asked). The public and key stakeholders were invited to provide information on innovations, models, barriers, and opportunities for each of the topics covered at the forums, as well as their vision for the future of nursing overall. The committee received more than 200 submissions of testimony during the course of the study; many of the individuals who submitted this testimony also presented it at the forums. Each forum also included an open microphone session for ad hoc testimony and input from participants on a variety of topics relevant to the forum discussions.

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The Future of Nursing: Leading Change, Advancing Health
http://www.nap.edu/catalog/12956.html

SITE VISITS

In conjunction with each forum, small groups of committee members participated in a series of site visits. These visits highlighted a wide range of settings in which nurses work, as well as their various roles. The sites visited included acute care units in Cedars-Sinai Medical Center—ranging from critical care units to the emergency department and surgical units to child and maternal health and obstetrics units; community health settings in Philadelphia—ranging from a school-based health center to public health clinics and nurse-managed health centers; and education settings in Houston, where committee members saw demonstrations of high-fidelity simulation laboratories and participated in discussions of interprofessional education and educating for quality control. Committee members also talked with nurses, other care providers, and administrators about the challenges nurses encounter daily in their work in these varied settings. Observations made during these site visits informed some of the questions committee members asked speakers at the forums and provided real-world perspectives of seasoned professionals.

COMMISSIONED PAPERS

The committee commissioned a series of papers from experts in subject areas relevant to its statement of task. These papers, included as Appendixes E–I on the CD-ROM in the back of this report, were intended to provide in-depth information on five selected topics:

- A paper written by Barbara L. Nichols, Catherine R. Davis, and Donna R. Richardson from CGFNS International reviews the ways in which other countries educate, regulate, and utilize nurses. This paper also addresses the migration and globalization of the nursing workforce and implications for education, service delivery, and health policy in the United States.
- A paper by Barbara J. Safriet describes federal options for maximizing the value of advanced practice registered nurses (APRNs) in providing quality and cost-effective health care. It includes a review of current mechanisms of payment and financing of services and impediments in the regulatory environment for APRNs, and offers an assessment of policy initiatives that could improve the value of APRNs.
- A paper written by Julie Sochalski of the University of Pennsylvania and Jonathan Weiner of The Johns Hopkins University examines the nursing workforce and possible shortages in the context of a reformed health care system. It examines trends and projections for the workforce, drawbacks of current approaches to assessing the workforce, opportunities and challenges of new workforce approaches, and implications for policy.
- One paper was presented as a series of briefs that provides examples of transformative models of nursing across a variety of settings and locales. This paper was compiled and edited by Linda Norlander of the University of California, San Francisco, and features collaborative briefs written by 27 fellows of the RWJF Executive Nurse Leadership Program. The briefs cover topics in education, acute care, chronic disease management, palliative and end-of-life care, community health, school-based health, and public–private partnerships.

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- A collection of seven papers was written by Linda Aiken of the University of Pennsylvania; Donald Berwick of the Institute for Healthcare Improvement; Linda Cronenwett of the University of North Carolina at Chapel Hill; Kathleen Dracup of the University of California, San Francisco; Catherine Gilliss of Duke University; Chris Tanner of Oregon Health and Science University; and Virginia Tilden of the University of Nebraska. This series of papers describes the most important initiatives required to ensure that future nursing education efforts contribute to improving the health of the population, enhancing the patient's experience of care (including quality, access, and reliability), and reducing or controlling the per capita cost of care.

BOX A-1
Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine

July 14, 2009

National Academy of Sciences
Lecture Room
2100 C Street, NW, Washington, DC 20037

Public Agenda

11:00 AM	**Delivery of Charge to the Committee** *John Lumpkin, Robert Wood Johnson Foundation*
12:00 PM	**Lunch Available**
12:30–1:00 PM	**Outlook for the Nursing Workforce in the United States: Can Nursing Win the Game?** *Peter Buerhaus, Vanderbilt University*
1:00–2:30 PM	**Robert Wood Johnson Foundation Nursing Research Network** ▪ Introduction to the Research Network – *Susan Hassmiller, Robert Wood Johnson Foundation* – *Lori Melichar, Robert Wood Johnson Foundation* ▪ Panel discussion with members of the Nursing Research Network – *Peter Buerhaus, Vanderbilt University* – *Christine Kovner, New York University* – *Arnold Milstein, Mercer Consulting* – *Mark Pauly, University of Pennsylvania*
2:30 PM	**Open Session Adjourns**

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BOX A-2
Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine

September 14, 2009

Kaiser Family Foundation
Barbara Jordan Conference Center
1330 G Street, NW, Washington, DC

Public Agenda

9:00–10:00 AM	**Overview of the Prime Minister's Commission on the Future of Nursing and Midwifery** *Ann Keen, Chair, and Parliamentary Under Secretary for Health Services* *Anne Marie Rafferty, Commissioner (via videoconference)* *Jane Salvage, Joint Lead, Support Office*
10:00–11:30 AM	**Fulfilling the Potential of the Nursing Workforce** *Ann Hendrich, Ascension Health* *Mary Naylor, University of Pennsylvania* *Ed O'Neil, University of California, San Francisco (via videoconference)*
11:30–11:45 AM	**Break**
11:45 AM–1:00 PM	**Overview of the Status of Health Care Reform** *Chris Jennings, Jennings Policy Strategies, Inc.* *Dean Rosen, Mehlman Vogel Castagnetti, Inc.* *Peter Reinecke, Reinecke Strategic Solutions, Inc.*

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BOX A-3
Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine

November 2, 2009

National Academy of Sciences
Lecture Room
2100 C Street, NW, Washington, DC

Public Agenda

8:00–9:00 AM	**The Role of Nurses in Addressing Health Disparities** *Linda Burnes Bolton, Facilitator* *David R. Williams, Harvard University* *Nilda Peragallo, University of Miami School of Nursing* *Antonia M. Villarruel, University of Michigan School of Nursing* *Alicia Georges, Lehman College Department of Nursing*
9:00–10:30 AM	**Reimbursement and Financing for Nursing Care** *David Goodman and Jennie Chin Hansen, Facilitators* *Mark McClellan, Brookings Institute* *Gail Wilensky, Project HOPE* *Ellen Kurtzman, The George Washington University* *Meredith Rosenthal, Harvard University*
10:30–10:45 AM	**Break**
10:45–11:45 AM	**Quality, Access, and Value: Nursing Roles for the 21st Century** *Donna Shalala, Facilitator* • Prevention/Wellness *Susan Cooper, Tennessee Department of Health* • Chronic Disease Management *Mary Mundinger, Dean and Professor in Health Policy, Columbia University School of Nursing* • End-of-Life Care *Judy Lentz, CEO, Hospice and Palliative Nurses Association*
11:45 AM	**Adjourn**

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BOX A-4
Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine

Forum on the Future of Nursing: Acute Care

October 19, 2009

Harvey Morse Auditorium
Cedars-Sinai Medical Center
8700 Beverly Boulevard, Los Angeles, CA 90048

Public Agenda

12:30 PM	**Welcome and Introductions** *Linda Burnes Bolton, Cedars-Sinai Medical Center* *Tom Priselac, Cedars-Sinai Medical Center*
1:00 PM	**Acute Care: Current and Future State** *Marilyn Chow, Kaiser Permanente*
1:30 PM	**Panel on Quality and Safety** *Maureen Bisognano, Institute for Healthcare Improvement* *Tami Minnier, University of Pittsburgh Medical Center*
	Reactor Panel *Bernice Coleman, Cedars-Sinai Medical Center* *Nancy Chiang, California Student Nurses Association* *Kurt Swartout, Kaiser Permanente* *Joseph Guglielmo, University of California, San Francisco* *Julia Hallisy, The Empowered Patient Coalition*
	Committee Q&A and Discussion
2:15 PM	**Break**
2:30 PM	**Panel on Technology** *Steve DeMello, Public Health Institute* *Pam Cipriano, University of Virginia Health System*
	Reactor Panel
	Committee Q&A and Discussion
3:15 PM	**Panel on Interdisciplinary Collaboration** *Alan Rosenstein, VHA West Coast* *Pamela Mitchell, University of Washington*
	Reactor Panel
	Committee Q&A and Discussion
4:00 PM	**Presentation of Testimony** *[A limited number of preselected individuals will be given the opportunity to present testimony.]*
5:25 PM	**Closing Remarks** *Josef Reum, The George Washington University*
5:30 PM	**Adjourn**

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BOX A-5
Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine

December 3, 2009

Forum on the Future of Nursing: Community Health, Public Health, Primary Care, and Long-Term Care

Community College of Philadelphia
Great Hall (S2.19), Winnet Student Life Building
1700 Spring Garden, Philadelphia, PA 19130

Public Agenda

12:30 PM	**Welcome and Introductions** *Donna E. Shalala, University of Miami* *Josef Reum, The George Washington University*
12:45 PM	**Notes on Prescription for Pennsylvania** *Governor Ed Rendell*
1:15 PM	**Committee Q&A and Discussion**
1:30 PM	**Keynote Presentation** *Mary Selecky, Washington State Department of Health*
2:00 PM	**Panel on Community and Public Health** *Carol Raphael, Visiting Nurse Service of New York* *Eileen Sullivan-Marx, University of Pennsylvania School of Nursing*
	Committee Q&A and Discussion
	Preselected Testimony
3:00 PM	**Break**
3:15 PM	**Panel on Primary Care** *Tine Hansen-Turton, National Nursing Centers Consortium* *Sandra Haldane, Indian Health Service*
	Committee Q&A and Discussion
	Preselected Testimony
4:15 PM	**Panel on Chronic and Long-Term Services and Supports** *Claudia Beverly, University of Arkansas for Medical Sciences School of Nursing* *Lynda Hedstrom, Ovations-Evercare by UnitedHealthcare® Medicare Solutions*
	Committee Q&A and Discussion
	Preselected Testimony
5:10 PM	**Open Microphone Listening Session: Visions for the Future of Nursing**
5:30 PM	**Closing Remarks** *Josef Reum, The George Washington University*
5:35 PM	**Adjourn**

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BOX A-6
Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine

February 22, 2010

Forum on the Future of Nursing: Education

University of Texas, MD Anderson Cancer Center
Cancer Prevention Building (CPB), 8th floor
1155 Pressler Street, Houston, TX 77030

Public Agenda

8:00 AM	**Welcomes and Introductions** *Donna E. Shalala, University of Miami* *John Lumpkin, The Robert Wood Johnson Foundation* *John Mendelsohn, University of Texas, MD Anderson Cancer Center*
8:15 AM	**What We Should Teach: Arm Chair Discussion #1** *Michael Bleich, Oregon Health and Science University, Moderator* *Linda Cronenwett, University of North Carolina at Chapel Hill, School of Nursing* *M. Elaine Tagliareni, National League for Nursing, formerly Community College of Philadelphia* *Terry Fulmer, College of Nursing, New York University* *Marla Salmon, University of Washington School of Nursing*
9:15 AM	**Preselected Testimony** *Donna E. Shalala, Facilitator*
9:30 AM	**How We Should Teach: Arm Chair Discussion #2** *Linda Burnes Bolton, Cedars-Sinai Medical Center, Moderator* *Pamela Jeffries, The Johns Hopkins University* *Divina Grossman, Florida International University* *John Rock, Florida International University* *Bob Mendenhall, Western Governors University* *Cathleen Krsek, University HealthSystem Consortium, UHC/AACN Nurse Residency Program™*
10:30 AM	**Preselected Testimony** *Donna E. Shalala, Facilitator*
10:45 AM	**Break**
11:00 AM	**Where We Should Teach: Arm Chair Discussion #3** *Jennie Chin Hansen, AARP, Moderator* *Rose Yuhos, AHEC of Southern Nevada* *Cathy Rick, Department of Veterans Affairs Nursing Academy* *Christine Tanner, Oregon Health and Science University* *Willis N. Holcombe, The Florida College System*
12:00 PM	**Preselected Testimony** *Donna E. Shalala, Facilitator*
12:15 PM	**Open Microphone Listening Session: Visions for the Future of Nursing** *Donna E. Shalala, Facilitator*
12:35 PM	**Closing Remarks** *Donna E. Shalala*
12:40 PM	**Adjourn**

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BOX A-7
Testimony Questions for the Forum on the Future of Nursing: Acute Care

Question 1: Quality and Safety
Please describe any or all of the following:
- innovative models in which nurses have been used to improve quality and/or safety in acute care settings
- barriers that acute care nurses face in maximizing quality and safety
- how nurses could be further engaged or effectively used to improve acute care quality and safety

Question 2: Technology
Please describe any or all of the following:
- how innovative technologies have been used in acute care settings to improve nurse-led patient care (include information on the measurement of the improvements)
- barriers to the adoption and use of innovative technology in acute care settings
- opportunities in acute care settings for further improvements in the delivery of care through the use of technology

Question 3: Interdisciplinary Collaboration
Please describe any or all of the following:
- innovations in acute care settings that have successfully advanced interdisciplinary collaboration or have been used to resolve limitations related to scope of practice
- limitations to interdisciplinary collaboration in acute care settings
- how interdisciplinary collaboration could be advanced to improve delivery of acute care and what the role of nurses should be in advancing this collaboration

Question 4: Additional Comments
If you have additional thoughts about nursing in acute care settings or if you would like to share information on innovations or models of care that does not fit within the categories listed above, please use the space provided below.

Question 5: Presentation of Testimony
If you are interested in presenting your testimony in person at the forum on October 19th in Los Angeles, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

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BOX A-8
Testimony Questions for the Forum on the Future of Nursing: Care in the Community

Question 1a: Community Health
Please describe any or all of the following:
- innovative models or initiatives in community health settings in which nurses have played a major role in the design, implementation, or evaluation (include information on improvement measures and outcomes)
- barriers in community health settings that nurses face in providing services or improving community health
- suggestions for how nurses could be further engaged or effectively used to improve care provided at the community level

Question 1b: Presentation of Testimony on Community Health
If you are interested in presenting your testimony on *community health* in person at the forum on December 3rd in Philadelphia, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

Question 2a: Public Health
Please describe any or all of the following:
- innovative models or initiatives in public health in which nurses have played a major role in the design, implementation, or evaluation (include information on improvement measures and outcomes)
- barriers in public health that nurses face in providing services or improving the health of the public
- suggestions for how nurses could be further engaged or effectively used to improve public health

Question 2b: Presentation of Testimony on Public Health
If you are interested in presenting your testimony on *public health* in person at the forum on December 3rd in Philadelphia, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

Question 3a: Primary Care
Please describe any or all of the following:
- innovative models or initiatives in primary care settings in which nurses have played a major role in the design, implementation, or evaluation (include information on improvement measures and outcomes)
- barriers in primary care settings that nurses face in providing services or improving health outcomes
- suggestions for how nurses could be further engaged or effectively used to improve primary care

Question 3b: Presentation of Testimony on Primary Care
If you are interested in presenting your testimony on *primary care* in person at the forum on December 3rd in Philadelphia, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

Question 4a: Long-Term Care
Please describe any or all of the following:
- innovative models or initiatives in long term care settings in which nurses have played a major role in the design, implementation, or evaluation (include information on improvement measures and outcomes)
- barriers in long-term care settings that nurses face in providing services or improving health outcomes
- suggestions for how nurses could be further engaged or effectively used to improve long-term care

Question 4b: Presentation of Testimony on Long-Term Care
If you are interested in presenting your testimony on *long-term care* in person at the forum on December 3rd in Philadelphia, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

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Question 5a: Your Vision of the Future of Nursing
Please describe your vision of the future of nursing across care settings. Your vision could include thoughts on the type of care nurses will provide, the types of settings they will be working in, how nurses will be educated and trained, how they will be paid and reimbursed, and some of the challenges nurses will be faced with.

Question 5b: Additional Comments
If you have additional thoughts about nursing in community health, public health, primary care, or long-term care settings or if you would like to share information on innovations or models of care that does not fit within the categories listed above, please use the space provided below. You may also e-mail documents or articles to support your testimony to nursing@nas.edu.

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BOX A-9
Testimony Questions for the Forum on the Future of Nursing: Education

Question 1a: What We Should Teach
What we should teach encompasses issues and recommendations related to the ideal future state of nursing curricula.
Please describe any or all of the following:
- innovative models or initiatives within nursing curricula that are being employed to better prepare and educate nurses for future challenges in a variety of care settings
- innovative funding strategies and financial incentives for both students and institutions that could be used to advance what we should teach
- barriers to implementing expanded or new curricula
- suggestions for how the nursing curricula should change to better meet the future health needs of the population

Question 1b: Presentation of Testimony on What We Should Teach
If you are interested in presenting your testimony on *what we should teach* in person at the forum on February 22nd in Houston, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

Question 2a: How We Should Teach
How we should teach encompasses issues and recommendations related to methodologies and strategies, as well as partnerships or collaboratives, that should be used for educating and training nurses in an ideal future.
Please describe any or all of the following:
- innovative models or initiatives in nursing education that are being employed to advance the way in which nurses are educated and prepared
- innovative funding strategies and financial incentives for both students and institutions that could be used to advance how we should teach
- barriers to the implementation of innovative methodologies of education and training for nurses.
- suggestions for how current education methodologies can be advanced to better meet the future health needs of the population

Question 2b: Presentation of Testimony on How We Should Teach
If you are interested in presenting your testimony on *how we should teach* in person at the forum on February 22nd in Houston, please check the box below. (Please note that there are only a limited number of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

Question 3a: Where We Should Teach
Where we should teach encompasses issues and recommendations related to various venues and locations where nurses should be educated and trained, as well as partnerships and collaboratives that could be used in nursing education in an ideal future.
Please describe any or all of the following:
- innovative models or initiatives in nursing education that take advantage of a variety of venues and locations for nursing education and training/continued education
- innovative funding strategies and financial incentives for both students and institutions that could be used to advance where we should teach
- barriers to expanding nursing education beyond traditional classroom settings
- suggestions for how current education can be expanded beyond traditional classroom settings to better meet the future health needs of the population

Question 3b: Presentation of Testimony on Where We Should Teach
If you are interested in presenting your testimony on *where we should teach* in person at the forum on February 22nd in Houston, please check the box below. (Please note that there are only a limited number

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of 2-minute slots available, and there is no funding available to cover travel expenses to the forum.)

Question 4a: Your Vision of the Future of Nursing
Please describe your vision of the future of nursing across care settings. Your vision could include thoughts on the type of care nurses will provide, the types of settings they will be working in, how nurses will be educated and trained, how they will be paid and reimbursed, and some of the challenges nurses will be faced with.

Question 4b: Additional Comments
If you have additional thoughts about the future of nursing education, or if you would like to share information on innovations or models of care that does not fit within the categories listed above, please use the space provided below. You may also e-mail documents or articles to support your testimony to nursing@nas.edu. However, please note that only the first 250 words submitted in each section of this online form will be considered for presentation of oral testimony at the Houston forum.

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B
Committee Biographical Sketches

Donna E. Shalala, Ph.D., FAAN, is chair, Robert Wood Johnson Foundation (RWJF) Initiative on the Future of Nursing, at the Institute of Medicine (IOM). She is president of the University of Miami and professor of political science. Dr. Shalala has more than 30 years of experience as an accomplished scholar, teacher, and administrator in government and universities. She has also held tenured professorships in political science at Columbia University, the City University of New York (CUNY), and the University of Wisconsin-Madison. She served as president of Hunter College of CUNY from 1980 to 1987 and as chancellor of the University of Wisconsin-Madison from 1987 to 1993. In 1993, President Clinton appointed her secretary of the Department of Health and Human Services (HHS), where she served for 8 years, becoming the longest-serving HHS secretary in U.S. history. She received the Presidential Medal of Freedom, the nation's highest civilian award, in 2008, and is a member of the IOM.

Linda Burnes Bolton, Dr.P.H., R.N., FAAN, is vice chair, RWJF Initiative on the Future of Nursing, at the IOM. She serves as vice president for nursing, chief nursing officer, and director of nursing research at Cedars-Sinai Medical Center in Los Angeles, California. Dr. Burnes Bolton is a principal investigator at the Cedars-Sinai Burns and Allen Research Institute. Her research, teaching, and clinical expertise includes nursing and patient care outcomes research, performance improvement, and improvement of quality of care and cultural diversity within the health professions. Dr. Burnes Bolton served as national advisory chair for Transforming Care at the Bedside, an initiative of The Robert Wood Johnson Foundation to improve the nursing practice environment. She is a past president of the American Academy of Nursing and the National Black Nurses Association.

Michael R. Bleich, R.N., Ph.D., M.P.H., FAAN, is dean and Dr. Carol A. Lindeman Distinguished Professor for the School of Nursing and vice provost for inter-professional education and development at Oregon Health & Science University. His areas of expertise and scholarship focus on inter-professional leadership development, academic-service workforce development, strategic alignment of academic clinical enterprises, and analytics related to quality improvement to enhance practice and academic outcomes. Dr. Bleich began his health care career in 1970 and has progressed to hold administrative, education, and consultative roles in both academic and service settings. He arrived in Portland, Oregon, in August 2008, concluding a distinguished career at the University of Kansas. There, Dr. Bleich was professor and associate dean for clinical and community affairs in the School of Nursing, and concurrently served as chief executive officer of the school's faculty practice plan, KU HealthPartners, Inc. In 2006, he was appointed chair of the Department of Health Policy and Management in the School of Medicine, the first nurse to hold the role of chair.

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Troyen A. Brennan, M.D., J.D., M.P.H., is executive vice president and chief medical officer of CVS Caremark Corporation, serving in these roles since November 2008. Previously, Dr. Brennan served as executive vice president and chief medical officer of Aetna, Inc., from 2006 through 2008. From 2000 through 2006, he was president and chief executive officer of Brigham and Women's Physicians Organization. He also served as professor of medicine at Harvard Medical School and as professor of law and public health at Harvard School of Public Health from 1991 to 2006. Dr. Brennan is a member of the IOM.

Robert E. Campbell, M.B.A., served as chairman of the board of trustees of The Robert Wood Johnson Foundation from July 1999 until March 2005 and was a board member until January 2009. Mr. Campbell is retired vice chairman of the board of directors of Johnson & Johnson (J&J), where he also was chairman of the Professional Sector. He joined J&J in 1955 and later served as an Air Force officer for 3 years, rejoining the company in 1959. During his career, he held numerous positions in financial and general management, including treasurer, vice president finance, and executive committee member. Mr. Campbell is chairman of the advisory board of the Cancer Institute of New Jersey and is past chairman and current trustee emeritus of the board of trustees of Fordham University. He is a member of the advisory council for the College of Science of the University of Notre Dame and an overseer of the Robert Wood Johnson Medical School.

Leah Devlin, D.D.S., M.P.H., received her dental degree and master's degree in public health administration at the University of North Carolina's (UNC) Chapel Hill campus. At UNC, she was inducted into Phi Beta Kappa and the School of Public Health's honor society. In 2008, she was recognized with the UNC Distinguished Alumni Award. Dr. Devlin began her professional career at the Wake County Department of Health, where she served as director for 10 years. She joined the North Carolina Department of Health and Human Services in 1996 and served as state health director from 2001 to 2009. Beginning in September 2009, Dr. Devlin became Gillings Visiting Professor at the UNC Gillings School of Global Public Health. She is also past president of the North Carolina Association of Local Health Directors, past president of the North Carolina Public Health Association, and past president of the Association of State and Territorial Health Officials.

Catherine Dower, J.D., is associate director for research at the University of California, San Francisco, Center for the Health Professions. At the center, she codirects the Health Workforce Tracking Collaborative, which assesses health care workforce challenges such as maldistribution, shortages, language access, and scope-of-practice issues. For 5 years she directed the California Workforce Initiative, a comprehensive research and policy program that included studies on physician supply and distribution, nursing and allied health shortages, and safety net workforce challenges. As staff to the Pew Health Professions Commission, Ms. Dower codirected the commission's national Taskforce on Health Care Workforce Regulation and was a principal author of the commission's reports on health professions regulation. Her published work targets health professions regulation, practice models, and workforce analysis. Ms. Dower serves or has served on several boards and committees, including the National Commission for Certifying Agencies, the National Certification Commission for Acupuncture and Oriental Medicine, and the Foreign Credentialing Commission for Physical Therapy. She received her undergraduate

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and law degrees from the University of California at Berkeley and is licensed to practice law in the state of California.

Rosa Gonzalez-Guarda, Ph.D., M.S.N., M.P.H., R.N., C.P.H., is currently an assistant professor at the University of Miami School of Nursing and Health Studies. Throughout her academic and professional career, she has focused on improving the behavioral health and public health of minorities and other at-risk communities throughout the world. In the past, she has worked on various community health nursing projects, public health programs, and research targeting African Americans; Hispanic Americans; and other vulnerable populations in Europe, Latin America, and the Caribbean. Dr. Gonzalez-Guarda has been a funded fellow of the Substance Abuse and Mental Health Services Administration's Minority Fellowship Program at the American Nurses Association, the National Hispanic Science Network on Drug Abuse, and the University of Miami Graduate School. She is currently a co-investigator for two studies within a research center funded by the National Center on Minority Health and Health Disparities/National Institutes of Health referred to as El Centro (Center of Excellence for Hispanic Health Disparities Research). One of these studies explores the experiences of Hispanic men with substance abuse, violence, and risky sexual behaviors (Project VIDA—Violence, Intimate Relationships, and Drug Abuse among Latinos), while the other evaluates the effectiveness of an HIV prevention program targeting Hispanic women in the community (Project SEPA—Salud, Prevención y Auto cuidado).

David C. Goodman, M.D., M.S., is professor of pediatrics and of health policy at the Dartmouth Institute for Health Policy and Clinical Practice in Hanover, New Hampshire; director of the Center for Health Policy Research; and co–principal investigator, *Dartmouth Atlas of Health Care*. Dr. Goodman's primary research interest is geographic and hospital variation in the health workforce and its relationship to health outcomes. His research papers and editorials on this topic have been published in the *New England Journal of Medicine*, the *Journal of the American Medical Association, Health Affairs, Pediatrics,* and *The New York Times*. Dr. Goodman is also a charter member of the *Dartmouth Atlas of Health Care* working group. He currently leads *Atlas* projects examining variation in end-of-life cancer care, post–hospital discharge care, and regional hospital and physician capacity. Dr. Goodman is a member and recent member, respectively, of the editorial boards of the journals *Health Services Research* and *Pediatrics*. After joining the Dartmouth faculty in 1988, he undertook allergy and clinical immunology training. He recently stepped down as chief of the Section of Allergy and Clinical Immunology, a position he held for a number of years.

Jennie Chin Hansen, R.N., M.S., FAAN, was elected by the AARP board to serve as president for the 2008–2010 biennium. She previously chaired the board of the AARP Foundation. Ms. Hansen currently holds an appointment as senior fellow at the University of California, San Francisco's Center for the Health Professions and consults with various foundations. She transitioned to teaching in 2005 after nearly 25 years at On Lok, where she served as executive director for 11 years. On Lok, Inc., is a nonprofit family of organizations providing integrated and comprehensive community-based primary and long-term care services in San Francisco. Ms. Hansen serves in various leadership roles that include commissioner of the Medicare Payment Advisory Commission (MedPAC) and board officer of the National Academy of Social Insurance, the SCAN Foundation, and the Robert Wood Johnson Executive Nurse Fellows

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Program. She is also a past president of the American Society on Aging. In April 2010, she became chief executive officer of the American Geriatrics Society.

C. Martin Harris, M.D., M.B.A., is chief information officer and chairman of the Information Technology Division of Cleveland Clinic in Cleveland, Ohio. Additionally, he is executive director of eCleveland Clinic, a series of secure, Internet-based information technology–enabled clinical and connectivity programs offered to patients and medical professionals. Dr. Harris's expertise in the innovative application of health information technology to improve the contemporary medical practice model is reflected in his service for numerous national organizations, including the President's Commission on Caring for America's Returning Wounded Warriors, the Board of Regents of the National Library of Medicine, and the Board of the Healthcare Information Management Systems Society. He received his undergraduate and medical degrees from the University of Pennsylvania in Philadelphia. He completed his residency training in general internal medicine at The Hospital of the University of Pennsylvania, a Robert Wood Johnson Clinical Scholar fellowship in general internal medicine at the University of Pennsylvania School of Medicine, and a master's in business administration in healthcare management at the Wharton School of the University of Pennsylvania.

Anjli Aurora Hinman, C.N.M., F.N.P.-B.C., M.P.H., is a certified nurse midwife and family nurse practitioner, providing antepartum, intrapartum, postpartum, and gynecological services to women. She is also a volunteer at Community Advanced Practice Nurses, Inc., an organization that provides free physical, mental, and preventive health care to homeless and medically underserved women and families in the Atlanta metropolitan area. An alumna of the Emory University School of Nursing, she is past president and current alumni chair of Health Students Taking Action Together, a Georgia nonprofit run by health professional students whose mission is to create a statewide community of health professional students and engage them in education, activism, and service. Ms. Hinman is also past president of the Emory Student Nurses Association and Breakthrough to Nursing director for the Georgia Association of Nursing Students.

William D. Novelli, M.A., is a distinguished professor at the McDonough School of Business at Georgetown University. He is the former chief executive officer of AARP, whose mission is to enhance the quality of life for all as we age. Prior to joining AARP, Mr. Novelli was president of the Campaign for Tobacco-Free Kids, whose mandate is to change public policies and the social environment, limit tobacco companies' marketing and sales to children, and counter the industry and its special interests. He now serves as chairman of the board for that organization.
Mr. Novelli was also executive vice president of CARE, the world's largest private relief and development organization. Earlier, he cofounded and was president of Porter Novelli, now part of the Omnicom Group, an international marketing communications corporation. Porter Novelli was founded to apply marketing to social and health issues and now is one of the world's largest public relations agencies. Mr. Novelli is a recognized leader in social marketing and social change, and has managed programs in cancer control, diet and nutrition, cardiovascular health, reproductive health, infant survival, and other areas in the United States and the developing world. His book *50+: Give Meaning and Purpose to the Best Time of Your Life* was updated in 2008. A second book (with Peter Cappelli of the Wharton School at the University of Pennsylvania), *Managing the Older Workforce*, will be published in 2010.

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Liana Orsolini-Hain, Ph.D., R.N., CCRN, with almost 20 years of experience in associate degree nursing education, is a tenured instructor at City College of San Francisco. In addition, she coordinates a community college chancellor's grant developing ADN-to-BSN and ADN-to-MSN educational collaboration models. Her research and scholarly work address issues in nursing education including the factors that influence educational progression of associate degree nurses. Dr. Orsolini-Hain serves on the advisory committee to members of the board of California Institute for Nursing & Health Care (CINHC). She also co-chaired CINHC's White Paper on Nursing Education Redesign for California's committee on nursing collaborative education models. She is also an Assistant Clinical Professor (volunteer) at the University of California San Francisco department of physiological nursing, and a per diem staff nurse at the San Francisco Veterans Administration Medical Center. She is the immediate past president of California League for Nursing and has served on several professional nursing organization committees including the Association of Critical-Care Nurses.

Yolanda Partida, M.S.W., D.P.A., is director of Hablamos Juntos and assistant adjunct professor at the University of California, San Francisco, Fresno Center for Medical and Education Research in California. Hablamos Juntos (We Speak Together) is a national initiative of The Robert Wood Johnson Foundation created in 2001 to work with ten demonstrations and to develop practical solutions to language barriers in health care. Hablamos Juntos has produced a set of Universal Health Care symbols for health care signage and the More Than Words Toolkit, containing practical tools for commissioning and assessing the quality of translated materials. The Translation Quality Assessment Tool was found to have high interrater reliability in quality evaluations of materials translated from English into Spanish and Chinese. Dr. Partida has extensive experience in public/teaching and private hospital administration, public health administration, and private consulting. In these settings, she has been responsible for overseeing a variety of health care and public health programs, forming public–private partnerships, developing multiagency strategic plans, conducting feasibility studies, and preparing business case analyses.

Robert D. Reischauer, Ph.D., is president of the Urban Institute. A former director of the Congressional Budget Office (CBO) and a nationally known expert on the federal budget, Medicare, and Social Security, he began his tenure as the second president of the Urban Institute in February 2000. He had been a senior fellow of economic studies at the Brookings Institution since 1995. From 1989 to 1995, he was director of the nonpartisan CBO. Mr. Reischauer served as the Urban Institute's senior vice president from 1981 to 1986. He was the CBO's assistant director for human resources and its deputy director between 1977 and 1981. Mr. Reischauer serves on the boards of several educational and nonprofit organizations. He was a member of MedPAC from 2000 to 2009 and its vice chair from 2001 to 2008. He is a member of the IOM.

John W. Rowe, M.D., is professor in the Department of Health Policy and Management at the Columbia University Mailman School of Public Health. From 2000 until late 2006, he served as chairman and CEO of Aetna, Inc., one of the nation's leading health care and related benefits organizations. Before his tenure at Aetna, from 1998 to 2000, Dr. Rowe served as president and CEO of Mount Sinai NYU Health, one of the nation's largest academic health care

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organizations. From 1988 to 1998, prior to the Mount Sinai–NYU Health merger, he was president of the Mount Sinai Hospital and the Mount Sinai School of Medicine in New York City. Before joining Mount Sinai, Dr. Rowe was a professor of medicine and founding director of the Division on Aging at Harvard Medical School, as well as chief of gerontology at Boston's Beth Israel Hospital. He has authored more than 200 scientific publications, mainly on the physiology of the aging process, including a leading textbook of geriatric medicine, in addition to more recent publications on health care policy. Dr. Rowe has received many honors and awards for his research and health policy efforts regarding care of the elderly. He was director of the MacArthur Foundation Research Network on Successful Aging and is coauthor, with Robert Kahn, Ph.D., of *Successful Aging* (Pantheon, 1998). Currently, Dr. Rowe leads the MacArthur Foundation's Network on an Aging Society. In addition, he is a former member of MedPAC, has served as president of the Gerontological Society of America, and chaired the IOM's Committee on the Future Health Care Workforce for Older Americans. He is a member of the IOM.

Bruce C. Vladeck, Ph.D., is senior advisor to Nexera Consulting. He is also chairman of the board of the Medicare Rights Center, a member of the New York City Board of Health, and a director of the March of Dimes and Independence Care Systems. Dr. Vladeck is a nationally recognized expert on health care policy, health care financing, and long-term care. From 1993 through 1997, he was administrator of the Health Care Financing administration (HCFA) within HHS. Subsequently, he was appointed by President Clinton to the National Bipartisan Commission on the Future of Medicare. Dr. Vladeck's career in health care has included 10 years as president of the United Hospital Fund of New York and senior positions at Columbia University, The New Jersey State Department of Health, The Robert Wood Johnson Foundation, and Mount Sinai Medical Center. In 2006–2007, he served as interim president of the University of Medicine and Dentistry of New Jersey. He previously chaired the IOM's Committee on Health Care for the Homeless (1991–1992). He is a member of the IOM.

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C
Highlights from the Forums on the Future of Nursing

Throughout course of the Robert Wood Johnson Initiative on the Future of Nursing, at the Institute of Medicine (IOM), the Initiative hosted three public forums on the future of nursing. These forums were designed to inform the committee about the critical and varied roles that nurses play across settings and were part of a much broader information-gathering effort by the IOM committee and staff, which is discussed in greater detail in Appendix A. The forums provided an opportunity for members of the committee to hear from a range of experts, stakeholders, and members of the public and to see, first-hand, the challenges and innovations in settings where nurses provide care and are educated. The three forums were held in Los Angeles, Philadelphia, and Houston and focused on acute care, care in the community, and education, respectively.

Prior to the forums a variety of stakeholders and the public were invited to submit written testimony to the committee in areas relevant to the forums. Those submitting written testimony were asked to share their insight and describe innovative models in these areas; barriers that nurses face in delivering care or advancing the profession; how nurses could be further involved in advancing these areas; and their vision for the future of nursing. Each of the forums was webcasted live to a much larger national audience. Additionally, participants at the forum were encouraged to share their thoughts and reactions to the discussion through open microphone sessions, as well as social media tools such Facebook and Twitter.

Each of the three forums was planned with the guidance of a sub-group of the committee, which was led by a planning-group chair; Robert Reischauer chaired the planning group for the acute care forum in Los Angeles, Jennie Chin Hansen led the planning group for the care in the community forum in Philadelphia, and Michael Bleich served as chair for the planning group for the education forum in Houston. The half-day forums were not meant to be an exhaustive examination of all settings in which nurses practice nor an exhaustive examination of the complexity of the nursing profession as a whole. Given the limited amount of time for each of the three forums, a comprehensive review of all facets and all players of each of the main forum themes was not possible. Rather, the forums were meant to inform the committee on important topics within the nursing profession and to highlight some of the key challenges, barriers, opportunities, and innovations that nurses are confronted with while working in an evolving health care system. Many of the critical challenges, barriers, opportunities, and innovations discussed at the forums overlap across settings and throughout the nursing profession and also are applicable to other health providers and individuals who work with nurses.

The following sections of this appendix offer brief summaries and highlights from each of the three forums on the future of nursing: acute care, care in the community, and education. Appendix A of this report includes the agendas for the forums, and the full text of the forum summaries are available at www.iom.edu/nursing and are also included on the CD-ROM in the back cover of this report.

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ACUTE CARE

The Initiative on the Future of Nursing held its first forum on October 19, 2009, at Cedars-Sinai Medical Center in Los Angeles. This forum was designed to explore the challenges and opportunities for nurses in acute care settings and the changes needed to improve the quality, efficiency, and effectiveness of patient care. The forum focused on three topics within the context of acute care: quality and safety, technology, and interdisciplinary collaboration. Acute care settings were particularly important for the committee to examine, because well over half of all nurses work in acute care settings, where they are patients' primary, professional caregivers and the individuals most likely to intercept medical errors. However, because hospital systems and acute care settings are often complex and chaotic, many nurses spend unnecessary time hunting for supplies, filling out paperwork, and coordinating staff time and patient care, reducing the time they are able to spend with patients and delivering care.

Nearly 300 people attended the acute care forum and heard presentations and discussions with 30 experts, including welcoming remarks from Thomas Priselac, president and chief executive officer of the Cedars-Sinai Health System and chair of the Board of Directors for the American Hospital Association, and a keynote presentation from Dr. Marilyn Chow, vice president of National Patient Care Services at Kaiser Permanente in Oakland, CA. During the forum, 19 individuals offered testimony for the committee's consideration. These individuals provided organizational and personal perspectives on the future of nursing in acute care settings.

Key Themes

The presentations offered the committee with insight into the important role that frontline nurses play across acute care settings, as well as the challenges and barriers that these frontline nurses face in their daily work. It was apparent from the presentations that there are a number of successful and promising innovative models being used in acute care settings across the country. However, these models are infrequently transferred widely. The discussion at the forum provided the committee with an opportunity to consider how rapidly advancing technology, interdisciplinary relationships, and changes in the way acute care is delivered will affect the nursing profession and how nurses will need to be educated to be adequately prepared for their varying roles and responsibilities.

A number of important points emerged at the forum:

- The knowledge of frontline nurses that they gather from their interactions with patients is critical to reducing medical errors and improving patient outcomes.
- Involving nurses at a variety of levels across the acute care setting in decision making and leadership benefits the patient, improves the organizations in which nurses practice, and strengthens the health care system in general.
- Increasing the time that nurses can spend at the bedside is an essential component of achieving the goal of patient-centered care.
- High-quality acute care settings require integrated systems that use technology effectively while increasing the efficiency of nurses and affording them increased time to spend with patients.
- Multidisciplinary care teams characterized by extensive and respectful collaboration among team members improve the quality, safety, and effectiveness of care.

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- Many of the innovations that need to be implemented in the health care system already exist somewhere in the United States, but barriers to their dissemination keep them from being adopted more widely. As Dr. Marilyn Chow observed, "the future is here, it just isn't everywhere."

Site Visits and Solutions Session

In the morning before the forum began, individual committee members participated in a series of site visits to a variety of acute care units within Cedars-Sinai Medical Center. They spoke with nurses, other care providers, and administrators about the challenges nurses encounter in their work in acute care settings. The units that were visited within the Medical Center ranged from critical care, emergency department, and surgical units to child and maternal health and obstetrics units. Following the site visits and the forum, a group of RWJF scholars and fellows,[1] who had attended the forum and participated in the site visits, met to consider solutions and the most promising future roles for nurses in acute care settings with respect to the subthemes of quality and safety, technology, and interdisciplinary collaboration. A summary of this session was provided to the committee for its review and consideration at the committee's subsequent meeting in November 2009.

CARE IN THE COMMUNITY

On December 3, 2009, the Initiative on the Future of Nursing held its second forum at the Community College of Philadelphia. This forum examined the challenges facing the nursing profession with regard to care in the community, including aspects of community health, public health, primary care, and long-term care. Members of the committee planning group for this forum believed that these topics were especially important to the committee's work overall; as the health care system evolves, the provision of care is increasingly occurring in non-acute settings and is increasingly focused on disease prevention, health promotion, and management of chronic illnesses. Nurses who practice in community settings are vital to ensuring access to quality care.

More than 200 forum attendees heard a series of presentations from leaders in the field, including opening remarks from Pennsylvania Governor Edward Rendell and a keynote from Mary C. Selecky, Secretary of Washington State's Department of Health (an agenda for this forum can be found in Appendix A). During the forum, committee members also heard testimony from 15 individuals representing a wide variety of organizations and personal viewpoints, as well as remarks made by a number of forum participants as part of an open-microphone session.

[1] RWJF works to build human capital by supporting individuals who seek to advance health and health care in America. RWJF invited alumni of seventeen of its scholar, fellow, and leader programs to participate in the Forum on the Future of Nursing. The alumni came from a variety of backgrounds and disciplines, including academia, service delivery, research, policy, and health plan administration. Many of the participants were alumni of the RWJF Executive Nurse Fellows Program and the RWJF Nurse Faculty Scholars Program. Non-nurse participants included alumni of the Investigator Award Program, the RWJF Health Policy Fellows Program, and the RWJF Clinical Scholar Program.

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Key Themes

The forum presenters described a segment of best practices in the community that shed light on what is currently available and what will be required to meet the changing health needs of the diverse populations of this country. As a result of this forum, the committee was given an opportunity to consider how changing health needs in the community will affect the future of the nursing profession in terms of the way care is delivered, the settings in which care is provided, and the education requirements for the necessary skills and competencies to provide quality care.

Many important messages emerged from the presentations, discussions, and site visits, including the following:

- Budgets for public health and community health programs are being cut at a time when these programs are needed most to care for aging populations and when greater emphasis is being placed on prevention, wellness, chronic disease management, and moving care into the community.
- Nursing in the community occurs through partnerships with many other individuals and organizations, and nurses need to take a leadership role in establishing these vital partnerships. Fostering this type of collaboration could improve the continuum of care between acute and community care settings.
- Technology has the potential to transform the lives of nurses providing care in the community, as well as their patients, just as it is transforming commerce, education, communications, and entertainment for the public.
- Varying scopes of practice across states have, in some cases, prevented nurses from providing care to the fullest extent possible at the community level.
- Nurse-managed health clinics offer opportunities to expand access; provide quality, evidence-based care; and improve outcomes for individuals who may not otherwise receive needed care. These clinics also provide the necessary support to engage individuals in wellness and prevention activities.
- Nursing students need to have greater exposure to principles of community care, leadership, and care provision through changes in nursing school curricula and increased opportunities to gain experience in community care settings.
- The delivery of quality nursing care has the potential to provide value across community settings and can be achieved though effective leadership, policy, and accountability.

Site Visits and Solutions Session

Prior to the forum, several members of the IOM committee visited a number of community-based health centers across Philadelphia. The six Philadelphia sites visited by committee members and the RWJF fellows and scholars were the Living Independently for Elders (LIFE) program at the University of Pennsylvania School of Nursing, the Sayre High School School-Based Health Clinic, Community Health Center #3 of the Philadelphia Department of Health, Health Annex, Health Connections, and the 11th Street Family Health Services of Drexel University. Concluding the day's events, RWJF fellows and scholars reviewed what they had heard at the forum and seen during the site visits to develop a set of recommendations for the committee's consideration that were relevant to the delivery of nursing care in the community;

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highlights from the solutions session were provided to the committee at its January 2010 meeting.

EDUCATION

On February 22, 2010, the Initiative held its final forum on the future of nursing at the University of Texas M.D. Anderson Cancer Center in Houston. This forum was designed to examine challenges and opportunities associated with nursing education. The nursing education system consists of multifaceted educational pathways with a mixture of starting points and opportunities for advancement to higher levels. This complex system is responsible for educating and training future generations of nursed that are prepared and able to meet the needs of diverse populations across the lifespan in a health care system that is constantly evolving.

This forum on the future of nursing featured welcoming remarks from Dr. John Lumpkin of RWJF and Dr. John Mendelsohn of the University of Texas M.D. Anderson Cancer Center and included three armchair discussions that were each led by a moderator from the committee. The armchair discussions focused on three broad, overlapping subjects: what to teach, how to teach, and where to teach (an agenda for this forum can be found in Appendix A). More than 300 people assembled in Houston to listen to the discussion and participate in the forum, and an additional 330 registered for the forum's live webcast. During the forum 12 participants presented formal testimony to the committee, while several more participants offered ad hoc remarks and insight during an open-microphone session that concluded the discussion at the forum.

Key Themes

The armchair discussions clearly illustrated the challenges of educating and developing a nursing workforce that can achieve the delicate balance among advancing science, translating and applying research, caring for individuals and families across all settings, and providing leadership. The committee heard about the shortcomings of the educational pipeline and infrastructure that have resulted in a deficiency in the number of nurses completing advanced degrees and moving into faculty positions, which in turn contributes to the limited the capacity of the system. Armchair discussants offered a glimpse of the future of nursing education as they described strategies, innovative models, and technologies that are being implemented across the country to expand the capacity of the education system and to better prepare nursing graduates with the competencies and skills required to confront the challenges they will encounter in practice settings throughout their careers.

Several important points emerged from the forum:

- Collaboration, communication, and systems thinking should be the new basics in nursing education.
- Nurses, particularly nurse educators, need to keep up with a rapidly changing knowledge base and new technologies throughout their careers to ensure a well-educated workforce.
- Care for older adults, increasingly occurring outside of acute care settings, will be a large and growing component of nursing in the future, and the nursing education system needs to prepare educators and practitioners for that reality.

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- The nation will face serious consequences if there are inadequate numbers of nursing educators to develop a nursing workforce adequate in both number and competencies to meet the needs of diverse populations.
- Technology—such as that used in high-fidelity simulations—that fosters problem-solving and critical thinking skills in nurses will be essential for nursing education to produce sufficient numbers of competent, well-trained nurses.
- Nursing education needs to make use of resources and partnerships available in the community to prepare nurses who can serve their communities.
- Articulation agreements and education consortiums among different kinds of institutions can provide multiple entry points and continued opportunities for progression through an educational and career ladder.
- In addition to necessary skill sets, nursing education needs to provide students with the ability to mature as professionals and to continue learning throughout their careers.

Sites Visits and Solutions Session

Following the forum, committee members participated in visits to one of three sites in Houston: the University of Texas Health Science Center at Houston School of Nursing (UTH), Texas Woman's University (TWU), or the National Aeronautics and Space Administration (NASA). During the site visits, committee members had the opportunity to converse with nursing students, educators, administrators, and experts in training for quality, safety, and collaboration about some of the innovative strategies that are being used to better educate nurses. Some of the models described included use of: distance learning and accelerated doctoral programs; advanced technology in educational settings and interdisciplinary education programs; and training for quality and safety, collaboration in a team environment, and continuing education. The site visits also offered a number of demonstrations such as a physical assessment lab using retired physicians as educators, students working in high-fidelity simulation labs, and a nurse-managed clinic.

After the completion of the forum and the site visits, a group of RWJF scholars and fellows, who had attended both activities, met to discuss possible solutions and the most promising directions for the future nursing education with respect to what should be taught, how it should be taught, and where it should be taught. A summary of this session and the solutions suggested was provided to the committee for its review and consideration at the committee's subsequent meeting in April 2010.

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NCSBN Consensus Model[1]

[1] SOURCE: NCSBN, 2008. Reprinted with permission from Kathy Apple, NCSBN.

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Consensus Model for APRN Regulation:
Licensure, Accreditation, Certification & Education

July 7, 2008

Completed through the work of the APRN Consensus Work Group & the National Council of State Boards of Nursing APRN Advisory Committee

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The APRN Consensus Work Group and the APRN Joint Dialogue Group members would like to recognize the significant contribution to the development of this report made by Jean Johnson, PhD, RN-C, FAAN, Senior Associate Dean, Health Sciences, George Washington School of Medicine and Health Sciences. Consensus could not have been reached without her experienced and dedicated facilitation of these two national, multi-organizational groups.

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LIST OF ENDORSING ORGANIZATIONS

This Final Report of the APRN Consensus Work Group and the National Council of State Boards of Nursing APRN Advisory Committee has been disseminated to participating organizations. The names of endorsing organizations will be added periodically.

The following organizations have endorsed the Consensus Model for APRN Regulation: Licensure, Accreditation, Certification, and Education (July 2008).

Posted January 2009

Academy of Medical-Surgical Nurses (AMSN)
American Academy of Nurse Practitioners (AANP)
American Academy of Nurse Practitioners Certification Program
American Association of Colleges of Nursing (AACN)
American Association of Critical-Care Nurses (AACN)
American Association of Critical-Care Nurses Certification Corporation
American Association of Legal Nurse Consultants (AALNC)
American Board of Nursing Specialties (ABNS)
American College of Nurse-Midwives (ACNM)
American College of Nurse Practitioners (ACNP)
American Holistic Nurses Association (AHNA)
American Nurses Association (ANA)
American Nurses Credentialing Center (ANCC)
American Psychiatric Nurses Association (APNA)
Arkansas State Board of Nursing
Association of Faculties of Pediatric Nurse Practitioners (AFPNP)
Commission on Collegiate Nursing Education (CCNE)
Dermatology Nurses Association (DNA)
Dermatology Nursing Certification Board (DNCB)
Emergency Nurses Association (ENA)
Gerontological Advanced Practice Nurses Association (GAPNA)
Hospice and Palliative Nurses Association (HPNA)
National Association of Clinical Nurse Specialists (NACNS)
National Association of Orthopedic Nurses (NAON)
National Association of Pediatric Nurse Practitioners (NAPNAP)
National Board for Certification of Hospice and Palliative Nurses (NBCHPN)
National Certification Corporation (NCC)
National Council of State Boards of Nursing (NCSBN)
National Gerontological Nursing Association (NGNA)
National League for Nursing (NLN)
National League for Nursing Accrediting Commission, Inc. (NLNAC)
National Organization of Nurse Practitioner Faculties (NONPF)
Nurse Practitioners in Women's Health (NPWH)
Nurses Organization of Veterans Affairs (NOVA)
Oncology Nursing Certification Corporation (ONCC)

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Oncology Nursing Society (ONS)
Orthopedic Nurses Certification Board (ONCB)
Pediatric Nursing Certification Board (PNCB)
Wound, Ostomy and Continence Nurses Society (WOCN)
Wound, Ostomy and Continence Nursing Certification Board (WOCNCB)

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INTRODUCTION

Advanced Practice Registered Nurses (APRNs) have expanded in numbers and capabilities over the past several decades with APRNs being highly valued and an integral part of the health care system. Because of the importance of APRNs in caring for the current and future health needs of patients, the education, accreditation, certification and licensure of APRNs need to be effectively aligned in order to continue to ensure patient safety while expanding patient access to APRNs.

APRNs include certified registered nurse anesthetists, certified nurse-midwives, clinical nurse specialists and certified nurse practitioners. Each has a unique history and context, but shares the commonality of being APRNs. While education, accreditation, and certification are necessary components of an overall approach to preparing an APRN for practice, the licensing boards-governed by state regulations and statutes-are the final arbiters of who is recognized to practice within a given state. Currently, there is no uniform model of regulation of APRNs across the states. Each state independently determines the APRN legal scope of practice, the roles that are recognized, the criteria for entry-into advanced practice and the certification examinations accepted for entry-level competence assessment. This has created a significant barrier for APRNs to easily move from state to state and has decreased access to care for patients.

Many nurses with advanced graduate nursing preparation practice in roles and specialties e.g., informatics, public health, education, or administration) that are essential to advance the health of the public but do not focus on direct care to individuals and, therefore, their practice does not require regulatory recognition beyond the Registered Nurse license granted by state boards of nursing. Like the four current APRN roles, practice in these other advanced specialty nursing roles requires specialized knowledge and skills acquired through graduate-level education. Although extremely important to the nursing profession and to the delivery of safe, high quality patient care, these other advanced, graduate nursing roles, which do not focus on direct patient care, are not roles for Advanced Practice Registered Nurses (APRN) and are not the subject or focus of the Regulatory Model presented in this paper.

The model for APRN regulation is the product of substantial work conducted by the Advanced Practice Nursing Consensus Work Group and the National Council of State Boards of Nursing (NCSBN) APRN Committee. While these groups began work independent of each other, they came together through representatives of each group participating in what was labeled the APRN Joint Dialogue Group. The outcome of this work has been unanimous agreement on most of the recommendations included in this document. In a few instances, when agreement was not unanimous a 66% majority was used to determine the final recommendation. However, extensive dialogue and transparency in the decision-making process is reflected in each recommendation. The background of each group can be found on pages 13-16 and individual and organizational participants in each group in Appendices C-H.

This document defines APRN practice, describes the APRN regulatory model, identifies the titles to be used, defines specialty, describes the emergence of new roles and population foci, and presents strategies for implementation.

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Overview of APRN Model of Regulation

The APRN Model of Regulation described will be the model of the future. It is recognized that current regulation of APRNs does not reflect all of the components described in this paper and will evolve incrementally over time. A proposed timeline for implementation is presented at the end of the paper.

In this APRN model of regulation there are four roles: certified registered nurse anesthetist (CRNA), certified nurse-midwife (CNM), clinical nurse specialist (CNS), and certified nurse practitioner (CNP). These four roles are given the title of advanced practice registered nurse (APRN). APRNs are educated in one of the four roles and in at least one of six population foci: family/individual across the lifespan, adult-gerontology, pediatrics, neonatal, women's health/gender-related or psych/mental health. APRN education programs, including degree-granting and post-graduate education programs[2], are accredited. APRN education consists of a broad-based education, including three separate graduate-level courses in advanced physiology/pathophysiology, health assessment and pharmacology as well as appropriate clinical experiences. All developing APRN education programs or tracks go through a pre-approval, pre-accreditation, or accreditation process prior to admitting students. APRN education programs must be housed within graduate programs that are nationally accredited[3] and their graduates must be eligible for national certification used for state licensure.

Individuals who have the appropriate education will sit for a certification examination to assess national competencies of the APRN core, role and at least one population focus area of practice for regulatory purposes. APRN certification programs will be accredited by a national certification accrediting body[4]. APRN certification programs will require a continued competency mechanism.

Individuals will be licensed as independent practitioners for practice at the level of one of the four APRN roles within at least one of the six identified population foci. Education, certification, and licensure of an individual must be congruent in terms of role and population foci. APRNs may specialize but they cannot be licensed solely within a specialty area. *In addition, specialties can provide depth in one's practice within the established population foci.* Education and assessment strategies for specialty areas will be developed by the nursing profession, i.e., nursing organizations and special interest groups. Education for a specialty can occur concurrently with APRN education required for licensure or through post-graduate education. Competence at the specialty level will not be assessed or regulated by boards of nursing but rather by the professional organizations.

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[2] Degree granting programs include master's and doctoral programs. Post-graduate programs include both post-master's and post-doctoral certificate education programs.

[3] APRN education programs must be accredited by a nursing accrediting organization that is recognized by the U.S. Department of Education (USDE) and/or the Council for Higher Education Accreditation (CHEA), including the Commission on Collegiate Nursing Education (CCNE), National League for Nursing Accrediting Commission (NLNAC), Council on Accreditation of Nurse Anesthesia Educational Programs (COA), Accreditation Commission for Midwifery Education (ACME), and the National Association of Nurse Practitioners in Women's Health Council on Accreditation.

[4] The certification program should be nationally accredited by the American Board of Nursing Specialties (ABNS) or the National Commission for Certifying Agencies (NCCA).

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In addition, a mechanism that enhances the communication and transparency among APRN licensure, accreditation, certification and education bodies (LACE) will be developed and supported.

APRN REGULATORY MODEL

APRN Regulation includes the essential elements: licensure, accreditation, certification and education (LACE).

- Licensure is the granting of authority to practice.
- Accreditation is the formal review and approval by a recognized agency of educational degree or certification programs in nursing or nursing-related programs.
- Certification is the formal recognition of the knowledge, skills, and experience demonstrated by the achievement of standards identified by the profession.
- Education is the formal preparation of APRNs in graduate degree-granting or post-graduate certificate programs.

The APRN Regulatory Model applies to all elements of LACE. Each of these elements plays an essential part in the implementation of the model.

Definition of Advanced Practice Registered Nurse
Characteristics of the advanced practice registered nurse (APRN) were identified and several definitions of an APRN were considered, including the NCSBN and the American Nurses Association (ANA) definitions, as well as others. The characteristics identified aligned closely with these existing definitions. The definition of an APRN, delineated in this document, includes language that addresses responsibility and accountability for health promotion and the assessment, diagnosis, and management of patient problems, which includes the use and prescription of pharmacologic and non-pharmacologic interventions.

The definition of an Advanced Practice Registered Nurse (APRN) is a nurse:

1. who has completed an accredited graduate-level education program preparing him/her for one of the four recognized APRN roles;
2. who has passed a national certification examination that measures APRN, role and population-focused competencies and who maintains continued competence as evidenced by recertification in the role and population through the national certification program;
3. who has acquired advanced clinical knowledge and skills preparing him/her to provide direct care to patients, as well as a component of indirect care; however, the defining factor for **all** APRNs is that a significant component of the education and practice focuses on direct care of individuals;
4. whose practice builds on the competencies of registered nurses (RNs) by demonstrating a greater depth and breadth of knowledge, a greater synthesis of data, increased complexity of skills and interventions, and greater role autonomy;
5. who is educationally prepared to assume responsibility and accountability for health promotion and/or maintenance as well as the assessment, diagnosis, and management of patient problems, which includes the use and prescription of pharmacologic and non-pharmacologic interventions;
6. who has clinical experience of sufficient depth and breadth to reflect the intended license; **and**
7. who has obtained a license to practice as an APRN in one of the four APRN roles: certified registered nurse anesthetist (CRNA), certified nurse-midwife (CNM), clinical nurse specialist (CNS), or certified nurse practitioner (CNP).

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Advanced practice registered nurses are licensed independent practitioners who are expected to practice within standards established or recognized by a licensing body. Each APRN is accountable to patients, the nursing profession, and the licensing board to comply with the requirements of the state nurse practice act and the quality of advanced nursing care rendered; for recognizing limits of knowledge and experience, planning for the management of situations beyond the APRN's expertise; and for consulting with or referring patients to other health care providers as appropriate.

All APRNs are educationally prepared to provide a scope of services across the health wellness-illness continuum to at least one population focus as defined by nationally recognized role and population-focused competencies; however, the emphasis and implementation within each APRN role varies. The services or care provided by APRNs is not defined or limited by setting but rather by patient care needs. The continuum encompasses the range of health states from homeostasis (or wellness) to a disruption in the state of health in which basic needs are not met or maintained (illness), with health problems of varying acuity occurring along the continuum that must be prevented or resolved to maintain wellness or an optimal level of functioning (WHO, 2006). Although all APRNs are educationally prepared to provide care to patients across the health wellness-illness continuum, the emphasis and how implemented within each APRN role varies.

The Certified Registered Nurse Anesthetist
The Certified Registered Nurse Anesthetist is prepared to provide the full spectrum of patients' anesthesia care and anesthesia-related care for individuals across the lifespan, whose health status may range from healthy through all recognized levels of acuity, including persons with immediate, severe, or life-threatening illnesses or injury. This care is provided in diverse settings, including hospital surgical suites and obstetrical delivery rooms; critical access hospitals; acute care; pain management centers; ambulatory surgical centers; and the offices of dentists, podiatrists, ophthalmologists, and plastic surgeons.

The Certified Nurse-Midwife
The certified nurse-midwife provides a full range of primary health care services to women throughout the lifespan, including gynecologic care, family planning services, preconception care, prenatal and postpartum care, childbirth, and care of the newborn. The practice includes treating the male partner of their female clients for sexually transmitted disease and reproductive health. This care is provided in diverse settings, which may include home, hospital, birth center, and a variety of ambulatory care settings including private offices and community and public health clinics.

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The Clinical Nurse Specialist
The CNS has a unique APRN role to integrate care across the continuum and through three spheres of influence: patient, nurse, system. The three spheres are overlapping and interrelated but each sphere possesses a distinctive focus. In each of the spheres of influence, the primary goal of the CNS is continuous improvement of patient outcomes and nursing care. Key elements of CNS practice are to create environments through mentoring and system changes that empower nurses to develop caring, evidence-based practices to alleviate patient distress, facilitate ethical decision-making, and respond to diversity. The CNS is responsible and accountable for diagnosis and treatment of health/illness states, disease management, health promotion, and prevention of illness and risk behaviors among individuals, families, groups, and communities.

The Certified Nurse Practitioner
For the certified nurse practitioner (CNP), care along the wellness-illness continuum is a dynamic process in which direct primary and acute care is provided across settings. CNPs are members of the health delivery system, practicing autonomously in areas as diverse as family practice, pediatrics, internal medicine, geriatrics, and women's health care. CNPs are prepared to diagnose and treat patients with undifferentiated symptoms as well as those with established diagnoses. Both primary and acute care CNPs provide initial, ongoing, and comprehensive care, includes taking comprehensive histories, providing physical examinations and other health assessment and screening activities, and diagnosing, treating, and managing patients with acute and chronic illnesses and diseases. This includes ordering, performing, supervising, and interpreting laboratory and imaging studies; prescribing medication and durable medical equipment; and making appropriate referrals for patients and families. Clinical CNP care includes health promotion, disease prevention, health education, and counseling as well as the diagnosis and management of acute and chronic diseases. Certified nurse practitioners are prepared to practice as primary care CNPs and acute care CNPs, which have separate national consensus-based competencies and separate certification processes.

Titling

The title Advanced Practice Registered Nurse (APRN) is the licensing title to be used for the subset of nurses prepared with advanced, graduate-level nursing knowledge to provide direct patient care in four roles: certified registered nurse anesthetist, certified nurse-midwife, clinical nurse specialist, and certified nurse practitioner.[5] This title, APRN, is a legally protected title. Licensure and scope of practice are based on graduate education in one of the four roles and in a defined population.

Verification of licensure, whether hard copy or electronic, will indicate the role and population for which the APRN has been licensed.

[5] Nurses with advanced graduate nursing preparation practicing in roles and specialties that do not provide direct care to individuals and, therefore, whose practice does not require regulatory recognition beyond the Registered Nurse license granted by state boards of nursing may not use any term or title which may confuse the public, including advanced practice nurse or advanced practice registered nurse. The term *advanced public health nursing* however, may be used to identify nurses practicing in this advanced specialty area of nursing.

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At a minimum, an individual must legally represent themselves, including in a legal signature, as an APRN and by the role. He/she may indicate the population as well. No one, except those who are licensed to practice as an APRN, may use the APRN title or any of the APRN role titles. An individual also may add the specialty title in which they are professionally recognized in addition to the legal title of APRN and role.

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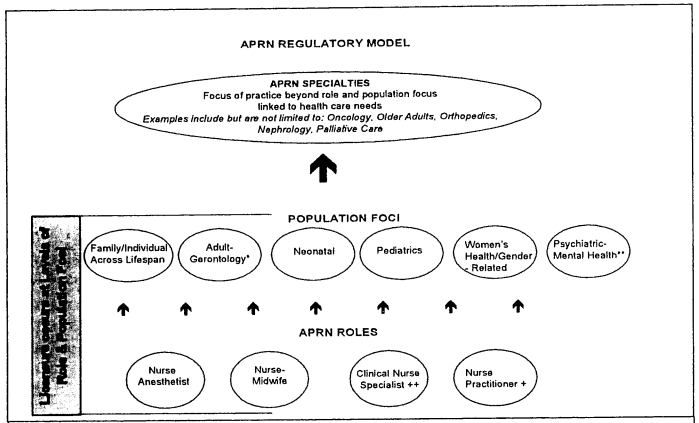

+The certified nurse practitioner (CNP) is prepared with the acute care CNP competencies and/or the primary care CNP competencies. At this point in time the acute care and primary care CNP delineation applies only to the pediatric and adult-gerontology CNP population foci. Scope of practice of the primary care or acute care CNP is **not setting specific** but is based on patient care needs. Programs may prepare individuals across both the primary care and acute care CNP competencies. If programs prepare graduates across both sets of roles, the graduate must be prepared with the consensus-based competencies for both roles and must successfully obtain certification in both the acute and the primary care CNP roles. CNP certification in the acute care or primary care roles must match the educational preparation for CNPs in these roles.

FIGURE D-1 APRN Regulatory Model
Under this APRN Regulatory Model, there are four roles: certified registered nurse anesthetist (CRNA), certified nurse-midwife (CNM), clinical nurse specialist (CNS), and certified nurse practitioner (CNP). These four roles are given the title of advanced practice registered nurse (APRN). APRNs are educated in one of the four roles and in at least one of six population foci: family/individual across the lifespan, adult-gerontology, neonatal, pediatrics, women's health/gender-related or psych/mental health. Individuals will be licensed as independent practitioners for practice at the level of one of the four APRN roles within at least one of the six identified population foci. Education, certification, and licensure of an individual must be congruent in terms of role and population foci. APRNs may specialize but they can not be licensed solely within a specialty area. Specialties can provide depth in one's practice within the established population foci.

* The population focus, adult-gerontology, encompasses the young adult to the older adult, including the frail elderly. APRNs educated and certified in the adult-gerontology population are educated and certified across both areas of practice and will be titled Adult-Gerontology CNP or CNS. In addition, all APRNs in any of the four roles providing care to the adult population, e.g., family or gender specific, must be prepared to meet the growing needs of the older adult population. Therefore, the education program should include didactic and clinical education experiences necessary to prepare APRNs with these enhanced skills and knowledge.
** The population focus, psychiatric/mental health, encompasses education and practice across the lifespan.
++ The Clinical Nurse Specialist (CNS) is educated and assessed through national certification processes across the continuum from wellness through acute care.

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Broad-based APRN Education

For entry into APRN practice and for regulatory purposes, APRN education must:

- be formal education with a graduate degree or post-graduate certificate (either post-master's or post-doctoral) that is awarded by an academic institution and accredited by a nursing or nursing-related accrediting organization recognized by the U.S. Department of Education (USDE) and/or the Council for Higher Education Accreditation (CHEA);
- be awarded pre-approval, pre-accreditation, or accreditation status prior to admitting students;
- be comprehensive and at the graduate level;
- prepare the graduate to practice in one of the four identified APRN roles;
- prepare the graduate with the core competencies for one of the APRN roles across *at least one* of the six population foci;
- include at a minimum, three separate comprehensive ***graduate-level*** courses (the APRN Core) in:
  - Advanced physiology/pathophysiology, including general principles that apply across the lifespan;
  - Advanced health assessment, which includes assessment of all human systems, advanced assessment techniques, concepts and approaches; and
  - Advanced pharmacology, which includes pharmacodynamics, pharmacokinetics and pharmacotherapeutics of all broad categories of agents.
- Additional content, specific to the role and population, in these three APRN core areas should be integrated throughout the other role and population didactic and clinical courses;
- Provide a basic understanding of the principles for decision making in the identified role;
- Prepare the graduate to assume responsibility and accountability for health promotion and/or maintenance as well as the assessment, diagnosis, and management of patient problems, which includes the use and prescription of pharmacologic and non-pharmacologic interventions; and
- Ensure clinical and didactic coursework is comprehensive and sufficient to prepare the graduate to practice in the APRN role and population focus.

Preparation in a specialty area of practice is optional but if included must build on the APRN role/population-focus competencies. Clinical and didactic coursework must be comprehensive and sufficient to prepare the graduate to obtain certification for licensure in and to practice in the APRN role and population focus.

As part of the accreditation process, all APRN education programs must undergo a pre-approval, pre-accreditation, or accreditation process prior to admitting students. The purpose of the pre-approval process is twofold: 1) to ensure that students graduating from the program will be able to meet the education criteria necessary for national certification in the role and population-focus and if successfully certified, are eligible for licensure to practice in the APRN role/population-focus; and 2) to ensure that programs will meet all educational standards prior to starting the

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program. The pre-approval, pre-accreditation or accreditation processes may vary across APRN roles.

APRN Specialties

Preparation in a specialty area of practice is optional, but if included must build on the APRN role/population-focused competencies. Specialty practice represents a much more focused area of preparation and practice than does the APRN role/population focus level. Specialty practice may focus on specific patient populations beyond those identified or health care needs such as oncology, palliative care, substance abuse, or nephrology. The criteria for defining an APRN specialty is built upon the ANA (2004) Criteria for Recognition as a Nursing Specialty (see Appendix B). APRN specialty education and practice build upon and are in addition to the education and practice of the APRN role and population focus. For example, a family CNP could specialize in elder care or nephrology; an Adult-Gerontology CNS could specialize in palliative care; a CRNA could specialize in pain management; or a CNM could specialize in care of the post-menopausal woman. State licensing boards will not regulate the APRN at the level of specialties in this APRN Regulatory Model. Professional certification in the specialty area of practice is strongly recommended.

An APRN specialty

- preparation cannot replace educational preparation in the role or one of the six population foci;
- preparation can not expand one's scope of practice beyond the role or population focus
- addresses a subset of the population-focus;
- title may not be used in lieu of the licensing title, which includes the role or role/population; and
- is developed, recognized, and monitored by the profession.

New specialties emerge based on health needs of the population. APRN specialties develop to provide added value to the role practice as well as providing flexibility within the profession to meet these emerging needs of patients. Specialties also may cross several or all APRN roles. A specialty evolves out of an APRN role/population focus and indicates that an APRN has *additional* knowledge and expertise in a more discrete area of specialty practice. Competency in the specialty areas could be acquired either by educational preparation or experience and assessed in a variety of ways through professional credentialing mechanisms (e.g., portfolios, examinations, etc.).

Education programs may concurrently prepare individuals in a specialty providing they meet all of the other requirements for APRN education programs, including preparation in the APRN core, role, and population core competencies. In addition, for licensure purposes, one exam must assess the APRN core, role, and population-focused competencies. For example, a nurse anesthetist would write one certification examination, which tests the APRN core, CRNA role, and population-focused competencies, administered by the Council on Certification for Nurse Anesthetist; or a primary care family nurse practitioner would write one certification examination, which tests the APRN core, CNP role, and family population-focused competencies, administered by ANCC or AANP. Specialty competencies must be assessed

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separately. In summary, education programs preparing individuals with this additional knowledge in a specialty, *if used for entry into advanced practice registered nursing and for regulatory purposes*, must also prepare individuals in one of the four nationally recognized APRN roles and in one of the six population foci. Individuals must be recognized and credentialed in one of the four APRN roles within at least one population foci. APRNs are licensed at the role/population focus level and **not** at the specialty level. However, if not intended for entry-level preparation in one of the four roles/population foci and not for regulatory purposes, education programs, using a variety of formats and methodologies, may provide licensed APRNs with the additional knowledge, skills, and abilities, to become professionally certified in the specialty area of APRN practice.

Emergence of New APRN Roles and Population-Foci

As nursing practice evolves and health care needs of the population change, new APRN roles or population-foci may evolve over time. An APRN role would encompass a unique or significantly differentiated set of competencies from any of the other APRN roles. In addition, the scope of practice within the role or population focus is not entirely subsumed within one of the other roles. Careful consideration of new APRN roles or population-foci is in the best interest of the profession.

For licensure, there must be clear guidance for national recognition of a new APRN role or population-focus. A new role or population focus should be discussed and vetted through the national licensure, accreditation, certification, education communication structure: LACE. An essential part of being recognized as a role or population-focus is that educational standards and practice competencies must exist, be consistent, and must be nationally recognized by the profession. Characteristics of the process to be used to develop nationally recognized core competencies, and education and practice standards for a newly emerging role or population-focus are:

1. national in scope
2. inclusive
3. transparent
4. accountable
5. initiated by nursing
6. consistent with national standards for licensure, accreditation, certification and education
7. evidence-based
8. consistent with regulatory principles.

To be recognized, an APRN role must meet the following criteria:

- nationally recognized education standards and core competencies for programs preparing individuals in the role;
- education programs, including graduate degree granting (master's, doctoral) and post-graduate certificate programs, are accredited by a nursing or nursing-related accrediting organization that is recognized by the U.S. Department of Education (USDE) and/or the Council for Higher Education Accreditation (CHEA); and

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- professional nursing certification program that is psychometrically sound, legally defensible, and which meets nationally recognized accreditation standards for certification programs.[6]

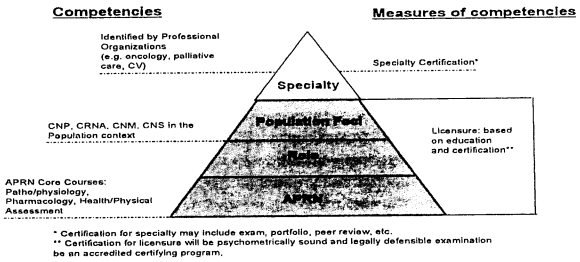

FIGURE D-2 Relationship Among Educational Competencies, Licensure, & Certification in the Role/Population Foci and Education and Credentialing in a Specialty

IMPLEMENTATION STRATEGIES FOR APRN REGULATORY MODEL

In order to accomplish the above model, the four prongs of regulation: licensure, accreditation, certification, and education (LACE) must work together. Expectations for licensure, accreditation, certification, and education are listed below:

Foundational Requirements for Licensure

Boards of nursing will:

1. license APRNs in the categories of Certified Registered Nurse Anesthetist, Certified Nurse-Midwife, Clinical Nurse Specialist or Certified Nurse Practitioner within a specific population focus;
2. be solely responsible for licensing Advanced Practice Registered Nurses[7];
3. only license graduates of accredited graduate programs that prepare graduates with the APRN core, role and population competencies;
4. require successful completion of a national certification examination that assesses APRN core, role and population competencies for APRN licensure.
5. not issue a temporary license;
6. only license an APRN when education and certification are congruent;

[6] The professional certification program should be nationally accredited by the American Board of Nursing Specialties (ABNS) or the National Commission for Certifying Agencies (NCCA).
[7] Except in states where state boards of nurse-midwifery or midwifery regulate nurse-midwives or nurse-midwives and midwives jointly.

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7. license APRNs as independent practitioners with no regulatory requirements for collaboration, direction or supervision;
8. allow for mutual recognition of advanced practice registered nursing through the APRN Compact;
9. have at least one APRN representative position on the board and utilize an APRN advisory committee that includes representatives of all four APRN roles; and,
10. institute a grandfathering[8] clause that will exempt those APRNs already practicing in the state from new eligibility requirements.

Foundational Requirements for Accreditation of Education Programs

Accreditors will:

1. be responsible for evaluating APRN education programs including graduate degree-granting and post-graduate certificate programs;[9]
2. through their established accreditation standards and process, assess APRN education programs in light of the APRN core, role core, and population core competencies;
3. assess developing APRN education programs and tracks by reviewing them using established accreditation standards and granting pre-approval, pre-accreditation, or accreditation prior to student enrollment;
4. include an APRN on the visiting team when an APRN program/track is being reviewed; and
5. monitor APRN educational programs throughout the accreditation period by reviewing them using established accreditation standards and processes.

Foundational Requirements for Certification

Certification programs providing APRN certification used for licensure will:

1. follow established certification testing and psychometrically sound, legally defensible standards for APRN examinations for licensure (see appendix A for the NCSBN Criteria for APRN Certification Programs);

[8] Grandfathering is a provision in a new law exempting those already in or a part of the existing system that is being regulated. When states adopt new eligibility requirements for APRNs, currently practicing APRNs will be permitted to continue practicing within the state(s) of their current licensure.
However, if an APRN applies for licensure by endorsement in another state, the APRN would be eligible for licensure if s/he demonstrates that the following criteria have been met:

- current, active practice in the advanced role and population focus area,
- current active, national certification or recertification, as applicable, in the advanced role and population focus area,
- compliance with the APRN educational requirements of the state in which the APRN is applying for licensure that were in effect at the time the APRN completed his/her APRN education program, and
- compliance with all other criteria set forth by the state in which the APRN is applying for licensure (e.g. recent CE, RN licensure).

Once the model has been adopted and implemented (date to be determined by the state boards of nursing. See proposed timeline on page 14-15.) all new graduates applying for APRN licensure must meet the requirements outlined in this regulatory model
[9] Degree-granting programs include both master's and doctoral programs. Post-graduate certificate programs include post-master's and post-doctoral education programs.

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2. assess the APRN core and role competencies across at least one population focus of practice;
3. assess specialty competencies, if appropriate, separately from the APRN core, role and population-focused competencies;
4. be accredited by a national certification accreditation body;[10]
5. enforce congruence (role and population focus) between the education program and the type of certification examination;
6. provide a mechanism to ensure ongoing competence and maintenance of certification;
7. participate in ongoing relationships which make their processes transparent to boards of nursing;
8. participate in a mutually agreeable mechanism to ensure communication with boards of nursing and schools of nursing.

Foundational Requirements for Education

APRN education programs/tracks leading to APRN licensure, including graduate degree-granting and post-graduate certificate programs will:

1. follow established educational standards and ensure attainment of the APRN core, role core and population core competencies;[11,12]
2. be accredited by a nursing accrediting organization that is recognized by the U.S. Department of Education (USDE) and/or the Council for Higher Education Accreditation (CHEA);[13]
3. be pre-approved, pre-accredited, or accredited prior to the acceptance of students, including all developing APRN education programs and tracks;
4. ensure that graduates of the program are eligible for national certification and state licensure; and
5. ensure that official documentation (e.g., transcript) specifies the role and population focus of the graduate.

Communication Strategies

[10] The certification program should be nationally accredited by the American Board of Nursing Specialties (ABNS) or the National Commission for Certifying Agencies (NCCA).

[11] The APRN core competencies for all APRN nursing education programs located in schools of nursing are delineated in the American Association of Colleges of Nursing (1996) *The Essentials of Master's Education for Advanced Practice Nursing Education* or the AACN (2006) *The Essentials of Doctoral Education for Advanced Nursing Practice*. The APRN core competencies for nurse anesthesia and nurse-midwifery education programs located outside of a school of nursing are delineated by the accrediting organizations for their respective roles i.e., Council on Accreditation of Nurse Anesthesia Educational Programs (COA), Accreditation Commission for Midwifery Education (ACME).

[12] APRN programs outside of schools of nursing must prepare graduates with the APRN core which includes three separate graduate-level courses in pathophysiology/physiology, health assessment, and pharmacology.

[13] APRN education programs must be accredited by a nursing accrediting organization that is recognized by the U.S. Department of Education (USDE) and/or the Council for Higher Education Accreditation (CHEA), including the Commission on Collegiate Nursing Education (CCNE), National League for Nursing Accrediting Commission (NLNAC), Council on Accreditation of Nurse Anesthesia Educational Programs (COA), Accreditation Commission for Midwifery Education (ACME), and the National Association of Nurse Practitioners in Women's Health Council on Accreditation.

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A formal communication mechanism, LACE, which includes those regulatory organizations that represent APRN licensure, accreditation, certification, and education entities would be created. The purpose of LACE would be to provide a formal, ongoing communication mechanism that provides for transparent and aligned communication among the identified entities. The collaborative efforts between the APRN Consensus Group and the NCSBN APRN Advisory Panel, through the APRN Joint Dialogue Group have illustrated the ongoing level of communication necessary among these groups to ensure that all APRN stakeholders are involved. Several strategies including equal representation on an integrated board with face-to-face meetings, audio and teleconferencing, pass-protected access to agency web sites, and regular reporting mechanisms have been recommended. These strategies will build trust and enhance information sharing. Examples of issues to be addressed by the group would be: guaranteeing appropriate representation of APRN roles among accreditation site visitors, documentation of program completion by education institutions, notification of examination outcomes to educators and regulators, notification of disciplinary action toward licensees by boards of nursing.

Creating the LACE Structure and Processes

Several principles should guide the formulation of a structure including: 1) all four entities of LACE should have representation; 2) the total should allow effective discussion of and response to issues and ; 3) the structure should not be duplicative of existing structures such as the Alliance for APRN Credentialing. Consideration should be given to evolving the existing Alliance structure to meet the needs of LACE. Guidance from an organizational consultant will be useful in forming a permanent structure that will endure and support the work that needs to continue. The new structure will support fair decision-making among all relevant stakeholders. In addition, the new structure will be in place as soon as possible.

The LACE organizational structure should include representation of:

- State licensing boards, including at least one compact and one non-compact state;
- Accrediting bodies that accredit education programs of the four APRN roles;
- Certifying bodies that offer APRN certification used for regulatory purposes; and,
- Education organizations that set standards for APRN education.

Timeline for Implementation of Regulatory Model

Implementation of the recommendations for an APRN Regulatory Model will occur incrementally. Due to the interdependence of licensure, accreditation, certification, and education, certain recommendations will be implemented sequentially. However, recognizing that this model was developed through a consensus process with participation of APRN certifiers, accreditors, public regulators, educators, and employers, it is expected that the recommendations and model delineated will inform decisions made by each of these entities as the APRN community moves to fully implement the APRN Regulatory Model. A target date for full implementation of the Regulatory Model and all embedded recommendations is the Year 2015.

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HISTORICAL BACKGROUND

NCSBN APRN Committee (previously APRN Advisory Panel)

NCSBN became involved with advanced practice nursing when boards of nursing began using the results of APRN certification examinations as one of the requirements for APRN licensure. During the 1993 NCSBN annual meeting, delegates adopted a position paper on the licensure of advanced nursing practice which included model legislation language and model administrative rules for advanced nursing practice. NCSBN core competencies for certified nurse practitioners were adopted the following year.

In 1995, NCSBN was directed by the Delegate Assembly to work with APRN certifiers to make certification examinations suitable for regulatory purposes. Since then, much effort has been made toward that purpose. During the mid and late 90's, the APRN certifiers agreed to undergo accreditation and provide additional information to boards of nursing to ensure that their examinations were psychometrically sound and legally defensible (NCSBN, 1998).

During the early 2000s, the APRN Advisory Panel developed criteria for ARPN certification programs and for accreditations agencies. In January 2002, the board of directors approved the criteria and process for a new review process for APRN certification programs. The criteria represented required elements of certification programs that would result in a legally defensible examination suitable for the regulation of advanced practice nurses. Subsequently, the APRN Advisory Panel has worked with certification programs to improve the legal defensibility of APRN certification examinations and to promote communication with all APRN stakeholders regarding APRN regulatory issues such as with the establishment of the annual NCSBN APRN Roundtable in the mid 1990's. In 2002, the Advisory Panel also developed a position paper describing APRN regulatory issues of concern.

In 2003, the APRN Advisory Panel began a draft APRN vision paper in an attempt to resolve APRN regulatory concerns such as the proliferation of APRN subspecialty areas. The purpose of the APRN Vision Paper was to provide direction to boards of nursing regarding APRN regulation for the next 8-10 years by identifying an ideal future APRN regulatory model. Eight recommendations were made. The draft vision paper was completed in 2006. After reviewing the draft APRN vision paper at their February 2006 board meeting, the board of directors directed that the paper be disseminated to boards of nursing and APRN stakeholders for feedback. The Vision paper also was discussed during the 2006 APRN Roundtable. The large response from boards of nursing and APRN stakeholders was varied. The APRN Advisory Panel spent the remaining part of 2006, reviewing and discussing the feedback with APRN stakeholders. (See Appendix C for the list of APRN Advisory Panel members who worked on the draft APRN Vision Paper and Appendix D for the list of organizations represented at the 2006 APRN Roundtable where the draft vision paper was presented.)

APRN Consensus Group

In March 2004, the American Association of Colleges of Nursing (AACN) and the National Organization of Nurse Practitioner Faculties (NONPF) submitted a proposal to the Alliance for

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Nursing Accreditation, now named Alliance for APRN Credentialing[14] (hereafter referred to as *the APRN Alliance*) to establish a process to develop a consensus[15] statement on the credentialing of advanced practice nurses (APNs).[16] The APRN Alliance[17], created in 1997, was convened by AACN to regularly discuss issues related to nursing education, practice, and credentialing. A number of differing views on how APN practice is defined, what constitutes specialization versus subspecialization, and the appropriate credentialing requirements that would authorize practice had emerged over the past several years.

An invitation to participate in a national APN consensus process was sent to 50 organizations that were identified as having an interest in advanced practice nursing (see Appendix F). Thirty-two organizations participated in the APN Consensus Conference in Washington, D.C. June 2004. The focus of the one-day meeting was to initiate an in-depth examination of issues related to APN definition, specialization, sub-specialization, and regulation, which includes accreditation, education, certification, and licensure[18]. Based on recommendations generated in the June 2004 APN Consensus Conference, the Alliance formed a smaller work group made up of designees from 23 organizations with broad representation of APN certification, licensure, education, accreditation, and practice. The charge to the work group was to develop a statement that addresses the issues, delineated during the APN Consensus Conference with the goal of envisioning a future model for APNs. The Alliance APN Consensus Work Group (hereafter referred to as *the Work Group*) convened for 16 days of intensive discussion between October 2004 and July 2007 (see Appendix H for a list of organizations represented on the APN Work Group).

In December 2004, the American Nurses Association (ANA) and AACN co-hosted an APN stakeholder meeting to address those issues identified at the June 2004 APN Consensus meeting. Attendees agreed to ask the APN Work Group to continue to craft a consensus statement that would include recommendations regarding APN regulation, specialization, and subspecialization. It also was agreed that organizations in attendance who had not participated in the June 2004 APN Consensus meeting would be included in the APN Consensus Group and that

[14] At its March 2006 meeting, the Alliance for Nursing Accreditation voted to change its name to the Alliance for APRN Credentialing which more accurately reflects its membership.
[15] The goal of the APRN Work Group was unanimous agreement on all issues and recommendations. However, this was recognized as an unrealistic expectation and may delay the process; therefore, consensus was defined as a two thirds majority agreement by those members of the Work Group present at the table as organizational representatives with each participating organization having one vote.
[16] The term advanced practice nurse (APN) was initially used by the Work Group and is used in this section of the report to accurately reflect the background discussion. However, the Work group reached consensus that the term advanced practice registered nurse (APRN) should be adopted for use in subsequent discussions and documents.
[17] Organizational members of the Alliance for APRN Credentialing : American Academy of Nurse Practitioners Certification Program, American Association of Colleges of Nursing, American Association of Critical-Care Nurses Certification Corporation, Council on Accreditation of Nurse Anesthesia Educational Programs, American College of Nurse-Midwives, American Nurses Credentialing Center, Association of Faculties of Pediatric Nurse Practitioners, Inc., Commission on Collegiate Nursing Education, National Association of Clinical Nurse Specialists, National Association of Nurse Practitioners in Women's Health, Council on Accreditation, Pediatric Nursing Certification Board, The National Certification Corporation for the Obstetric Gynecologic and Neonatal Nursing Specialties, National Council of State Boards of Nursing, National Organization of Nurse Practitioner Faculties
[18] The term regulation refers to the four prongs of regulation: licensure, accreditation, certification and education.

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this larger group would reconvene at a future date to discuss the recommendations of the APN Work Group.

Following the December 2004 APN Consensus meeting, the Work Group continued to work diligently to reach consensus on the issues surrounding APRN education, practice, accreditation, certification, and licensure, and to create a future consensus-based model for APRN regulation. Subsequent APRN Consensus Group meetings were held in September 2005 and June 2006. All organizations who participated in the APRN Consensus Group are listed in Appendix G.

APRN Joint Dialogue Group

In April, 2006, the APRN Advisory Panel met with the APRN Consensus Work Group to discuss APRN issues described in the NCSBN draft vision paper. The APRN Consensus Work Group requested and was provided with feedback from the APRN Advisory Panel regarding the APRN Consensus Group Report. Both groups agreed to continue to dialogue.

As the APRN Advisory Panel and APRN Consensus Work Group continued their work in parallel fashion, concerns regarding the need for each group's work not to conflict with the other were expressed. A subgroup of seven people from the APRN Consensus Work Group and seven individuals from the APRN Advisory Panel were convened in January, 2007. The group called itself the APRN Joint Dialogue Group (see Appendix E) and the agenda consisted of discussing areas of agreement and disagreement between the two groups. The goal of the subgroup meetings was anticipated to be two papers that did not conflict, but rather complemented each other. However, as the APRN Joint Dialogue Group continued to meet, much progress was made regarding areas of agreement; it was determined that rather than two papers being disseminated, one joint paper would be developed, which reflected the work of both groups. This document is the product of the work of the APRN Joint Dialogue Group and through the consensus-based work of the APRN Consensus Work Group and the NCSBN APRN Advisory Committee.

Assumptions Underlying the Work of the Joint Dialogue Group

The consensus-based recommendations that have emerged from the extensive dialogue and consensus-based processes delineated in this report are based on the following assumptions:

- Recommendations must address current issues facing the advanced practice registered nurse (APRN) community but should be future oriented.
- The ultimate goal of licensure, accreditation, certification, and education is to promote patient safety and public protection.
- The recognition that this document was developed with the participation of APRN certifiers, accreditors, public regulators, educators, and employers. The intention is that the document will allow for informed decisions made by each of these entities as they address APRN issues.

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CONCLUSION

The recommendations offered in this paper present an APRN regulatory model as a collaborative effort among APRN educators, accreditors, certifiers, and licensure bodies. The essential elements of APRN regulation are identified as licensure, accreditation, certification, and education. The recommendations reflect a need and desire to collaborate among regulatory bodies to achieve a sound model and continued communication with the goal of increasing the clarity and uniformity of APRN regulation.

The goals of the consensus processes were to:

- strive for harmony and common understanding in the APRN regulatory community that would continue to promote quality APRN education and practice;
- develop a vision for APRN regulation, including education, accreditation, certification, and licensure;
- establish a set of standards that protect the public, improve mobility, and improve access to safe, quality APRN care; and
- produce a written statement that reflects consensus on APRN regulatory issues.

In summary, this report includes: a definition of the APRN Regulatory Model, including a definition of the Advanced Practice Registered Nurse; a definition of broad-based APRN education; a model for regulation that ensures APRN education and certification as a valid and reliable process, that is based on nationally recognized and accepted standards; uniform recommendations for licensing bodies across states; a process and characteristics for recognizing a new APRN role; and a definition of an APRN specialty that allows for the profession to meet future patient and nursing needs.

The work of the Joint Dialogue Group in conjunction with all organizations representing APRN licensure, accreditation, certification, and education to advance a regulatory model is an ongoing collaborative process that is fluid and dynamic. As health care evolves and new standards and needs emerge, the APRN Regulatory Model will advance accordingly to allow APRNs to care for patients in a safe environment to the full potential of their nursing knowledge and skill.

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APPENDIX A
NCSBN CRITERIA FOR EVALUATING CERTIFICATION PROGRAMS

Criteria	Elaboration
I. The program is national in the scope of its credentialing.	A. The advanced nursing practice category and standards of practice have been identified by national organizations. B. Credentialing services are available to nurses throughout the United States and its territories. C. There is a provision for public representation on the certification board. D. A nursing specialty organization that establishes standards for the nursing specialty exists. E. A tested body of knowledge related to the advanced practice nursing specialty exists. F. The certification board is an entity with organizational autonomy.
II. Conditions for taking the examination are consistent with acceptable standards of the testing community.	A. Applicants do not have to belong to an affiliated professional organization in order to apply for certification offered by the certification program. B. Eligibility criteria rationally related to competence to practice safely. C. Published criteria are enforced. D. In compliance with the American Disabilities Act. E. Sample application(s) are available. 1) Certification requirements included 2) Application procedures include: • procedures for ensuring match between education and clinical experience, and APRN specialty being certified, • procedures for validating information provided by candidate, • procedures for handling omissions and discrepancies 3) Professional staff responsible for credential review and admission decisions. 4) Examination should be administered frequently enough to be accessible but not so frequently as to over-expose items. F. Periodic review of eligibility criteria and application procedures to ensure that they are fair and equitable.
III. Educational requirements are consistent with the requirements of the advanced practice specialty.	A. Current U.S. registered nurse licensure is required. B. Graduation from a graduate advanced practice education program meets the following requirements: 1) Education program offered by an accredited college or university offers a graduate degree with a concentration in the advanced nursing practice specialty the individual is seeking 2) If post-masters certificate programs are offered, they must be offered through institutions meeting criteria B.1. 3) Both direct and indirect clinical supervision must be congruent

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	with current national specialty organizations and nursing accreditation guidelines 4) The curriculum includes, but is not limited to: • biological, behavioral, medical, and nursing sciences relevant to practice as an APRN in the specified category; • legal, ethical, and professional responsibilities of the APRN; and • supervised clinical practice relevant to the specialty of APRN 5) The curriculum meets the following criteria: • Curriculum is consistent with competencies of the specific areas of practice • Instructional track/major has a minimum of 500 supervised clinical hours overall • The supervised clinical experience is directly related to the knowledge and role of the specialty and category C. All individuals, without exception, seeking a national certification must complete a formal didactic and clinical advanced practice program meeting the above criteria.
IV. The standard methodologies used are acceptable to the testing community such as incumbent job analysis study, logical job analysis studies.	A. Exam content based on a job/task analysis. B. Job analysis studies are conducted at least every five years. C. The results of the job analysis study are published and available to the public. D. There is evidence of the content validity of the job analysis study.
V. The examination represents entry-level practice in the advanced nursing practice category.	A. Entry-level practice in the advanced practice specialty is described including the following: 1) Process 2) Frequency 3) Qualifications of the group making the determination 4) Geographic representation 5) Professional or regulatory organizations involved in the reviews
VI. The examination represents the knowledge, skills, and abilities essential for the delivery of safe and effective advanced nursing care to the clients.	A. The job analysis includes activities representing knowledge, skills, and abilities necessary for competent performance. B. The examination reflects the results of the job analysis study. C. Knowledge, skills, and abilities, which are critical to public safety, are identified. D. The examination content is oriented to educational curriculum practice requirements and accepted standards of care.
VII. Examination items are reviewed for content validity, cultural bias, and correct scoring using an established mechanism, both before use and periodically.	A. Each item is associated with a single cell of the test plan. B. Items are reviewed for currency before each use at least every three years. C. Items are reviewed by members of under-represented gender and ethnicities who are active in the field being certified. Reviewers have

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	been trained to distinguish irrelevant cultural dependencies from knowledge necessary to safe and effective practice. Process for identifying and processing flagged items is identified. D. A statistical bias analysis is performed on all items. E. All items are subjected to an "unscored" use for data collection purposes before their first use as a "scored" item. F. A process to detect and eliminate bias from the test is in place. G. Reuse guidelines for items on an exam form are identified. H. Item writing and review is done by qualified individuals who represent specialties, population subgroups, etc.
VIII. Examinations are evaluated for psychometric performance.	A. Reference groups used for comparative analysis are defined.
IX. The passing standard is established using acceptable psychometric methods, and is re-evaluated periodically.	A. Passing standard is criterion-referenced.
X. Examination security is maintained through established procedures.	A. Protocols are established to maintain security related to: 1) Item development (e.g., item writers and confidentiality, how often items are re-used) 2) Maintenance of question pool 3) Printing and production process 4) Storage and transportation of examination is secure 5) Administration of examination (e.g., who administers, who checks administrators) 6) Ancillary materials (e.g., test keys, scrap materials) 7) Scoring of examination 8) Occurrence of a crisis (e.g., exam is compromised, etc)
XI. Certification is issued based upon passing the examination and meeting all other certification requirements.	A. Certification process is described, including the following: 1) Criteria for certification decisions are identified 2) The verification that passing exam results and all other requirements are met 3) Procedures are in place for appealing decisions B. There is due process for situations such as nurses denied access to the examination or nurses who have had their certification revoked. C. A mechanism is in place for communicating with candidate. D. Confidentiality of nonpublic candidate data is maintained.
XII. A retake policy is in place.	A. Failing candidates permitted to be reexamined at a future date. B. Failing candidates informed of procedures for retakes. C. Test for repeating examinees should be equivalent to the test for first time candidates. D. Repeating examinees should be expected to meet the same test performance standards as first time examinees. E. Failing candidates are given information on content areas of deficiency.

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	F. Repeating examinees are not exposed to the same items when taking the exam previously.
XIII. Certification maintenance program, which includes review of qualifications and continued competence, is in place.	A. Certification maintenance requirements are specified (e.g., continuing education, practice, examination, etc.). B. Certification maintenance procedures include: 1) Procedures for ensuring match between continued competency measures and APRN specialty 2) Procedures for validating information provided by candidates 3) Procedures for issuing re-certification C. Professional staff oversee credential review. D. Certification maintenance is required a minimum of every 5 years.
XIV. Mechanisms are in place for communication to boards of nursing for timely verification of an individual's certification status, changes in certification status, and changes in the certification program, including qualifications, test plan and scope of practice.	A. Communication mechanisms address: 1) Permission obtained from candidates to share information regarding the certification process 2) Procedures to provide verification of certification to Boards of Nursing 3) Procedures for notifying Boards of Nursing regarding changes of certification status 4) Procedures for notification of changes in certification programs (qualifications, test plan or scope of practice) to Boards of Nursing
XV. An evaluation process is in place to provide quality assurance in its certification program.	A. Internal review panels are used to establish quality assurance procedures. 1) Composition of these groups (by title or area of expertise) is described 2) Procedures are reviewed 3) Frequency of review B. Procedures are in place to ensure adherence to established QA policy and procedures.

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APPENDIX B
American Nurses Association
Congress on Nursing Practice and Economics

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2004
Recognition as a Nursing Specialty

The process of recognizing an area of practice as a nursing specialty allows the profession to formally identify subset areas of focused practice. A clear description of that nursing practice assists the larger community of nurses, healthcare consumers, and others to gain familiarity and understanding of the nursing specialty. Therefore, the document requesting ANA recognition must clearly and fully address each of the fourteen specialty recognition criteria. The inclusion of additional materials to support the discussion and promote understanding of the criteria is acceptable. A scope of practice statement must accompany the submission requesting recognition as a nursing specialty.

Criteria for Recognition as a Nursing Specialty

The following criteria are used by the Congress on Nursing Practice and Economics in the review and decision-making processes to recognize an area of practice as a nursing specialty:

A nursing specialty:

1. Defines itself as nursing.
2. Adheres to the overall licensure requirements of the profession.
3. Subscribes to the overall purposes and functions of nursing.
4. Is clearly defined.
5. Is practiced nationally or internationally.
6. Includes a substantial number of nurses who devote most of their practice to the specialty.
7. Can identify a need and demand for itself.
8. Has a well derived knowledge base particular to the practice of the nursing specialty.
9. Is concerned with phenomena of the discipline of nursing.
10. Defines competencies for the area of nursing specialty practice.
11. Has existing mechanisms for supporting, reviewing and disseminating research to support its knowledge base.
12. Has defined educational criteria for specialty preparation or graduate degree.
13. Has continuing education programs or continuing competence mechanisms for nurses in the specialty.
14. Is organized and represented by a national specialty association or branch of a parent organization.

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APPENDIX C

NCBN APRN Committee Members 2003 -2008

2003
- Katherine Thomas, Executive Director, Texas Board of Nurse Examiners
- Patty Brown, Board Staff, Kansas State Board of Nursing
- Kim Powell, Board President, Montana Board of Nursing
- Charlene Hanson, Consultant
- Georgia Manning, Arkansas State Board of Nursing
- Deborah Bohannon-Johnson, Board President, North Dakota Board of Nursing
- Jane Garvin, Board President, Maryland Board of Nursing
- Janet Younger, Board President, Virginia Board of Nursing
- Nancy Chornick, NCSBN

2004
- Katherine Thomas, Executive Director, Texas Board of Nurse Examiners
- Patty Brown, Board Staff, Kansas State Board of Nursing
- Kim Powell, Board President, Montana Board of Nursing
- Charlene Hanson, Consultant
- Janet Younger, Board President, Virginia Board of Nursing
- Polly Johnson, Board Representative, North Carolina Board of Nursing
- Laura Poe, Member, Utah State Board of Nursing
- Georgia Manning, Arkansas State Board of Nursing
- Jane Garvin RN, Board President, Maryland Board of Nursing
- Ann Forbes, Board Staff, North Carolina Board of Nursing
- Nancy Chornick, NCSBN

2005
- Katherine Thomas, Executive Director, Texas Board of Nurse Examiners
- Patty Brown, Board Staff, Kansas State Board of Nursing
- Charlene Hanson, Consultant
- Janet Younger, Board President, Virginia Board of Nursing
- Polly Johnson, Board Representative, North Carolina Board of Nursing
- Laura Poe, Member, Utah State Board of Nursing
- Marcia Hobbs, Board Member, Kentucky Board of Nursing
- Randall Hudspeth, Board Member, Idaho Board of Nursing
- Ann Forbes, Board Staff, North Carolina Board of Nursing
- Cristiana Rosa, Board Member, Rhode Island Board of Nurse
- Kim Powell, Board President, Montana Board of Nursing
- Nancy Chornick, NCSBN

2006
- Katherine Thomas, Executive Director, Texas Board of Nurse Examiners
- Patty Brown, Board Staff, Kansas State Board of Nursing
- Charlene Hanson, Consultant

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- Janet Younger, Board President, Virginia Board of Nursing
- Laura Poe, Member, Utah State Board of Nursing
- Marcia Hobbs, Board Member, Kentucky Board of Nursing
- Randall Hudspeth, Board Member, Idaho Board of Nursing
- Cristiana Rosa, Board Member, Rhode Island Board of Nurse
- James Luther Raper, Board Member, Alabama Board of Nursing
- Linda Rice, Board Member, Vermont Board of Nursing
- Cathy Williamson, Board Member, Mississippi Board of Nursing
- Ann Forbes, Board Staff, North Carolina Board of Nursing
- Polly Johnson, Board Representative, North Carolina Board of Nursing
- Sheila N. Kaiser, Board Vice-Chair, Massachusetts Board of Registration in Nursing
- Nancy Chornick, NCSBN

2007
- Faith Fields, Board Liaison, Arkansas State Board of Nursing
- Katherine Thomas, Executive Director, Texas Board of Nurse Examiners
- Ann L. O'Sullivan, Board Member, Pennsylvania Board of Nursing
- Patty Brown, Board Staff, Kansas State Board of Nursing
- Charlene Hanson, Consultant
- Laura Poe, Member, Utah State Board of Nursing
- John C. Preston, Board Member, Tennessee Board of Nursing
- Randall Hudspeth, Board Member, Idaho Board of Nursing
- Cristiana Rosa, Board Member, Rhode Island Board of Nurse
- James Luther Raper, Board Member, Alabama Board of Nursing
- Linda Rice, Board Member, Vermont Board of Nursing
- Cathy Williamson, Board Member, Mississippi Board of Nursing
- Janet Younger, Board President, Virginia Board of Nursing
- Marcia Hobbs, Board Member, Kentucky Board of Nursing
- Nancy Chornick, NCSBN

2008
- Doreen K. Begley, Board Member, Nevada State Board of Nursing
- Ann L. O'Sullivan, Board Member, Pennsylvania Board of Nursing
- Patty Brown, Board Staff, Kansas State Board of Nursing
- Charlene Hanson, Consultant
- Laura Poe, Member, Utah State Board of Nursing
- John C. Preston, Board Member, Tennessee Board of Nursing
- Randall Hudspeth, Board Member, Idaho Board of Nursing
- Cristiana Rosa, Board Member, Rhode Island Board of Nurse
- James Luther Raper, Board Member, Alabama Board of Nursing
- Linda Rice, Board Member, Vermont Board of Nursing
- Cathy Williamson, Board Member, Mississippi Board of Nursing
- Tracy Klein, Member Staff, Oregon State Board of Nursing
- Darlene Byrd, Board Member, Arkansas State Board of Nursing
- Nancy Chornick, NCSBN

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APPENDIX D

2006 NCSBN APRN Roundtable Organization Attendance List

Alabama Board of Nursing
American Academy of Nurse Practitioners
American Academy of Nurse Practitioners National Certification Program, Inc
American Association of Colleges of Nursing
American Association of Critical-Care Nurses
American Association of Nurse Anesthetists
American Association of Psychiatric Nurses
American Board of Nursing Specialties
American College of Nurse-Midwives
American College of Nurse Practitioners
American Holistic Nurses' Certification Corporation
American Midwifery Certification Board
American Nurses Association
American Nurses Credentialing Center
American Organization of Nurses Executives
Association of Women's Health, Obstetric and Neonatal Nurses
Board of Certification for Emergency Nursing
Council on Accreditation of Nurse Anesthesia Educational Programs
Emergency Nurses Association
George Washington School of Medicine
Idaho Board of Nursing
Kansas Board of Nursing
Kentucky Board of Nursing
Massachusetts Board of Nursing
Mississippi Board of Nursing
National Association of Clinical Nurse Specialists
National Association of Nurse Practitioners in Women's Health
National Association of Pediatric Nurse Practitioners
National Board for Certification of Hospice & Palliative Nurses
National Certification Corporation for the Obstetric, Gynecologic and Neonatal Nursing Specialties

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National League for Nursing Accrediting Commission
North Carolina Board of Nursing
Oncology Nursing Certification Corporation
Pediatric Nursing Certification Board
Rhode Island Board of Nursing
Texas Board of Nurse Examiners
Utah Board of Nursing
Vermont Board of Nursing
Wound, Ostomy and Continence Nursing Certification Board

2007 APRN Roundtable Attendance List

ABNS Accreditation Council
Alabama Board of Nursing
American Academy of Nurse Practitioners
American Academy of Nurse Practitioners National Certification Program, Inc
American Association of Colleges of Nursing
American Association of Critical-Care Nurses
American Association of Nurse Anesthetists
American College of Nurse-Midwives
American College of Nurse Practitioners
American Midwifery Certification Board
American Nurses Credentialing Center - Certification Services
American Organization of Nurse Executives
Arkansas State Board of Nursing
Association of Women's Health, Obstetric and Neonatal Nurses
Board of Certification for Emergency Nursing
Colorado Board of Nursing
Commission on Collegiate Nursing Education
Council on Accreditation of Nurse Anesthesia Educational Programs
Council on Certification of Nurse Anesthetists and Council on Recertification of Nurse Anesthetists
Emergency Nurses Association
Idaho Board of Nursing

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Illinois State Board of Nursing
Kansas Board of Nursing
Kentucky Board of Nursing
Loyola University Chicago Niehoff School of Nursing
Minnesota Board of Nursing
Mississippi Board of Nursing
National Association of Clinical Nurse Specialists
National Association of Pediatric Nurse Practitioners
National Certification Corporation for the Obstetric, Gynecologic and Neonatal Nursing Specialties
National League for Nursing Accrediting Commission
National Organization of Nurse Practitioner Faculties
Oncology Nursing Certification Corporation
Pediatric Nursing Certification Board
Pennsylvania Board of Nursing
Rhode Island Board of Nursing
Rush University College of Nursing
South Dakota Board of Nursing
Tennessee Board of Nursing
Texas Board of Nurse Examiners
Vermont Board of Nursing

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APPENDIX E

APRN Joint Dialogue Group
Organizations represented at the Joint Dialogue Group Meetings

American Academy of Nurse Practitioners Certification Program
American Association of Colleges of Nursing
American Association of Nurse Anesthetists
American College of Nurse-Midwives
American Nurses Association
American Organization of Nurse Executives
Compact Administrators
National Association of Clinical Nurse Specialists
National Council of State Boards of Nursing
National League for Nursing Accrediting Commission
National Organization of Nurse Practitioner Faculties
NCSBN APRN Advisory Committee Representatives (5)

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APPENDIX F

ORGANIZATIONS INVITED TO APN CONSENSUS CONFERENCE JUNE, 2004

Accreditation Commission for Midwifery Education
American Academy of Nurse Practitioners
American Academy of Nurse Practitioners Certification Program
American Academy of Nursing
American Association of Critical Care Nurses
American Association of Critical Care Nurses Certification Program
American Association of Nurse Anesthetists
American Association of Occupational Health Nurses
American Board of Nursing Specialties
American College of Nurse-Midwives
American College of Nurse Practitioners
American Nurses Association
American Nurses Credentialing Center
American Organization of Nurse Executives
American Psychiatric Nurses Association
Association of Faculties of Pediatric Nurse Practitioners
Association of Rehabilitation Nurses
Association of Women's Health, Obstetric and Neonatal Nurses
Certification Board Perioperative Nursing
Commission on Collegiate Nursing Education
Council on Accreditation of Nurse Anesthesia Educational Programs
Division of Nursing, DHHS, HRSA
Emergency Nurses Association
Hospice and Palliative Nurses Association
International Nurses Society on Addictions
International Society of Psychiatric-Mental Health Nurses
NANDA International
National Association of Clinical Nurse Specialists
National Association of Neonatal Nurses
National Association of Nurse Practitioners in Women's Health
National Association of Nurse Practitioners in Women's Health, Council on Accreditation
National Association of Pediatric Nurse Practitioners
National Association of School Nurses
National Board for Certification of Hospice and Palliative Nurses
National Certification Corporation for the Obstetric, Gynecologic and Neonatal Nursing Specialties
National Conference of Gerontological Nurse Practitioners
National Council of State Boards of Nursing
National Gerontological Nursing Association
National League for Nursing
National League for Nursing Accrediting Commission

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National Organization of Nurse Practitioner Faculties
Nurse Licensure Compact Administrators/State of Utah Department of Commerce/Division of Occupational & Professional Licensing
Nurses Organization of Veterans Affairs
Oncology Nursing Certification Corporation
Oncology Nursing Society
Pediatric Nursing Certification Board
Sigma Theta Tau, International
Society of Pediatric Nurses
Wound Ostomy & Continence Nurses Society
Wound Ostomy Continence Nursing Certification Board

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APPENDIX G

ORGANIZATIONS PARTICIPATING IN APRN CONSENSUS PROCESS

Academy of Medical-Surgical Nurses
Accreditation Commission for Midwifery Education
American Academy of Nurse Practitioners
American Academy of Nurse Practitioners Certification Program
American Association of Colleges of Nursing
American Association of Critical Care Nurses Certification
American Association of Neuroscience Nurses
American Association of Nurse Anesthetists
American Association of Occupational Health Nurses
American Board for Occupational Health Nurses
American Board of Nursing Specialties
American College of Nurse-Midwives
American College of Nurse-Midwives Division of Accreditation
American College of Nurse Practitioners
American Holistic Nurses Association
American Nephrology Nurses Association
American Nurses Association
American Nurses Credentialing Center
American Organization of Nurse Executives
American Psychiatric Nurses Association
American Society for Pain Management Nursing
American Society of PeriAnesthesia Nurses
Association of Community Health Nursing Educators
Association of Faculties of Pediatric Nurse Practitioners
Association of Nurses in AIDS Care
Association of PeriOperative Registered Nurses
Association of Rehabilitation Nurses
Association of State and Territorial Directors of nursing
Association of Women's Health, Obstetric and Neonatal Nurses
Board of Certification for Emergency Nursing
Commission on Collegiate Nursing Education
Commission on Graduates of Foreign Nursing Schools
Council on Accreditation of Nurse Anesthesia Educational Programs
Department of Health
Dermatology Nurses Association
District of Columbia Board of Nursing
Division of Nursing, DHHS, HRSA
Emergency Nurses Association
George Washington University
Health Resources and Services Administration
Infusion Nurses Society
International Nurses Society on Addictions

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International Society of Psychiatric-Mental Health Nurses
Kentucky Board of Nursing
National Association of Clinical Nurse Specialists
National Association of Neonatal Nurses
National Association of Nurse Practitioners in Women's Health, Council on Accreditation
National Association of Orthopedic Nurses
National Association of Pediatric Nurse Practitioners
National Association of School of Nurses
National Certification Corporation for the Obstetric, Gynecologic, and Neonatal Nursing Specialties
National Conference of Gerontological Nurse Practitioners
National Council of State Boards of Nursing
National League for Nursing
National League for Nursing Accrediting Commission
National Organization of Nurse Practitioner Faculties
Nephrology Nursing Certification Commission
North American Nursing Diagnosis Association International
Nurses Organization of Veterans Affairs
Oncology Nursing Certification Corporation
Oncology Nursing Society
Pediatric Nursing Certification Board
Pennsylvania State Board of Nursing
Public Health Nursing Section of the American Public Health Association.
Rehabilitation Nursing Certification Board
Society for Vascular Nursing
Texas Nurses Association
Texas State Board of Nursing
Utah State Board of Nursing
Women's Health, Obstetric & Neonatal Nurses
Wound, Ostomy, & Continence Nurses Society
Wound, Ostomy, & Continence Nursing Certification

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APPENDIX H

APRN CONSENSUS PROCESS WORK GROUP

ORGANIZATIONS THAT WERE REPRESENTED AT THE WORK GROUP MEETINGS

Jan Towers, American Academy of Nurse Practitioners Certification Program
Joan Stanley, American Association of Colleges of Nursing
Carol Hartigan, American Association of Critical Care Nurses Certification Corporation
Leo LeBel, American Association of Nurse Anesthetists
Bonnie Niebuhr, American Board of Nursing Specialties
Peter Johnson & Elaine Germano, American College of Nurse-Midwives
Mary Jean Schumann, American Nurses Association
Mary Smolenski, American Nurses Credentialing Center
M.T. Meadows, American Organization of Nurse Executives
Edna Hamera & Sandra Talley, American Psychiatric Nurses Association
Elizabeth Hawkins-Walsh, Association of Faculties of Pediatric Nurse Practitioners
Jennifer Butlin, Commission on Collegiate Nursing Education
Laura Poe, APRN Compact Administrators
Betty Horton, Council on Accreditation of Nurse Anesthesia Educational Programs
Kelly Goudreau, National Association of Clinical Nurse Specialists
Fran Way, National Association of Nurse Practitioners in Women's Health, Council on Accreditation
Mimi Bennett, National Certification Corporation for the Obstetric, Gynecologic, and Neonatal Nursing Specialties
Kathy Apple, National Council of State Boards of Nursing
Grace Newsome & Sharon Tanner, National League for Nursing Accrediting Commission
Kitty Werner & Ann O'Sullivan, National Organization of Nurse Practitioner Faculties
Cyndi Miller-Murphy, Oncology Nursing Certification Corporation
Janet Wyatt, Pediatric Nursing Certification Board
Carol Calianno, Wound, Ostomy and Continence Nursing Certification Board
Irene Sandvold, DHHS, HRSA, Division of Nursing *(observer)*

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ADDENDUM

Example of a National Consensus-Building Process to Develop Nationally Recognized Education Standards and Role/Specialty Competencies

The national consensus-based process described here was originally designed, with funding by the Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Division of Nursing, to develop and validate national consensus-based primary care nurse practitioner competencies in five specialty areas. The process was developed with consultation from a nationally recognized expert in higher education assessment. The process subsequently has been used and validated for the development of similar sets of competencies for other areas of nursing practice, including competencies for mass casualty education for all nurses and competencies for acute care nurse practitioners and psych/mental health nurse practitioners.

This process for developing nationally recognized educational standards, nationally recognized role competencies and nationally recognized specialty competencies is an iterative, step-wise process. The steps are:
Step 1: At the request of the organization(s) representing the role or specialty, a neutral group or groups convenes and facilitates a national panel of all stakeholder organizations as defined in step 2.
Step 2: To ensure broad representation, invitations to participate should be extended to one representative of each of the recognized nursing accrediting organizations, certifiers within the role and specialty, groups whose primary mission is graduate education and who have established educational criteria for the identified role and specialty, and groups with competencies and standards for education programs that prepare individuals in the role and specialty.
Step 3: Organizational representatives serving on the national consensus panel bring and share role delineation studies, competencies for practice and education, scopes and standards of practice, and standards for education programs.
Step 4: Agreement is reached among the panel members
Step 5: Panel members take the draft to their individual boards for feedback.
Step 6: That feedback is returned to the panel. This is an iterative process until agreement is reached.
Step 7: Validation is sought from a larger group of stakeholders including organizations and individuals. This is known as the Validation Panel.
Step 8: Feedback from the Validation Panel is returned to National Panel to prepare the final document.
Step 9: Final document is sent to boards represented on the National Panel and the Validation Panel for endorsement.

The final document demonstrates national consensus through consideration of broad input from key stakeholders. The document is then widely disseminated.

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REFERENCE

NCSBN. 2008. *Consensus model for APRN regulation: Licensure, accreditation, certification & Education* (APRN Consensus Work Group and NCSBN APRN Advisory Committee). Available from https://www.ncsbn.org/FINAL_Consensus_Report_070708_w._Ends_013009.pdf

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E
Undergraduate Nursing Education

According to the findings of the 2008 National Sample Survey of registered nurses (RNs), just over 3 million licensed RNs live in the United States; nearly 85 percent of these women and men are actively working in the nursing profession. Nearly 450,000 RNs are estimated to have received their first US license between 2004 and 2008 (HRSA, 2010). The current nursing workforce includes a high proportion of nurses working in the later years of their careers, soon to retire, and a high proportion of nurses at the onset of their careers. Midcareer nurses, the group most needed to fill the roles of those leaving the workforce, are the lowest in number. Therefore, the knowledge, experience, and mentoring that senior nurses can provide could potentially be lost (Bleich et al., 2009). Table E-1 shows the demographic and educational distribution of the current nursing workforce.

TABLE E-1 Demographic and Educational Characteristics of Registered Nurses, by Age

	Under Age 50	Age 50 or older	Total
Estimated total population	1,694,088	1,369,074	3,063,162
Race/ethnicity			
White, non-Hispanic	80.0	87.2	83.2
Non-white or Hispanic	20.0	12.8	16.8
Gender			
Male	7.7	5.3	6.6
Female	92.3	94.7	93.4
Initial nursing education			
Diploma	9.0	34.5	20.4
Associate's	48.5	41.6	45.4
Bachelor's or higher	42.5	23.9	34.2
Highest nursing or nursing-related education			
Diploma	6.6	23.0	13.9
Associate's	40.0	31.2	36.1
Bachelor's	43.1	28.9	36.8
Graduate	10.3	16.8	13.2

SOURCE: HRSA, 2010.

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Nursing is unique among the health care professions in the United States in that it offers multiple educational pathways leading to an entry-level license to practice. For the past four decades, nursing students have been able to pursue three different educational paths: the diploma in nursing, the associate's degree in nursing (ADN), and the bachelor's of science in nursing (BSN). More recently, an accelerated, second-degree bachelor's program for students who possess a baccalaureate degree in another field has become a popular option.

DIPLOMA IN NURSING

For many years, the most common choice of nursing students was the diploma program at a hospital-based school. Generally lasting 3 years and providing limited liberal arts content, diploma programs trace their origin to the work of Florence Nightingale and her colleagues in the 19th century. In many ways, diploma programs are similar to apprenticeship programs for physicians in the 1800s before the widespread development of medical schools (Gebbie, 2009). As nursing gained a stronger theoretical foundation and other types of nursing programs increased in number, the number of diploma programs declined remarkably throughout the 20th century except in a few states, such as New Jersey, Ohio, and Pennsylvania. One advantage of the diploma program is that there are guaranteed clinical spaces for those accepted into the program, something ADN and BSN programs cannot offer. The number of all working nurses who began their nursing education in diploma schools fell from 63.7 percent in 1980 to 20.4 percent in 2008; the number of new diploma graduates dropped to 3.1 percent of all graduates in the 2005–2008 graduation cohort (HRSA, 2010).

ASSOCIATE'S DEGREE IN NURSING

At present, the most common way to become an RN is to pursue an ADN at a community college. The proportion of nurses in the United States whose initial education was an ADN increased from 42.9 percent in 2004 to 45.4 percent in 2008 (HRSA, 2010). ADN programs in nursing were launched in the mid–20th century in response to the nursing shortage that followed World War II (Lynaugh, 2008; Lynaugh and Brush, 1996). Generally speaking, the ADN remains less expensive than a BSN because of the cost structure of the community college system and the shorter program duration. Once conceived as a 2-year program, the ADN is seen as taking less time than a BSN, but this situation has changed over the years (Orsolini-Hain, 2008). In most non–health care disciplines, the associate's degree takes 2 years to complete. In nursing, however, surveys have found that it takes students 3 to 4 years to complete an ADN program because of the need to fulfill prerequisites and the lack of adequate faculty, which lead to long waiting lists for many programs and classes (Orsolini-Hain, 2008). The ADN curriculum often combines intense science and clinical coursework into a condensed time frame, posing additional challenges to completing the program in 2 years.

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BACHELOR'S OF SCIENCE IN NURSING

The BSN is a 4-year degree, typically offered at a university; the first university-based schools of nursing were founded in the early 20th century (Lynaugh, 2008; Lynaugh and Brush, 1996). BSN programs emphasize liberal arts, advanced sciences, and nursing coursework across a wide range of settings, along with leadership development and exposure to community and public health competencies. As of 2008, 34.2 percent of RNs throughout the United States had started with a BSN, up from 31.5 percent in 2004 (HRSA, 2010). Beginning in the latter part of the 20th century, an accelerated option for a BSN or MSN became available to applicants who had already completed a bachelor's degree in a different field. Also known as fast-track or second-degree programs, these programs have added substantially to the growing number of baccalaureate graduates (AACN, 2010).

Most BSN students complete their degrees in 4 years. Accelerated programs that offer the BSN to students who have already completed a bachelor's degree are typically completed in 11 to 18 months, with intense coursework and professional formation accelerated based on previous collegiate and life experience (AACN, 2010).

For much of the 20th century, following the release of a significant 1965 position paper of the American Nurses Association, nursing leaders and educators tried to standardize nursing education and make the BSN the minimum entry-level requirement for nursing practice. Four states were targeted for early implementation (Smith, 2010). Only one of them—North Dakota—fully followed through on that recommendation by establishing the BSN as the minimum degree in nursing in 1987 (Smith, 2010). In 2003, however, the state legislature, at the urging of hospitals and long-term care stakeholders, passed a law that allowed nurses with an ADN to practice (Boldt, 2003). Nationwide, market forces and the needs of individual employers generally determine whether a BSN is required for entry into practice.

LICENSED PRACTICAL NURSES

In addition to the RNs, who receive a diploma, associate, or baccalaureate degree in nursing, another undergraduate level degree offered is the licensed practical/vocational degree in nursing. Licensed practical/vocational nurses (LPNs/LVNs) are especially important because of their contributions to care in long-term care facilities and nursing homes.

Historically, LPN/LVN programs have fluctuated based on need. The first training program for licensed practical/vocational nurses (LPNs/LVNs) dates back to the late 19th century. These programs increased in number following the nursing shortage of World War I, and the passage of the Smith Hughes Act, and again following the nursing shortage of World War II, when LPNs/LVNs were in demand to assist RNs in civilian hospitals (lpntraining.org, 2010), which were short-staffed as a result of war efforts. LPNs/LVNs also found employment in long-term care facilities and nursing homes.

LPN/LVN receives a diploma after completion of a 12-month program. The LPN/LVN is not educated for independent decision making for complex care but obtains basic training in anatomy and physiology, nutrition, and nursing techniques. With additional study, these nurses can perform supplemental nursing tasks that are useful to patients and nursing home residents and can contribute to clinical documentation and team performance. Some LPNs/LVNs also supervise nursing attendants and direct care workers in long-term care settings.

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CONCLUSION

The fact that each educational pathway (i.e., diploma, ADN, and BSN) leads to the same licensure exam (the NCLEX-RN; see Chapter 4) makes it difficult to argue that a graduate with a BSN is more competent to perform entry-level tasks than one who has a diploma or an ADN. Statistics from the National Council of State Boards of Nursing show little difference in the pass rates of BSN, ADN, and diploma graduates, which is to be expected because the exam tests the minimum standards for safe practice. In 2009, 89.49 percent of 52,241 BSN candidates passed the NCLEX-RN exam, compared with 87.61 percent of 78,665 ADN candidates and 90.75 percent of 3,677 diploma candidates (NCSBN, 2010).

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F
Health Care System Reform and the Nursing Workforce: Matching Nursing Practice and Skills to Future Needs, Not Past Demands[1]

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INTRODUCTION

The Robert Wood Johnson Foundation's *Initiative on the Future of Nursing* is founded on a major study, undertaken in collaboration with the Institute of Medicine, that will "examine the capacity of the nursing workforce to meet the demands of a reformed health care and public health system." A report pursuing such a goal is propitious, and path-breaking from the legion of nursing workforce reports produced over the past half-century by departing from "what is" and focusing on "what should be." This paper seeks to aid that effort through a detailed examination of how health reform may alter the demand for the registered nurses (RN), and the degree to which the RN workforce measures up to this anticipated demand.

A thoughtful examination of the capacity of the RN workforce to support health reform is important for several reasons. The health reform legislation signed by President Obama on March 23, 2010, and the American Recovery and Reinvestment Act of 2009 which proceeded it, include a range of initiatives that seek to redesign the organization, financing, and delivery of health care. A number of these programs—for example, primary care medical homes and accountable care organizations (ACOs)—rely on interventions that fall squarely within the scope of practice of RNs (e.g., care coordination, transitional care). Furthermore, expanding the reach of insurance coverage will place greater demands on the primary care system, as witnessed in Massachusetts (Long, 2008; Long and Masi, 2009), and consequently on RNs and nurse practitioners to practice in these settings (Craven and Ober, 2009). In addition, investment in the expansion of interoperable health information technology (HIT) platforms that are critical to the implementation of these system reforms will spur the growth of community-wide information exchange that has the potential to change the distribution, skill-mix, and scope of practice of nurses in profound ways.

So what does a reformed health care delivery system foretell for the future nursing workforce? Will the demand for services provided by RNs change, as the provisions in the

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legislation suggest, and if so is the nursing workforce positioned to effectively respond? What role will the nursing workforce play in a post-reform environment? This paper examines these questions. We assess the composition, skill set, and scope of practice needed from a future RN workforce to support the health care delivery and coverage reforms that will emerge from the reform legislation and related initiatives. We describe the future demand for RNs under these reforms, how that demand comports with the current and anticipated future supply of RNs, the challenges in meeting the workforce demands of a reformed health care delivery system, and recommendations for future RN workforce planning.

THE IMPACT OF HEALTH CARE DELIVERY REFORMS ON DEMAND FOR HEALTH CARE SERVICES OF NURSES

What will be the demand for the health care services of RNs under the proposed health care delivery reforms? An examination of the health reform legislation and other related policy initiatives reveals a number of programs and provisions that call for reorganization of health care services and the workforce responsible for delivering them. Their implementation could have a significant effect on the future roles of and requirements for RNs.

Advancing Care Management Models

"Care management" comprises a broad and evolving range of strategies to effectively intervene and improve the care for primarily chronically ill individuals—those whose care spans multiple providers and requires continuous, long term management. Disease management (DM) programs—diagnosis-specific programs targeting chronic illnesses responsible for the largest share of health care spending—have been the dominant form of care management programs for the past 15 years. DM programs target patients with specific chronic illnesses (e.g., heart failure, chronic obstructive pulmonary disease, diabetes), offer providers tools to improve their clinical management, promote outreach and support strategies to improve patient adherence to treatment plans, and provide feedback systems to monitor patient outcomes (Krumholz et al., 2006). Out of DM programs came case management and care coordination strategies that target persons with multi-morbidity chronic illnesses and complex care needs in addition to one or more significant chronic illnesses. These programs rely on rigorous care coordination and well-managed interdisciplinary clinical management to achieve quality outcomes (Anderson, 2005; Bodenheimer, 2008).

Provisions in the Medicare Prescription Drug Improvement Modernization Act of 2003 launched a series of population-based care coordination pilot programs to test the applicability of these strategies for Medicare beneficiaries and to assess the quality improvement outcomes and cost-savings that could be achieved (Anderson, 2005; Foote, 2003). The evaluations revealed that while these programs yielded a variety of important quality outcomes, cost-savings remained largely elusive (Ayanian, 2009; Peikes et al., 2009). These findings echoed those in an earlier report from the Congressional Budget Office for the U.S. Senate Budget Committee that noted the promise but lack of evidence of cost savings from these programs (CBO, 2004).

Further analyses, however, revealed that cost-savings—principally by reducing avoidable hospital admissions—in addition to quality outcomes have been achieved by some care management programs (Bodenheimer, 2009; Bott et al., 2009; Sochalski et al., 2009). Programs that have been successful share several important features: care management strategies directed

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by nurses who were integral to the physician's practice, who coordinated care and communication between the patient and all members of the interdisciplinary team serving the patient, and who directly provided health care services via in-person and telephonic/electronic methods. Increasing evidence is showing that enhanced and integral involvement of nurses in both the coordination and delivery of care, particularly for patients enduring multiple chronic illnesses and complex care regimens, and in care management is critical to achieving cost and quality targets (Fisher et al., 2009).

Several programs and initiatives included in the health reform legislation involve interdisciplinary and cross-setting care coordination and care management services of RNs.

Patient-Centered Medical Homes (PCMH)

Health reform raised the profile of strategies seeking to eliminate fragmentation in care and its costly and poor quality consequences. A recent report from the Institute of Medicine's Roundtable on Evidence-Based Medicine (2009) estimated potential annual savings of $271 billion that could accrue by 2014 by facilitating care coordination which would reduce these discontinuities in care. One such strategy is the patient-centered medical home, an enhanced model of primary care through which care teams attend to the multi-faceted needs of patients and provide whole person comprehensive and coordinated patient-centered care (Kaye and Takach, 2009).

Health reform's version of the PCMH is an outgrowth of both structural and care delivery innovations over the past several decades. The structure derives from the pediatric medical home model developed to mainstream care for special needs children, and expanded to embrace the consensus view of primary care as first-contact, comprehensive, continuous, coordinated care for all populations (IOM, 1996; Starfield and Shi, 2004). This model is joined by key elements of Wagner's Chronic Care Model (Wagner et al., 1996), several system redesign features (e.g., interdisciplinary collaboration and fully integrated HIT), and a new payment structure that recognizes the broad set of services comprising the patient-centered medical home (Berenson et al., 2008). The PCMH is intended to address critical deficiencies in the current primary care system: (1) making the "patient" the focus of and place for care—redesigning practice so that it is truly "centered" on patient and caregivers; (2) meeting the growing challenge of managing chronic illnesses in primary care settings; and (3) providing necessary resources and payment for care management and coordination activities required for an effective PCMH (Berenson et al., 2008; Chokshi, 2009; Rittenhouse et al., 2009).

A fully functional PCMH is founded on patient and caregiver engagement in care that meets patient preferences; information and education that promotes self-management; care coordination that monitors, reviews, and follows-up on all services needed and provided across settings; secure transitions across health care settings; and effective information flow across all providers and services to assure integrated care delivery (Davis et al., 2005; Gerteis et al., 1993). This PCMH model is envisioned to result in lower costs through reductions in emergency room visits and hospital admissions (Hussey et al., 2009; Eibner et al., 2009). Patient self-management, care coordination, and transitional care—services at the core of the PCMH and shown to result in lower hospital and ER use—are directed and provided by nurses.

The Guided Care Program offers an example of a successful PCMH model, one that has improved patient outcomes and quality and reduced health care costs through nursing services (Boult et al., 2008; Boyd et al., 2007, 2008; Leff et al., 2009; Sylvia et al., 2008). The Guided Care (GC) model is a PCMH program using an interdisciplinary team approach to coordinate

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care for older adults with complex chronic conditions. Based in primary care physician practices, GC nurses coordinate care among health care providers; complete standardized comprehensive home assessments; and collaborate with physicians, patients, and caregivers to create and execute evidence-based care guides and actions plans. GC nurses work on a long-term basis with clients, provide transitional care, and assist patients with self-management skills and accessing necessary community-based services (Boult et al., 2008). Early findings from a cluster randomized trial of this program reveal a 24 percent reduction in inpatient days, 15 percent reduction emergency room visits, and a net Medicare savings of $75,000 per Guided Care nurse in the programs (Leff et al., 2009).

The Intermountain Healthcare Medical Group in Utah (Dorr et al., 2008, 2009) and the Geriatric Resources for Assessment and Care for Elders (GRACE) program in Indiana (Counsell et al., 2007) are PCMH models that have targeted high risk older adults for rigorously coordinated care provided by nurses embedded in primary care practices, in the case of Intermountain, and nurse practitioner/social worker teams in the case of the GRACE program. Each have achieved a significant reduction of hospitalizations and lower costs. Similar gains were also found for high-risk children in PCMH programs. Community Care of North Carolina (McCarthy and Mueller, 2009; Steiner, 2008) had nurses provide case management and care coordination services to high-risk Medicaid and SCHIP enrollees, resulting in a 40 percent reduction in hospitalizations for asthma and a 16 percent reduction in emergency room visits and yielding total annual savings of $154–170 million.

The Tax Relief and Health Care Act of 2006 directed the Centers for Medicare and Medicaid Services (CMS) to undertake a demonstration program to test the effectiveness of PCMH models for Medicare enrollees and the capacity to achieve both quality outcomes and lower health care spending through such approaches to organize primary care. Provisions in the health reform legislation complement Medicare's demonstration program, testing different PCMH models and creating a new CMS Innovation Center to support testing new approaches to organizing, delivering and paying for health care services (Chokshi, 2009). Their capacity to achieve real savings, some argue, will depend on the breadth of providers (e.g., primary care, specialists, hospitals) linked to the medical home and the depth of interdisciplinary collaboration and care coordination among them (Fisher, 2008), underscoring the focal role that nursing will play in achieving these outcomes.

Transitional Care

Other innovations in care management also call upon the scope of practice of RNs. Various current and proposed reforms would financially penalize hospitals whose Medicare readmission rates exceeded an established threshold. These provisions come on the heels of a recent study which found that one in five hospitalized Medicare beneficiaries are readmitted within 30 days of discharge, nearly half of whom return without having seen a physician or other health care practitioner in the intervening period (Jencks et al., 2009). Of the $103 billion spent by Medicare on hospital care in the study year, 17 percent was spent on readmissions that were unplanned and potentially avoidable. These findings raise serious questions about the coordination of care and hospital discharge protocols in place where these patients sought care (Epstein, 2009). The financial penalty is intended to serve as a significant incentive to hospitals to adopt evidence-based strategies that will reduce avoidable readmissions.

Co-incident with the release of the readmission study, the Centers for Medicare and Medicaid Services (CMS) announced the 14 sites for its newly funded Care Transitions Project. This

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nationwide pilot program supports partnerships between Medicare's Quality Improvement Organizations and local providers to develop and implement strategies to manage the transitions of Medicare patients from acute care to post-acute care settings, whether it's the patient's home or another health care setting. Transitions between settings—e.g., hospital to home, hospital to nursing home—are points of great vulnerability for patients, and poorly managed transitions are a chief culprit in hospital readmissions (Coleman et al., 2006; Naylor et al., 1999, 2004). Two prominent evidence-based models of care for managing transitions between settings are founded on nursing services: Coleman's Care Transitions Model and Naylor's Transitional Care Model. The Coleman model employs advanced practice nurses as "transition coaches" to manage chronically ill patients and their care needs as they transition between settings and to encourage these patients and their caregivers to assume more active roles in managing their care. The Naylor model targets complex chronically ill patients—those with multiple chronic illnesses and other complicating conditions—and uses specially-trained transitional care nurses to provide, manage, and coordinate the full complement of clinical care and transitional care services during, between, and after the hospital stay. Both the Coleman and Naylor models have demonstrated significant reductions in hospital readmissions and health care costs. The health reform legislation includes provisions for a start-up program of transitional care that is modeled directly on these two evidence-based models.

Accountable Care Organizations (ACOs)

ACOs received noteworthy attention within influential legislative circles during the debate on health reform that led to their inclusion in the final legislation as a pilot program. ACOs, modeled in large part after successful integrated delivery systems like Kaiser Permanente and Geisinger Health System, have been advanced by the Dartmouth Institute for Health Policy and Clinical Practice and Engelberg Center for Health Reform at the Brookings Institution. Their structure grew out of the seminal work on the geographic patterns of health care use and spending from the Dartmouth Institute (Fisher et al., 2009; Goldsmith, 2009; McKethan and McClellan, 2009). Taking advantage of the natural clustering of health care services around hospitals which the analyses on regional patterns of service use revealed, ACOs are envisioned as locally integrated groups of hospitals, physicians, and other providers that are responsible for the health service needs of a defined population of patients (Crosson, 2009a). Their structure draws from the current Medicare Physician Group Practice demonstration program and the prior decade's Physician Hospital Organization program (Crosson, 2009b).

ACOs offer a pathway to cost control through payment reform, by establishing collaborations of providers that enter agreements with payers to be financially accountable for the provision of health care services to a defined population. These provider collaborations can take a variety of configurations to accommodate and build upon existing local relationships among providers. The payment methods that have been proposed embody a variety of provider incentives to meet cost targets including shared savings, shared risk, partial capitation, and beneficiary incentives such as differential co-pays. Performance measurement is an integral component of ACOs to provide quality and cost benchmarks and progress, and to ensure that cost control is not achieved through by limiting necessary or appropriate care.

ACOs will depend on several structural and organizational features in order to meet their cost and quality targets. Fully-integrated electronic health records (EHR) and other types of HIT would be required for timely and meaningful information sharing across the entire range of providers. Regular feedback on performance and benchmarks will need to be shared with all

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providers, services and enrollees in the ACOs. Moreover, ACOs will be supported and strengthened by adopting rigorous, evidence-based care management practices that are the foundation of many complementary system reforms, e.g., PCMHs and transitional care, to manage and guide the care of fully-functioning teams of providers and to coordinate communication within and across teams, organizations and disciplinary lines.

The care management and coordination strategies adopted by ACOs and other types of integrated delivery systems require an RN workforce that is linked to the patient, can readily transition with the patient across time and care settings and is ultimately accountable for outcomes that transcend time and place. RNs working in this context would be employed by the ACO, one of its practices or contracting care coordination organizations and would be responsible for care management for the most complexly ill patients in the group and for their care transitions. These transitions would include from hospital to home or other post-acute setting, from home to hospital, or from ongoing primary care to intensive out-patient secondary care.

Expanding Primary Care Capacity

The demand to build the primary care nursing workforce—both RNs and advanced practice nurses—will grow as accessibility to coverage, service settings, and services increases. The Massachusetts experience provides evidence of this growth in demand: passage of health reform in 2006 led to a substantial increase in demand for primary care services only some of which could be met with the existing reservoir of primary care resources (Long, 2008; Long and Masi, 2009). Moreover, today the number of nurse practitioners (NPs) and physician assistants (PAs) rivals the number of family physicians delivering primary care, thus a substantial share of the growth in demand for primary care services that will follow the expansion in health coverage will by design fall on the shoulders of nurses (Green et al., 2004).

The growth in health centers during the prior decade provides some parameters for quantifying the growth in the demand for the primary care RN workforce. Between 2000 and 2006 the number of patients served by the nation's health centers grew 67 percent, to 16 million. To meet the concomitant increase in demand for care, the number of primary care physicians at health centers grew by 57 percent, advanced practice clinicians (i.e., NPs, PAs, and certified nurse midwives [CNMs]) by 64 percent, and RNs by 38 percent. Yet despite that growth, according to the National Association for Community Health Centers (NACHC, 2008), health centers fell short by 1,843 primary care providers, including physicians, NPs, PAs, and CNMs, and by 1,384 RNs.

NACHC estimates that 56 million people lack access to a primary care medical provider (NACHC, 2007). For health centers to increase the number of patients served (for medical visits) from 16 million to 30 million, an additional 15,600 to 19,400 primary care providers are estimated to be needed. Using the current skill mix of clinicians, 36 percent of these additional providers—from 5,600 to 7,000—would be NPs/CNMs/PAs. In addition, health centers would require another 11,600 to 14,400 RNs. Assuming that 75 percent of the advanced practice clinicians would be NPs or CNMs, an additional 16,000–20,000 RNs would be required to meet this demand.

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National statistics on the RN workforce in primary care suggest that nursing is not growing to meet this demand (Box F-1). The percent of RNs employed in ambulatory care, e.g., clinics, physicians' offices, health centers remained virtually unchanged between 2004 and 2008, at just over 12 percent. This seemingly steady employment rate masks the gradual decline in the ambulatory care nursing workforce in a number of states. For example, the RN ambulatory care workforce in Florida grew an appreciably decelerating rate over this period: 25 percent from 2004-06, 12 percent from 2006–2008, and virtually no change from 2008–2009. In 2007 ambulatory care settings employed 7.8 percent of RNs in Pennsylvania, down from 8.4 percent two years earlier. In 2006 6.3 percent of RNs in California worked in ambulatory care, down from 8.3 percent only two years earlier (UCSF School of Nursing and CHWS, 2007). Statistics from the 2004 National Sample Survey of Registered Nurses indicate that between 17,000 and 20,000 RNs were working in health center settings. Meeting the demand for primary care services at community health centers estimated by NACHC would require a doubling of the RN workforce in health centers today, an unlikely circumstance given the prevailing trends in ambulatory care employment of RNs. Furthermore, community health centers represent only one primary care setting that will demand additional RNs. Other services and settings offering access to primary care and preventive health services and receiving enhanced support from the health reform legislation and consequently will place additional demand on RNs include workplace wellness programs, home-based primary care (e.g., Independence at Home program), nurse home visitation services, nurse-managed health centers, and community health teams.

Adoption of Health Care Support Technologies

Within the first few months in office President Obama signed economic stimulus legislation that included a significant investment to expand the HIT infrastructure for the nation (Blumenthal, 2009). This investment is intended to nourish the seeds of digital health care that are well-rooted though not widespread. Today only 15–20 percent of hospital RNs practice within a minimally functional HIT infrastructure and well under five percent practice within a fully wired context (DesRoches et al., 2008). However, a full array of HIT is expected to diffuse rapidly over the coming decade, with significant implications for future training, staffing models, and workforce policies for RNs. HIT is anticipated to lead to: (1) profound changes in the content and process of clinical practice; (2) a redesign of the roles and skill-mix of the health care workforce and the ways in which multi-disciplinary teams will work with one another; (3) new paradigms for how time and place will influence the delivery of care; and (4) increased care efficiency and better outcomes.

Changing Clinical Practice

HIT will fundamentally change the ways that RNs plan, deliver, document, and review clinical care. The process of obtaining and reviewing diagnostic information, making clinical decisions, communicating with patients and families, and carrying out clinical interventions will radically depart from how these activities occur today. Moreover, the relative proportion of time RNs spend on various tasks is likely to change appreciably over the coming decades. While arguably HIT will have its greatest influence over how RNs plan and document their care, all facets of care will be mediated increasingly by digital workflow, computerized knowledge management, and decision support.

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BOX F-1
RN Ambulatory Care Workforce

U.S. RN ambulatory care workforce:

- RNs were identified in the Occupational Employment Statistics (Bureau of Labor Statistics, U.S. Department of Labor by Standard Occupational Code (SOC) 29-1111. Ambulatory care RNs were the subset of RNs identified by the following North American Industry Classification System (NAICS) codes: offices of physicians (621100), offices of other health practitioners (621300), outpatient care centers (621400), and other ambulatory health care services (621900).
  2004: 282,220 RNs were employed in ambulatory care out of 2,300,880 total RNs (282,220 ÷ 2,300,880 = 12.3%).
  2008: 319,860 RNs were employed in ambulatory care out of 2,536,160 total RNs (319,860 ÷ 2,536,160 = 12.6%).

Florida RN ambulatory care workforce:

- Annual state-wide RN employment are data assembled by the Florida Center for Nursing (http://www.flcenterfornursing.org/) using same SOC and NAICS codes to identify RNs employed in ambulatory care.
  004: 13,792 RNs were employed in ambulatory care out of 135,490 total RNs (13,792 ÷ 135,490 = 10.2%).
  2006: 18,524 RNs were employed in ambulatory care out of 145,401 total RNs (18,524 ÷ 145,401 = 12.7%).
  2008: 22,127 RNs were employed in ambulatory care out of 155,064 total RNs (22,127 ÷ 155,064 = 14.3%).
  2009: 21,281 RNs were employed in ambulatory care out of 148,394 total RNs (21,281 ÷ 148,394 = 14.3%).

Pennsylvania RN ambulatory care workforce:

- Data on employment sector obtained from annual reports of RN workforce in Pennsylvania based on full census RN survey (at time of license renewal) provided in annual reports. Ambulatory care employment sector categories include: physician/dentist office, clinic, and independent practice.
  2005: Table 18-Employment Sectors (p. 27). Pennsylvania Department of Health. 2006. *Special report on the characteristics of the registered nurse population in Pennsylvania.*
  2007: Table 16-Employment Sectors (p. 23). Pennsylvania Department of Health. 2008. *Special report on the characteristics of the registered nurse population in Pennsylvania.*

California RN ambulatory care workforce:

- Data on employment sector obtained from a report on the 2006 Survey of Registered Nurses in California conducted for the California Board of Registered Nursing.
  Table 3.27- Types of organizations in which registered nurses residing in California work the most hours each month, by survey year.

In the future virtually every facet of nursing practice in each setting where it is rendered will have a significant digital dimension around a core electronic health record. Biometric data collection will increasingly be automated, and diagnostic tests, medications and some therapies will be computer generated, managed and delivered with computer support. Patient histories and examination data will increasing be collected by devices that interface directly with the patient and automatically stream into the EHR. Automated blood pressure cuffs, PDA-based functional status, and patient history surveys are examples of this.

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In HIT supported organizations a broader array and higher proportion of services of all types will be provided within the context of computer templates and workflows. Care and its documentation will less frequently be "free-hand". As routine aspects of care become digitally mediated and increasingly rote, RNs and other clinicians can be expected to shift and expand their focus to more complex and nuanced "high touch" tasks that these technologies can not readily or appropriately accomplish. This would include communication, guidance and support of the patient/consumer and their families. There will likely be greater opportunity for interventions such as counseling, behavior change, and social and emotional support—interventions that lie squarely within the province of nursing practice.

Redesigned Roles and Skill-Mix

The new practice milieu—where much of nursing and medical care is mediated and supported within an interoperable "digital commons"—will support and potentially even require a much more effective integration of multiple disciplines into a collaborative team focused on the patient's unique set of needs. Furthermore, interoperable EHRs linked with personal health records and shared support systems will influence how these teams work and share clinical activities. It will increasingly be possible for providers to work on digitally-linked teams who will collaborate with patients and their families no longer limited by "real time" contact.

As the knowledge base and decision pathways that previously resided primarily in the clinicians' brain are transferred to "clinical decision support" (CDSS) and computerized provider order entry (CPOE) modules of advanced HIT systems, some types of care most commonly provided by nurses can readily shift to personnel with less training or to the patient and their families. Similarly, many types of care previously provided by physicians and other highly trained personnel can be effectively provided by advanced practice and other specialty trained RNs. Furthermore, the performance of these fundamentally restructured teams will be monitored through the use of biometric, psychometric, and other types of process and outcomes "e-indicators" extracted from the HIT infrastructure.

Change in Time and Place of Care

Care supported by interoperable digital networks will shift in the importance of time and place. The patient/consumer will need not always be in the same location as the provider and the provider need not always interact with the patient in real time. As EHRs, CPOE systems, labs results, imaging systems, and pharmacies are all linked into the same network, many types of care can be provided without regard to location, as the "care grid" is available anywhere, anytime.

Remote patient monitoring is expanding exponentially. There is an ever growing array of biometric devices (e.g., indwelling heart or blood sugar monitors) that can collect, monitor and report information from the patient in real time, either in an institution or the home. Some of these devices can also provide direct digitally mediated care—the automated insulin pump and implantable defibrillators are two extreme examples.

The implications of this for nursing will be considerable and as of yet not fully understood (Abbott and Coenen, 2008). It is not clear how much of nursing care might be "geographically untethered" when HIT is fully implemented but it will likely be a significant subset of care, possibly in the range of 15–35 percent of what nurses do today. In words, for this proportion of care, nurses need not be in the same locale (or even the same nation) as their patients. As new

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technologies impact the hospital and other settings for nursing services this phenomenon may increase.

Efficiency and Outcomes

HIT adoption is expected to increase efficiency and effectiveness of clinician interactions with each patient and the target population. EHRs and other HIT should lower the cost per unit of service delivered and/or improve the quality of care as measured by outcomes or achievement of other end points, such as increased adherence to optimal guidelines. HIT will lead to greater efficiency if it takes less time for a clinician to provide the same unit of service or if a lower-cost clinician now practicing with extensive HIT support can now deliver the same type of care as a higher cost non-HIT supported provider. Controlled "time and motion" studies that have compared clinicians doing the same task with and without HIT support have produced mixed findings on time efficiencies gained across clinicians and settings. One area with emerging evidence is hospital nursing time saved in documentation, with studies showing a 23–24 percent reduction in documentation time (Poissant et al., 2005). These efficiency gains may be partially offset by the information demands of quality improvement initiatives and similar programs undertaken by a growing number of institutions (DesRoches et al., 2008).

CHALLENGES AND RECOMMENDATIONS

The composition and distribution of the current RN workforce is diverging increasingly from workforce need to support the implementation of health reform and related initiatives. Reversing a 15-year trend, a growing number of RNs are employed in hospital settings—62 percent of employed RNs in 2008 (U.S. Department of Health and Human Services, 2010) compared with 56 percent in 2004 (U.S. Department of Health and Human Services, 2006). Higher salaries in the acute care sector appear to have drawn RNs to hospitals from other health care settings as well as re-entrants into the workforce. Furthermore, only 10–12 percent of RNs work in ambulatory care settings—settings where much of the system innovation is targeted yet where the evidence base for effective clinical nursing practice is under-developed. Moreover, current payment policy and employer behavior have produced a nursing practice model (i.e., staffing composition and scope of practice) that is largely setting-defined rather than patient-centered, so coordination of care and managing transitions across settings has not developed as an integral part of nursing care. The recent Carnegie Foundation report on the future of nursing education (Benner et al., 2009) noted that few schools nationwide have clinical curricula that allow students to follow patients and families across time and institutional settings; consequently students clinical experiences focus on acute in-patient care and episodic care in the health care settings. Finally the RN workforce is reported to be in the grips of a decade-long nursing supply shortage that is poised to worsen with the impending exodus of a substantial number of retiring baby-boomers. Looming large among these retirees are nursing faculty whose departure will impede the replenishment of the depleted RN ranks.

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Historically, the U.S. health care system has been able to absorb the entire available supply of RNs. The wide geographic availability of nurses, their deep and nimble skill set, and lower wages relative to physicians and other health care professionals have contributed to their employment in every setting where health care services are delivered. Between 2001 and 2008, total RN FTEs rose roughly 25 percent (Buerhaus et al., 2009) while the general population grew only 7 percent, continuing a decades-long pattern of rising RN to population ratios (Figure F-1). The behavior of health care institutions—the main employers of nurses—influenced by government and health plan reimbursement policies, appear to be the main driver of RN demand, a demand that appears to be all but inexhaustible. The education sector has responded to that demand, producing nurses well-prepared to deliver acute care services largely in acute care settings, with a shallow skill set and thin distribution in other areas such as ambulatory care, home-based and community-based care, and geriatrics and long-term care services.

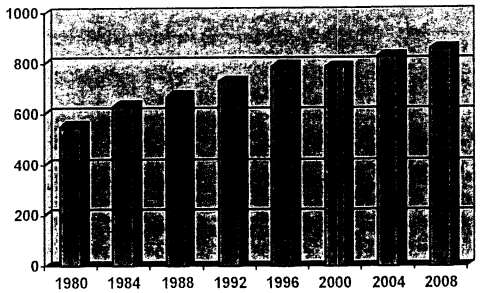

FIGURE F-1 RN-to-population ratio, 1980–2008.
SOURCES: HRSA, 1982, 1986, 1990, 1994, 2002, 2006, 2010.

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If the demand for RNs changes in response to the system changes and incentives embodied in the health reform legislation and related initiatives, what will it take for the RN workforce respond in kind, and what are the implications for workforce planning? Viewing the future RN workforce through the lens of health reform would significantly re-characterize the supply shortage and thus re-direct policy actions to build, skill, and distribute an RN workforce that can meet the demands of a reformed health care delivery system (Bovbjerg et al., 2009).

Increasing the presence of RNs in settings and positions that will assist the development of care management initiatives will require preparing RNs to direct team-based care management strategies and transitional care from ambulatory care practices, and re-assessing the need for a growing share of the nurses to fill staffing vacancies in hospitals. Hospital vacancy rates derive from staffing levels that vary significantly across regions (Figure F-2), and across hospitals within regions, and are largely determined locally based on an estimate of the number of nurses needed to meet some pre-determined ideal threshold (Goldfarb et al., 2008). Grumbach and colleagues (2001) remark on the absence of widely accepted standard for what constitutes adequate RN staffing levels in hospitals. A review of the evidence on the outcomes of RN staffing levels in hospitals does not produce a staffing rate or configuration that consistently yields positive outcomes, in spite of substantial cross-sectional associations between the number of RNs and hospital patient outcomes (Kane et al., 2007; Lankshear et al., 2005). Nonetheless, vacancy rates—which are widely accepted as evidence of supply shortages of RNs—continue to be used in workforce planning efforts to estimate the shortfall in hospital RNs and drive policy action and educational system responses that support the diversion of RNs to hospitals and setting-specific models of nursing practice.

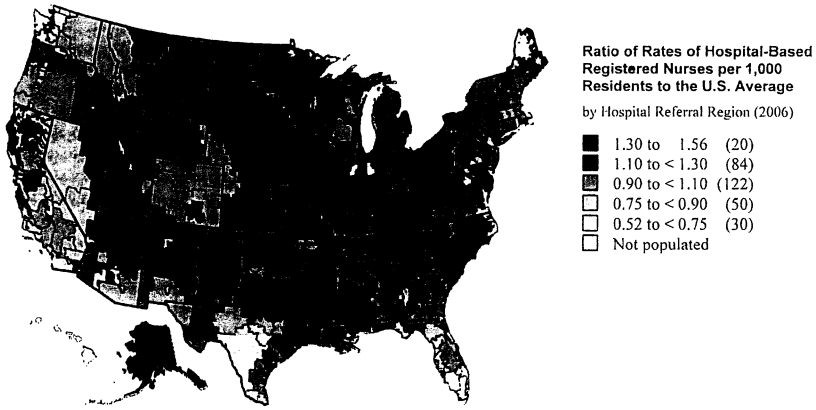

FIGURE F-2 Geographic variation in rates of hospital-based RNs per 1,000 population (2006).
SOURCE: Goodman et al., 2009. Reprinted with permission from the Dartmouth Atlas Project, 2009. Copyright 2009 by the Trustees of Dartmouth College.

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Growing RN primary care capacity in response to the anticipated rise in demand for care from increased coverage will require overcoming significant hurdles in the preparation and deploying of RNs to the full array of ambulatory care settings. Re-tooling nursing education and revamping working conditions and salaries in ambulatory care will be needed to stem the flow of nurses to hospitals, both RN as well as advanced practice nurses. The growing evidence of the influence of prolonged hours of interns and residents on medical errors and adverse events has led to the introduction of regulations limiting their hours. This "shortfall" in medical resident hours has stimulated a demand for, and a gradual migration of, NPs to acute care settings. And while the shortage of primary care capacity would be expected to engender greater demand for all primary care providers including NPs, barriers to practice interfere with their full employment in ambulatory care. Even in states where state practice acts allow NPs to practice fully and independently, the demand for NPs has been constrained by health plan practices (e.g., failure to be credentialed as primary care providers) and reimbursement policies.

Getting the RN workforce required to support health care delivery reform will require a wholesale paradigm shift in the framework and context used to prepare and deploy the RN workforce and to forecast future requirements. This shift will be predicated on the degree to which the implementation of the health reform legislation "recalibrates" the demand for RNs. Payment reform that rewards effective coordination of care over inefficient use of acute inpatient services will demand RNs with skills in care management particularly for the complexly chronically ill, transitional care and community-based services. Payment reform that promotes the creation of medical homes will demand the production of RNs who can provide and direct interdisciplinary teams in the provision of primary care services. Accountable care organizations that are responsible for the full range of health needs of defined populations will demand RNs whose skills span from primary care to end-of-life care and who practice follows the patient and family/caregivers across the full range of settings including the home. And all of these innovations will require fully integrated, interoperable HIT that will support health care teams in ways that are likely affect the effective use of all of their members.

The challenges to achieving this RN workforce in the future are grouped in three general categories. The first challenge lies in the health care marketplace. Currently nurses are hired by employers to fill vacant positions rather than to provide specific skills, perpetuating an employment pattern that is insensitive to different and potentially more efficient skill mix configurations. The healthcare marketplace, and payers in particular, have not offered sufficient incentives for health care employers to demand a nursing workforce that aligns the skills of RNs more effectively with needs of patients and the health care system. There are few integrated delivery systems or ACO-type entities that are responsible for, and explicitly rewarded for, their overall performance across the settings that comprise their system of care rather than a single setting. In the main, financial performance is captured and rewarded at the level of the individual setting (e.g., hospitals) and not at the system level (e.g., ACO), so the behavior of each setting is independent and driven by its own goals. Consequently, hospitals lack the financial incentive to hire and deploy RNs to provide transitional care if the outcome is reduced income in the form of reduced admissions. ACO-type organizations lack the incentive to employ RNs to provide care coordination and team management services if these entities are not rewarded for improved financial performance and quality outcomes that these services produce.

The second challenge lies in the educational sector. As currently designed primary nursing education prepares nurses to function in discrete settings rather than across settings (Benner et al., 2009) and as individual clinical providers rather than team members. Team-based care and

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care coordination are not meaningfully integrated in primary nursing educational pedagogies. Reorienting nursing education to incorporate these themes will require significant redesign of both classroom and clinical education. Furthermore, primary nursing education is still largely focused on the acute care setting. Preparing RNs, in addition to advanced practice clinicians, to practice in ambulatory care settings where the demand for care is clearly growing will require a substantial shift in classroom education but even a greater shift in the clinical practica for students. Finally, the scope and breadth of nursing education needed to meet the needs of reformed health care delivery will require assessment of whether the current educational modality—where the majority of nurses complete their primary nursing education in associate degree programs—produces the right mix of RNs and skills needed to enact these reforms. Without a change in demand, however, the educational system will continue to produce the RN supply—the numbers and skill composition—that it has in the past.

Finally, workforce planning and forecasting will likewise require a comparable paradigm shift. Forecasting models based on current RN demand will not produce useful estimates to guide future policy, i.e., the capacity of the RN workforce to meet the needs of future models of health care services. The current RN workforce is deficient in a number of dimensions to support health reform. Specifically, there is a shortage of RNs deployed to ambulatory care settings and a shortage of advanced practice nurses delivering primary care services. There is a shortage of RNs trained and working as care managers directing and delivering care coordination for patients in acute and post-acute care systems. There is a shortage of RNs with sufficient training and experience in the full array of clinical practice and team management skills that reorganized care delivery models will require. Estimating *these* shortages, and developing the pathway to resolving them argues for a wholesale new approach to assessing future nursing requirements and preparing and allocating nursing resources to meet those requirements. Moreover, without a national, integrated approach to workforce planning, one that includes and obligates the critical stakeholders to the goals of an evidence-based and effectively-deployed health care workforce, forecasting efforts will produce estimates that cannot guide future workforce planning. In the absence of interdisciplinary collaboration, health care education and the supply forecasts it feeds will proceed as a decentralized, professionally-governed activity that produces estimates of health care workforce requirements that meet individual professional goals that may not serve the nation's need for an effectively prepared and deployed workforce.

Further challenging these efforts will be incorporating the effects of fully integrated health information support, which available evidence suggests will significantly influence the skill mix needed to deliver health care services. HIT will be a key factor affecting the practice of nursing and medicine over the next generation, and its impact on nursing practice and workforce requirements is still very poorly understood. In the future, a more complex calculus will be needed to assess the overall change in efficiency or cost vs. benefit of HIT systems. It will be necessary to provide controlled evidence showing the impact of an entire well calibrated HIT supported system within an ACO or other integrated delivery systems. Rather than a single end-point (like RN time spent charting) a full market basket of patient outcomes will need to be included as the end point in this equation. And this assessment would also need to account for the fact that the ACO will likely be able to adjust the skill-mix of its HIT-supported workforce in order to deliver the same or higher level of care quality more efficiently. For example, this could be accomplished by substituting a higher percentage of lower salaried professionals who can extend their scope of practice with guidance from computerized clinical support systems.

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Recommendations

Recommendation 1: The U.S. Department of Health and Human Services should spearhead an inter-agency innovations research collaborative with responsibility to test new models for organizing health care services and determine the workforce features critical to achieving desired cost and quality outcomes.

For too long health services research and health workforce studies have not been effectively integrated. Studies testing various models for redesigning health care service delivery have focused primarily on the outcomes achieved by delivery system innovations in contrast to usual care but have not included an explicit assessment of the relative contributions of different configurations and skill sets of health care clinicians to the outcomes achieved. Health care workforce research has largely adopted a human capital approach—i.e., studies assessing supply and demand for various health care clinicians and factors contributing to recruitment and retention of health care workers—with little time spent on assessing the optimal mix of clinicians and skills to achieve cost and quality outcomes. By failing to integrate these two analytic areas, we produce a health care workforce that is poorly positioned to efficiently and effectively enact delivery system reforms that stand to improve system performance and costs. Demonstration projects that assess the effects of service delivery innovations and encourage a range of skill mix models as well as role differentiation (i.e., who performs which tasks) will grow the evidence base that is sorely needed to inform both health system redesign and workforce planning. Only a concerted and cumulative effort will produce the evidence needed to guide payment policy changes that support delivery system and workforce reforms.

The U.S. Department of Health and Human Services should establish a government-wide inter-agency innovations research collaborative comprising all agencies/departments engaged in health care service delivery and research, with the goal of testing new models to organize and pay for health care services and determining the workforce features critical to achieving desired cost and quality outcomes from these new models. The Quality Interagency Coordination Task Force (QuIC), established in 1998 harness the federal government's efforts in health care quality improvement, offers a prototype for such an initiative (AHRQ, 2001). The purpose of the QuIC was "to ensure that all Federal agencies involved in purchasing, providing, studying, or regulating health care services worked in a coordinated manner toward the common goal of improving quality care." Our proposed innovations research collaborative would span such agencies as the Veterans Health Administration, the Department of Defense, the Agency for Healthcare Research and Quality, the National Institutes of Health, and CMS. The new Center for Medicare and Medicaid Innovation that will be established as part of health reform implementation (The Commonwealth Fund, 2010) would be an integral participant. Dedicated funding from each agency would be set aside to build the pool of funds available to undertake the concerted body of research needed and increase the target populations and workforce configurations studied to further our understanding of how to most effectively structure these innovations. Private sector partnerships would be encouraged, especially with the payer community, since an appropriately-aligned payment policy is the linchpin to adopting new models of care by providers and demanding the workforce needed to enact them. Additional partnerships with organizations engaged in quality and outcomes measurement, such as the National Quality Forum, should likewise be pursued. An independent advisory board should be

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empanelled to develop recommendations on the innovations research agenda to be pursued by the collaborative.

In addition to determining the skill mix configuration that produces optimal cost and quality outcomes, a full assessment of the methods and processes by which those configurations are achieved will be needed. This assessment would explicate the range of policy and strategic initiatives that could be pursued to promote such configurations. Such skill mix changes have been of great interest to the UK National Health Services (NHS), who sponsored a systematic review of the literature on the shifting roles of health care providers (Sibbald et al., 2004). In that review, which focused to a considerable degree on nursing, the authors offered a framework that captured the range of processes through which changes in the roles, and thus the skill mix, of health care providers occur (Box F-2). The authors further note certain administrative or policy changes, largely at the interface between settings, that could likewise lead to shifts in roles and skill mix of providers (Box F-2). Dubois and Singh (2009) note that achieving optimal "skill mix" options requires taking a much more dynamic approach to workforce utilization by exploring the full range of skill flexibility and skill development that could lead to newly configured roles and more effectively deployed staff. This process would involve identifying and confronting any institutional and regulatory barriers to achieving the staff configurations needed to meet the cost and quality outcomes of these delivery system innovations.

BOX F-2
Processes and Policy Initiatives Producing Health Care Workforce Skill Mix Changes

Processes producing role changes that influence skill mix:

- *Enhancement*—Current role of provider is extended
- *Substitution*—Provider's role expanded by exchanging tasks with another type of provider
- *Delegation*—Tasks are moved up or down a "traditional" disciplinary ladder
- *Innovation*—New domain of practice is created by introducing a new type of provider with a previously untapped scope of practice

Policy initiatives producing shifts in roles and skill mix:

- *Transfer*—Services previously provided in one setting (e.g., hospital) are now provided in another setting (e.g., ambulatory care) by a different set of providers
- *Relocation*—Changing the setting of service but not the providers (e.g., transitional care nurses providing transitional care services in the hospital and the patient's home)
- *Liaison*—Providers in one setting (e.g., mental health) collaborate with those in another setting (e.g., primary care) to shift clinical roles to that setting

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Recommendation 2: The Health Resources and Services Administration of the U.S. Department of Health and Human Services should (a) create a multi-stakeholder National Workforce Advisory Group responsible for developing options for integrated, skill-based workforce requirements models, and (b) collaborate with the Agency for Healthcare Research and Quality (AHRQ) to provide funding to support the development of analytic approaches to assess skills shortages rather than personnel shortages and for articulating optimal skill-mix configurations to address those skills shortages.

Over the years the federal government has invested considerable resources in analytic efforts to estimate the future supply of and demand for doctors, nurses, and a range of allied health workers. Together the estimates from these activities have been used to estimate the shortfall or surplus in these health occupations. These efforts are flawed in several significant ways that affect their utility for future workforce planning. As discussed earlier the demand-based models are founded on current patterns of demand which we have shown for nurses to poorly conform to evidence-based models for effective nursing use. The supply-based models derive from current patterns of producing nurses that are influenced in part by current demand and by current patterns of education that are not well aligned with the future RN workforce requirements to support delivery system redesign. Finally, these models do not take into account the overlap in the skills and abilities of RNs and other health occupations, e.g., doctors, as well as other nursing personnel categories.

In its 2008 report, "Out of Order, Out of Time," the Association for Academic Health Centers (2008) calls for the creation of a national health workforce planning body to provide a coordinated approach to health workforce planning that offers an integrated national strategic vision rather than decentralized multi-stakeholder decision-making. This idea is echoed in provisions in the health reform legislation calling for the creation of a National Health Care Workforce Commission. Our proposed recommendation would support and augment the work of this Commission in two ways: (1) by creating an Advisory Group responsible for developing a range of options for building integrated skill-based workforce requirements models, and (2) by providing funding through AHRQ to explore ways to assess and compare the outcomes of health care services offered under a range of skill-mix configurations derived from these integrated requirements models.. These strategies would be founded on a comprehensive review of the literature and related resources illuminating the full range of workforce configurations employed in the delivery of health care services and, where available, associated outcomes..

The reorganization of health care service delivery that will accompany many of the innovations included in health reform has potentially profound implications for RNs, whose broad scope of practice places them at the cross-section of virtually all health care settings. Redefining roles and responsibilities of health team members that such innovations will entail could significantly affect the skill mix of the team and of nursing in particular. For example, HIT or other technological innovations may allow health care workers with less training to move into expanded roles with efficiency gains while maintaining quality, e.g., lab techs rather than nurses recording and monitoring biological responses to treatment changes; simultaneously these innovations may lead to improved care by moving clinicians into previously unmet clinical arenas, e.g., moving RNs into providing care management. In both instances these role redefinitions—lab techs moving into clinical lab monitoring from which nurses exit as they

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assume new roles in care management—change the roles and skills mix of health team members in significant ways.

This recommendation provides strategies to develop and evaluate a broad range of workforce configurations and assess their implications for health care workforce planning. Moreover, by shifting the focus from personnel shortages to skill shortage we invite a wider and more diverse array of policy options to meet the care delivery needs of the public with more effective skill mix configurations.

Recommendation 3: Nursing education must become a full partner of health care system redesign through meaningful participation in redesign initiatives, and revamping its educational enterprise to meet the needs of redesigned service delivery.

Health care services redesign and the nursing education enterprise are not well aligned, as noted in highlights from the recent Carnegie Foundation study on nursing education: "A major finding from the study is that today's nurses are undereducated for the demands of practice. Previous researchers worried about the education-practice gap; that is, the ability of practice settings to adopt and reflect what was being taught in academic institutions. Now, according to the authors, the tables are turned: nurse administrators worry about the practice-education gap, as it becomes harder for nursing education to keep pace with the rapid changes driven by research and new technologies." (Carnegie Foundation for the Advancement of Teaching, 2009).

Delivery system redesign initiatives included in health reform depend upon a set of skills and experiences that nursing education has yet to incorporate demonstrably into its pedagogy. Primary nursing education is still largely located in the acute care domain, with students mastering the care of the acute manifestations of chronic disease rather than care management of complex chronic illness. Care coordination and management are not integral to the classroom and clinical activities of nursing students, and yet it is a role that nurses can and have ably assumed in delivery settings where such skills will be increasingly demanded. Transitional care, which the evidence to date shows is a critical feature in preventing hospital readmissions and other adverse events, lies directly in the scope of nursing practice. Yet clinical education does not afford the opportunity to follow patients across health care settings. Thus transitional care, as well as all other cross-setting models of care, are infrequently practiced and thus even less frequently taught. Despite its increasing recognition as the foundation for effective care into the future, team-based care and multi-disciplinary care management remain if anything the province of classroom instruction and rarely connected to the practice setting. Primary care and community-based approaches to care represent a minority share of the nursing curriculum even as the demand for these services is predicted to grow. The consequence is the production of succeeding generations of nurses that are not well-positioned—in numbers and skills—to meet the needs of a redesigned delivery system.

Meaningful collaboration between nursing education and health care delivery redesign will encourage the alignment in their goals, which is critical to their joint success. Opportunities to advance such collaboration, and mechanisms for its support, should be actively sought. For example, Medicare-funded pilot studies and demonstration programs testing programs that rely on nursing-led interventions, such as ACOs or transitional care, should include representatives from nursing education—its leadership as well as key stakeholders, such as the regulatory bodies that determine the terms and scope of nursing education and practice—in activities associated

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with the design, review, implementation, evaluation, and dissemination of these initiatives. In similar form, health professions schools testing models of inter-professional education and other models of team-based care education should include representatives from the clinical directors of medicine and nursing in health systems and other key stakeholders from the clinical practice communities.

In reciprocal fashion, this collaboration should inform nursing education as to where gaps exist in educational offerings and skills development to meet the needs of a redesigned delivery system. Closing the gaps will involve thoughtful appraisal of where and how to integrate these new areas of knowledge and clinical experiences into the current curricular offerings. Faculty expertise will need to be developed in a number of these care models. The premium on clinical placements will require consideration of how simulation learning environments may augment current clinical experiences. HRSA should empanel a Technical Advisory Group whose purpose would be to make recommendations on the role and opportunities for relevant agencies within the federal government to support the development of new programmatic and curricular offerings to build this needed skill set, including a full review of the grants and initiatives within Title VIII and other sources of federal funding for nursing education. The report from the Technical Advisory Group should include a discussion of the role of other critical stakeholders, e.g., state regulatory bodies, health care private foundations, professional associations , etc., in better aligning health professions education with the unfolding reforms from health care reform and related initiatives.

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The Future of Nursing: Leading Change, Advancing Health
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G
Transformational Models of Nursing Across Different Care Settings[1]

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Introduction

From the time of Florence Nightingale when nursing introduced public health and hygiene principals to the care of wounded soldiers, to the twentieth century establishment of advance practice nurses, nursing has been at the forefront of health care transformation. We are now challenged as the health care needs of the population change from an acute and infectious disease focus to that of an aging population with chronic disease. The cost of health care is rising and the number of people who are poorly served by our health care system is increasing.

Along with the change in the health care landscape we are facing a nursing workforce shortage and a nursing leadership shortage. By the year 2025, it is estimated that we will have a shortfall of between 300,000 and a million nurses. Four out of every ten nurses will be over the age of fifty (Buerhaus, 2008). Moreover, by 2020, 75 percent of the current nurse leaders will have left the nursing workforce (Hodes, 2009).

The following briefs represent the creative and innovative thinking of nurse leaders to address our current and future challenges. They were prepared for the Robert Wood Johnson Foundation Initiative on the Future of Nursing Institute of Medicine Committee, by fellows of the *Robert Wood Johnson Foundation Executive Nurse Fellows* program. This is an advanced leadership program for nurses in senior executive roles in health services, public health and nursing education who aspire to help lead and shape the U.S. health care system. The program is designed to give nursing and nurses a more influential role across many sectors of the economy. Fellows in this program represent the expertise and leadership of today and the leadership of the future. These briefs include background on the needs, evidence-based innovations and most important, recommendations for healthcare in 21st century.

The briefs include the following areas in health care and health care education:

- Transformational Partnerships in Nursing Education
- Innovative Nursing Education Curriculum
- Acute Care

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- Chronic Care
- Palliative and End-of-Life Care
- Community Health
- School Health

COMMON THEMES

A number of common themes emerge from the briefs. In order to meet the challenges of the future we must embrace technology, foster partnerships, encourage collaboration across disciplines and settings, ensure continuity of care and promote nurse-lead/nurse managed health care.

- **Technology.** Advances in technology open a new world in the provision of health care. The use of technology includes electronic health records, tele-health, remote monitoring, education through simulation and a host of as yet undiscovered innovations.
- **Partnerships and Collaboration.** The importance of partnering and collaborating extends beyond interdisciplinary care at the bedside to nursing education-community partnerships, community and business partnerships and public and private partnerships.
- **Continuity of Care Across Settings.** Our current "siloed" system leaves significant gaps in care. Smooth transition of patients from setting to setting is especially needed with the elderly and chronically ill populations.
- **Nurse-lead and Nurse Managed Health Care.** From the developing model of primary care community based programs to retail-based nurse practitioner clinics, nurses are filling in the primary care gap.

RECOMMENDATIONS

Each brief includes an important set of recommendations specific to the area addressed. However, a number of universal recommendations emerge that direct the future of nursing and health care.

- **Education.** The current nursing education model is not adequate to meet the needs of the future. Education must develop new partnerships with the community, business and healthcare institutions. More emphasis and resources must be directed to preparing master's and PhD level nurses.
- **Public Policy.** Solid funding sources are needed to support nurse practitioners, nurse managed community health programs and nursing education. Funding must cross settings from acute care to home and community based care. Nurses must be included on local, state and national health care advisory and policy committees.
- **Care Models.** We must continue to develop innovative care models based on current successes such as the acute care agile self-directed nursing teams, the rural healthy aging community model and school-based and community-based nurse managed clinics. These models should cross disciplines, foster collaboration and partner with communities, business and other organizations.

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The future of health care rests solidly with the strength nursing brings in holistic care, ability to collaborate and innovate from the bedside to the community and the ability to adapt to the changing environment. In order to make this happen nursing must adapt education and curriculum to the new century, promote higher education, advocate for innovative models of care and advocate for the health care and education policy to support those innovations.

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Transformational Partnerships in Nursing Education

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INTRODUCTION

Although the nursing care environment has changed significantly over the past 30 years, little has changed in the educational methods used to prepare new nurses. Since the 1930s, most clinical education in nursing has been structured with a faculty member supervising a small group of students on one or more in-patient units. Students usually move to new settings for each clinical rotation. This traditional model is heavily dependent on nursing faculty and often requires students to wait for direct faculty supervision. Students often are "strangers" to the registered nurses providing patient care in these settings. This arrangement can compromise the cohesiveness of the nursing team and limit opportunities for building professional relationships between students, registered nurses and other members of the health care team. Developing a more structured and cohesive partnership between the registered nurse and the student, both of whom are providing care to the same patients, has the potential to revitalize clinical education in nursing.

BACKGROUND

Since Buerhaus (2000) first documented the nursing shortage facing the United States, educational institutions have been challenged to increase capacity. The most commonly cited reasons for lack of nursing school capacity are a shortage of nursing faculty and availability of clinical sites (AACN, 2008). Over the last decade new partnership models have developed to finance the creation and expansion of nursing programs, create access to nursing education at all levels, expand and support faculty members, and increase capacity to- and experiences at-clinical sites for students.

As early as 1993, the Robert Wood Johnson Foundation provided stimulus grants through Colleagues in Caring, a grass-roots, state by state initiative to bring together healthcare administrators, academics, state regulators, and legislators. This early dialogue prompted states and health care providers to broaden financial support for colleges of nursing, develop joint

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simulation training centers, and create new approaches to placing nursing students in clinical settings. The initial support from a major philanthropic organization evolved into centers for nursing workforce expansion in a number of states. The number of graduates has increased, but is still not sufficient for future workforce needs (Buerhaus et al., 2009). New models for accelerated doctoral programs are key to producing more nursing faculty and innovative partnerships are imperative the success of these programs.

Pre-licensure nursing education is a costly endeavor. While healthcare organizations have contributed to existing schools, others have acquired nursing schools as part of broader hospital acquisitions. Feeling the pressure of nursing shortages as they plan future organizational growth, large health systems have forged partnerships with private universities to open additional schools of nursing. Institutions such as DeVry, Kaplan, the University of Phoenix, and Western Governors University have business models that can respond to market needs with rapid expansion. The International University of Nursing in St. Kitts, West Indies is the first off-shore US-based college of nursing. This sector can be expected to grow, especially as states and local communities respond to budget shortfalls in a downturn economy.

INNOVATIONS

Across the nation, innovative academic-service partnerships are re-envisioning the role of the registered nurse as clinical teacher and facilitating 1:1 relationships between nurses and students over extended periods of time (Allen et al., 2007; Joynt and Kimball, 2008; Moscato et al., 2007). In these partnerships, students, faculty, and staff report that students have less unproductive time spent waiting for clinical supervision and better socialization to the professional nursing role (Udlis, 2008). When clinical education is structured to facilitate relationships between students and nursing staff, the faculty role changes as well and includes more involvement with the professional development of nurses as preceptors, coaches, and clinical teachers. Most importantly, students and faculty are not viewed as visitors in the clinical setting, but rather as integral members of the nursing team, committed to building cultures of quality and safety (MacIntyre et al., 2009). Many hospitals are requiring faculty to participate in internal continuing education and competency validation. Innovative partnerships are re-engineering the faculty role to take advantage of what graduate prepared faculty can bring to the clinical setting.

The National Council of State Boards of Nursing (2008) reports a wide variation in clinical hours between schools of nursing. There is no evidence linking any specific number of hours to improved student outcomes. A change in focus from hours to demonstrated competencies, whether in simulation labs or clinical settings, would make more optimal use of the clinical sites available for student experiences and help make education available to more students. Program evaluation studies that document the relative worth of breadth verses depth in the clinical experience will help academic-service partnerships move from traditional to evidence-based approaches.

Universities and community colleges are increasing their efforts to adopt state-wide curriculum models, allowing for seamless transition between programs. These partnerships between associate and baccalaureate nursing programs create more efficient and effective educational advancement pathways for students. Recognizing the link between improved patient outcomes and baccalaureate nursing education (Aiken et al., 2003, Heller et al., 2000) and the need to build efficiencies in nursing educational programs, the state nursing schools in Oregon

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(http://ocne.org) and Hawaii (www.nursing.hawaii.edu) created Statewide Nursing Consortiums Curriculums that provide a seamless transition to a baccalaureate in nursing for nurses with associate degrees in one additional year of full-time study. These programs are creating reusable learning objects (i.e., case studies, simulation scenarios, concept-based clinical learning activities) that are immediate, portable, accessible, and ready for on-demand education, suitable for a technology savvy student population. Initial outcomes from these programs are promising include an increase in the student's national nursing certification rates and positive student learning outcomes (Tanner, 2009).

Innovations in interdisciplinary education on college campuses include new health care models that are designed to produce collaborative learning among students in nursing, management, journalism and communication, and architecture programs (Melnyk and Davidson, 2009). These non-traditional academic partnerships bring a variety of perspectives and expertise together that could define the future of education, health, and health care. The dramatic expansion of second-degree programs in nursing is producing a more liberally educated nursing workforce that should facilitate interdisciplinary competence in practice settings.

Partnerships between states are also transforming nursing education by creating access to educational opportunities across state lines. These inter-state collaborations between educational institutions are offering joint programs that increase access to all levels of nursing education in rural and underserved areas in the United States through course sharing and collaborative program development across educational institutions (i.e., the joint Neonatal Nurse Practitioner program at University of California San Francisco and University of Hawaii and The Nursing Educational Xchange). Although these opportunities are emerging, there is still work to be accomplished on a national level to further support inter-state partnership in nursing education. National nursing licensure at both the RN and Advanced Practice levels would allow the state boards of nursing to focus more on consumer protection in their state rather than the regulatory issues of granting state licenses.

RECOMMENDATIONS

Cultivating partnerships will provide many avenues for building capacity in innovative ways for nursing education. Ten recommendations for the future of nursing education are:

- Create non-traditional partnerships within and outside of educational institutions;
- Explore opportunities for the creation and expansion of nursing programs through private partnerships and health care institutions;
- Develop, implement, and evaluate innovative academic-practice partnerships between nursing programs and acute care, primary care, long-term care, community, and public health settings;
- Move from a time-based model of clinical nursing education to a competency based model, and evaluate the evidence to support this type of learning in nursing education;
- Support the implementation and evaluation of state wide curriculum models between universities and community college systems;
- Expand interdisciplinary educational opportunities and programs;
- Champion inter-state partnerships to increase access to educational opportunities;
- Support research for evidenced based educational practices that challenge existing norms;

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- Build stronger relationships between nursing students and registered nurses providing patient care; and
- Address policy issues that create barriers to the above recommendations.

Innovative partnerships between nursing education and nursing practice are essential if the nursing profession is to meet the challenges ahead. The dissemination of successful innovative models in nursing education requires evidence as well as creative and adaptive partnerships that are developed, nurtured, and evaluated.

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Innovative Nursing Educational Curriculum for the 21st Century

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INTRODUCTION

The changing landscape of healthcare in America requires that clinicians be skilled in responding to varying patient expectations and values; provide ongoing patient management; deliver and coordinate care across teams, setting, and time frames; and support patients' endeavors to change behavior and lifestyle—education which is in short supply in today's academic and clinical settings (Institute of Medicine, 2003). Nursing education needs to innovate at the micro and macro system level for the 21st century. It cannot be business as usual.

In order to truly transform care, practice and education will need to partner on curriculum development and the professional socialization of the new nurse.

BACKGROUND

Innovation in academic settings, specifically colleges of nursing is often hindered by the pressure to meet educational and regulatory requirements established by national organizations, accrediting agencies, and the state boards of nursing that govern and set standards for nursing practice at both the baccalaureate and graduate levels (Melnyk and Davidson, 2009). These regulations should not be barriers to innovation. Time-honored traditions in nursing education such as the current undergraduate clinical instruction model, a disease and illness-oriented curriculum, and the need for extensive clinical practice before matriculating in doctoral programs should be re-examined. There is a need to embrace technology-infused education, trans-disciplinary approaches to care, and translational research. Students need to learn how to effectively assess and manage some of the most significant health problems currently confronting our society (e.g. mental health disorders, obesity, patient safety) and how to innovate changes in our health care system (Melnyk et al., 2009). Furthermore, a very uncomfortable, difficult question needs to be asked "What should be the most appropriate degree for entry into nursing practice?" Given the complexity and wide-range of knowledge and competencies that will be required of nurses in the 21st century, it is strongly recommended that nurses be prepared at the baccalaureate level for entry into practice. Moreover, the entry into practice debate needs to be resolved in the 21st century (Benner et al., 2010).

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INNOVATIONS: TECHNOLOGY-INFUSED EDUCATION, TRANS-DISCIPLINARY APPROACHES TO CARE AND TRANSLATIONAL RESEARCH

Simulation is one very effective tool that exposes students to the complexity of clinical settings without the hazards of real life (Ironside et al., 2009). Future nursing curricula need to develop interdisciplinary simulation scenarios focusing on collaboration and crucial conversations so that students can learn how to deal with ineffective professional relationships and unsafe practice in a controlled environment (AACN, 2005). Trans-disciplinary or Inter-professional models of simulation and debriefing can examine and dissect failed communication in health profession's education and result in a series of recommendations to improve health care environments and patient outcomes. The curriculum for the 21st century needs to provide an opportunity for future health care providers to participate in collaborative education to obtain the necessary advocacy skills to promote a safe, healthy work environment for the patients they serve. Additionally, with the rapid expansion of knowledge, the development of information appraisal and navigation skills are essential for future nurses (Melnyk et al., 2009).

Trans-disciplinary or Inter-professional models of education are at the core of new type of dedicated education unit: one that educates nurses, physicians, pharmacists, and other professionals depending on the type of patient needs addressed. Dedicated education units have previously implemented best practices utilizing the staff nurse as educator (Moscato et al., 2007). This new model of education is broader, more inclusive, and seeks to find commonalties in the cultures of both service and academe and may provide an ideal site for faculty practice as well. As a starting point, a hospital environment is chosen as an exemplar to demonstrate the feasibility of the model. Chief nursing officers would dedicate select units and develop methods to choose seasoned nurses to work in the new environments as change agents. Clinical educators in nursing and other disciplines would establish daily rounds with input from all students at varying levels based on Benner's Novice to Expert (Benner, 1984). More experienced students would mentor the novice. A model of leveled reflective learning has been described in Sweden utilizing different hospitals for different levels of learning within the context of the dedicated education unit (Lindahl et al., 2009).

Nurses, hospitalists, and other health professionals, are educated in teaching pedagogy and contribute to the education and evaluation of the students. This innovative model also facilitates a better understanding of what each discipline contributes to the overall plan of health improvement. Students are exposed to multiple faculty members who share responsibility for students and students become a member of the team (Budgen and Gamroth, 2007). Trans-disciplinary team meetings will periodically assess the adequacy of the model, the experience of the student, and the areas for growth.

BUILDING THE SCIENCE

It has been well-documented that the nursing profession faces a serious shortage of nursing faculty, as well as a severe dearth of underrepresented minority (URM) faculty (Potempa et al., 2008; Sullivan, 2004), that has dramatic implications for, and is a threat to, the future of nursing. In order for nursing to be a truly resonating force for health in the 21st century, it is essential that we grow the science of nursing and demonstrate its effectiveness in fostering health. The case can be made that the production of masters and doctorally prepared nurses is more critical than a focus on preparation of Registered Nurses. Difficult decisions must be made.

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Which educational setting best supports the preparation of different levels of practice? Advanced Practice Nurses across the board are needed; nurse faculty, nurse leaders and nurse scientists are all in high demand.

Masters Entry into professional nursing programs has brought a needed cadre of adult learners with broad-based backgrounds into nursing that enhance the discipline. The emergence of the professional doctorate (DNP) is integral to supporting disciplinary growth. We promote a view of the practice doctorate as one not divorced from research but rather additive to the development and use of science. But this will not be enough. A solid background in science, scientific inquiry, and the scientific basis of health is essential to develop health care innovation.

RECOMMENDATIONS

The authors propose strategies to shape the future of healthcare by creating models of nursing education focused not only on curriculum changes, but also on transforming the student population, integrating the science and research in the curriculum and influencing health care policy.

Curriculum and Technology

- Create truly unique Trans-disciplinary Simulation Centers across the country where students from the health disciplines of nursing, health professions, and medicine will be exposed to the complexities of teamwork situations within the clinical setting.
- Develop curriculum well-grounded in disease prevention, health promotion, and screening, and public health. Include greater emphasis on the aging, older adult, ethics, genetics, public speaking, and writing skills (Sauderet al., 2006).
- Develop sufficient technology skills to better support increased knowledge management including point-of- care technology.
- Include a nurse educator role in all master's and doctoral programs.
- Increased emphasis on global health and knowledge development at all educational levels.
- Teach students to deal with the ambiguities of the health care environment.

Transforming the Student Population

- Increase the number of BSN accelerated and Masters Entry in Nursing programs designed for second degree students.
- Increase doctoral student enrollment especially those of URM (Kim et al., 2009). Partnership models between research intensive institutions and schools with less research are essential. Models that support early professional movement to the doctorate are essential.

Integrating Science and Research

- Focus on interpreting clinical data and managing improvement.
- Cultivate disciplinary knowledge across all levels of curricula based on an understanding of the science of the discipline and the scientific process (Potempa and Tilden, 2004).

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- Develop the role of the nurse scientist.
- Develop "scientifically aware" nurse clinicians who will collaborate with nurse scientists to move research to the bedside. Focus on "Evidence–Creating Nursing," the direct collaboration between nurse clinicians and nurse scientists.
- Re-engineer the Doctor of Nursing Practice (DNP) to include the conduct of research in the form of a practice dissertation.

Health Care Policy

- Increase support for BSN education as a minimum requirement for practice.
- Increase support for the development of advance practice nurses to meet the growing need for primary care providers identified in health care reform measures.
- Institute dedicated education units across the country that are trans-disciplinary.
- Promote a better understanding of the business and financial dimensions in nursing and health care.
- Advance Medicare or other federal support to create a Graduate Nursing Education Fund. (similar to Graduate Medical Education).
- Institute a national nursing licensure program.

SUMMARY

Nursing science can raise clinical standards, influence health policy, inform citizens, improve the health and well-being of the public and possibly transform care (Tilden and Potempa, 2003). With health reform cresting, nurses have an enormous opportunity to influence a new evolving health care system that truly improves the health of our nation. The time for innovation is now.

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Transformational Models of Nursing in Acute Care

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INTRODUCTION AND BACKGROUND

Acute care describes healthcare provided to treat a condition over a short period of time. The hospital has been the center for acute care delivery for more than a century. There are three major problems with this "brick and mortar" model of acute care:

- Hospital care is the highest cost healthcare and demand is increasing.
- Hospital care is associated with complications. Poorly designed systems result in errors that compromise patient care and safety.
- Hospital care is inadequately integrated with prevention and post-acute care systems. Care transitions between providers and settings are fragmented.

The present acute care hospital is largely dependent on the over 50 percent of registered nurses in the US who work in hospitals. The predominant hospital role of nurses is to care for human bodies and prepare patients and families to leave the hospital as soon as possible. This care delivery model is labor intensive and predicted to break down as workforce shortages escalate.

CARE TEAM OF THE FUTURE: AGILE TEAMS, PRAIRIE LAKES HEALTH CARE SYSTEM, WATERTOWN, SOUTH DAKOTA

A medical-surgical unit care delivery model referred to as "Agile Teams" replaced a "Total Patient Care" care delivery model. In the Total Patient Care model, a nurse is assigned a number of patients to care for over a shift. The nurse is often task-oriented with responsibility for medication administration, documentation, and other patient care procedures with some assistance from unlicensed personnel. Such models are often fragmented emphasizing the nurse's plan of care for the patient during the shift instead of focusing on the interdisciplinary team's plan to transition the patient to the next level or care.

In the Agile Team Model, a team of three bedside care providers is assigned to care for a cohort of ten to twelve patients. Every team has at least one experienced professional nurse but team composition varies. For example, the team may consist of three registered nurses or, two registered nurses and a licensed practical nurse or, one registered nurse and two other types of providers. This allows for flexible and productive staffing. Self-organization allows the team to determine how to best provide care for the patient cohort depending on patient needs and team capabilities.

The traditional care plan report has been eliminated in favor of a daily team planning conference to discuss patient care. The team enters data into an electronic record and between

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meetings, any team member can access the record to view or add current information about the patient.

This model has improved unit productivity and provided staffing flexibility without compromising patient care. Unit productivity improved from 10.2 hours per patient day to 7.5 hours per patient day. The hospital has adopted the philosophy of "doing less with less" as a sustainable model. The outcome is a high quality product with the least amount of waste.

FUTURE SCENARIOS

While the "Agile Care Team" model is an improvement within the current state of acute care, we need to consider a future that embraces technology and extends beyond the walls of the current hospital system. Imagine the manual care delivery system transformed into one that is managed virtually. An interdisciplinary care team is located in a control center with capability to plan, monitor and administer treatment to patients in hospitals or homes. The control center is connected to the patient at the care scene through multiple electronic data transfer interfaces. Treatment is administered through technology including robotics or by unlicensed staff directed to complete tasks through devices such as web cams, bluetooths, bar code medication verification scanners, and other information transfer devices. Complex tasks once only executed by a highly trained provider can now be completed through robotic and information systems. Errors in care are eliminated as providers in the control center focus on the treatment plan instead of distractions at the care scene such as completing tasks (including medication administration), looking for supplies, completing paperwork, managing interruptions, and moving patients. Nurse- to-patient ratios, increasing nursing time in direct care, nursing stations, and bedside change-of-shift reports between registered nurses are now obsolete. Now the professional nurse in the control center is a provider of care integration, expert surveillance, and management of imminent clinical needs such as pain management and emergency intervention.

Imagine this. The hospital of the future is not "a place" but rather a collection of inpatient and outpatient facilities ***as well as patient homes*** interconnected through a shared information technology infrastructure. Care will no longer be defined by episodic events such as a hospital stay but rather by the episode of care required across settings and providers to fully recover from an illness or manage an exacerbation of a chronic disease. Patients and their families will access a "control center" website tailored to their needs in their homes to connect to the acute care team and manage their own care. Home monitoring devices will provide data and continuous feedback about clinical status. Readmissions to the hospital due to failure of care protocols and inadequate support will be markedly reduced. Healing will occur at home.

INNOVATIVE APPROACHES TO CREATING THE FUTURE

Innovative approaches already exist that forecast this model in the future:

- "e-ICU" technology that connects rural hospital ICUs to the expertise of larger trauma hospitals;
- Bar-code medication verification systems and electronic medication administration records;
- Bedside access to medications and supplies; robotics;

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- Interdisciplinary care teams that include engineers to identify poorly designed work processes; and
- Tele-home health that monitors patients who at home.

RECOMMENDATIONS

We need to change the way we think about our traditional brick and mortar care delivery system. The emerging changes we believe will be most influential include the following:

- **Human Caring Models.** Bent and colleagues (2007) reminds us nursing is the discipline that creates the path to advance human health, dignity, and relatedness no matter what our advances in technology may be. Nursing's body of knowledge related to human caring is essential to the healthcare system and must be incorporated into the design and development of any future care delivery models. Care delivery models with virtual processes can be designed to maintain human relationships for caring and healing.
- **Hospital Workplace Transformation.** Initiatives such as Transforming Care at the Bedside and Return to Care empower front line teams to make changes to care delivery processes that are patient centered and add value. In addition, Magnet credentialing supports cultures of transformational leadership and infrastructure to support innovations and development of new care delivery models. Human factors engineering in hospital units eliminates wasteful, unsafe work-arounds and establishes reliable systems for defect-free care. These initiatives demonstrate the ability of providers to self-organize and innovate for care model transformation.
- **Interdisciplinary Care Teams.** Care delivery teams will be interdisciplinary and connect in ways to be most effective to meet patient needs. They will evolve from current models in which team members operate in organizational silos or forced matrices (e.g., committees) within organizations. Instead of nurses developing the patient's care plan for the hospital stay, interdisciplinary teams will plan the patient's transition to the next level of care. New team roles will develop to manage the transformed system. Care delivery models will be designed with interfaces to effectively coordinate services across multiple disciplines and settings. Clinical and therapeutic decision making will be collaborative.
- **Shared Information Environments.** Rich, accessible information environments will complete the transition from manual care models to e-care with human caring. Care delivery models will be designed to provide access to the information needed for clinical and therapeutic practice. Models will be designed to provide the information environment required for critical thinking and professional judgment, open access to records, and fully wired patient care settings. Documentation will become a byproduct of the care process, not its own process.

SUMMARY

Changing the way we think includes discarding our current models of work and replacing them with something altogether different. Hospital leaders need to foster cultures of innovation and build effective teams to do the work. Regulators need to help remove the barriers that now prevent such innovation and allow the system outcomes to better inform the direction and

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application of the regulatory environment. Changing the way we think requires serious culture change and transformational leadership.

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Nursing Innovations: The Future of Chronic Disease Management

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INTRODUCTION

Nurse-led initiatives are at the forefront of the management of chronic diseases—a significant health care focus of the 21st century. The Centers for Disease Control and Prevention report that the leading causes of death and disability in the United States are chronic diseases such as heart disease, cancer and diabetes. In absolute terms, more than 1.7 million people die of a chronic disease annually in this country. For 25 million people, chronic, disabling conditions cause major limitations in activity; the prolonged course of illness and disability result in extended pain and suffering and decreased quality of life for millions of Americans. The costs in human and economic terms of these diseases are incalculable; paradoxically, these diseases are also the most preventable. This Brief presents five nurse-led innovations in which chronic disease management is approached in cost-effective and practical ways, using prevention and health promotion orientations.

TRANSFORMACION PARA SALUD

The Transformacion Para Salud Program is a HRSA-funded demonstration project at the Larry Combest Community Health and Wellness Center, a nurse-managed primary care center. Advance Practice Nurses oversee four Promotores, who are certified community health workers (CHW). The CHWs apply the Transformation for Health conceptual framework based on Paulo Freire's educational philosophy and developed in the School of Nursing at the Texas Tech University Health Sciences Center (Esperat et al., 2005, 2008), to provide intensive care coordination involving home visitation and telephonic contacts. Clients and families served, who belong to health disparate groups residing in a medically underserved area, are enrolled in the chronic disease management program. Beyond primary medical issues, in applying the transformation framework, the interdisciplinary team takes into account social determinants of health in care delivery, and involves engagement of a community advisory board in the program implementation. Within the first year of implementation, improvement in both primary

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biomarkers and secondary behavioral indicators has been observed in the clients. Cost effectiveness analyses will be conducted at the end of the project period. A major challenge is to maintain sustainability of the program beyond the grant period because services are not reimbursable through third party payors at this time.

INTENSIVE PRIMARY CARE

The St. Vincent's Nurse-Managed Health Center (STV-NMHC) is operated by the University of Texas Medical Branch (UTMB) School of Nursing. The mission of STV-NMHC is to provide comprehensive, quality primary care to uninsured residents of the Galveston community. The clinic opened in the immediate aftermath of Hurricane Ike and is supported by UTMB based on the assumption that the practice can decrease hospitalizations in the patients served resulting in cost savings to the hospital. The Center operates using Intensive Primary Care, designed to serve adults with chronic health problems and based on the premise that this segment of the patient population need more "intensive" primary care interventions just as some patients in hospitals need a different level of care in intensive care units. Nurse practitioners, in partnership with nurse case managers and a highly integrated staff, assess patients holistically and address barriers to care and self care. A comprehensive Quality Improvement Program using the Chronic Care Model is in place to address all aspects of care. A new electronic health record tracks outcomes, such as clinical status, functional status, patient satisfaction, self management goals, access to care, and practice management functions such as the billable services, as well as cost effectiveness. Barriers encountered include bureaucratic issues inherent in large academic settings, as well as the need to meet state requirements of medical oversight and practice protocols. A recent change in prescriptive authority oversight has added to the paperwork burden. Changes in legislations removing oversight for nurse practitioners would significantly help STV-NMHC and similar practices.

THE NURSING MOBILE HEALTHCARE PROJECT

The University of Medicine and Dentistry of New Jersey School of Nursing (UMDNJ-SN), in a collaborative, joint partnership initiative with the Children's Health Fund, has implemented a nurse-faculty managed Mobile Healthcare Project, designed to reduce the morbidity and mortality of medically underserved patient populations in four New Jersey cities. Since March 2006, patients have been treated for both acute and chronic illnesses within the scope of practice of Advanced Practice Nurses. The Project serves as a practice site for nursing and medical faculty, and as a clinical rotation for nursing and medical students. Mobile nurse-managed centers enable the deeper penetration of this much needed service in underserved communities. This Project is one visionary approach to the Institute of Medicine's call for the improvement of quality of care through the restructuring of clinical education, with nursing in leadership roles. Outcomes are tracked using a structured process. One of the main Project outcomes is cost effectiveness, because it utilizes faculty-supervised nursing and medical students and an interdisciplinary mobile health team staff. This project is in partnership with Project's Community Advisory Board, consisting of representatives from the community-based organizations. Challenges include efforts to expand the same reimbursement mechanisms now afforded to fixed site clinics to mobile nurse-managed centers by third party payors.

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MIGRANT HEALTH SERVICE, INC. NURSE MANAGED HEALTH CENTERS

Migrant Health Services, Inc. (MHSI) is a HRSA funded voucher program whose primary goal is improving the health status of Hispanic migrant and seasonal agricultural workers (Guasasco et al., 2002; Lausch et al., 2003). In Minnesota and North Dakota, MHSI has established four seasonal satellite nurse-managed health centers (NMHC), two mobile units, as well as four year-around NMHC to meet the health and educational needs of farmworkers. Services include assessment, health promotion, disease prevention and self-management, health risk assessment, counseling, and health education (Guasasco et al., 2002). Patient outcomes have dramatically improved, such as a significant decrease in patients' hemoglobin AlCs. Another innovation was the development of Cluster Clinics, a series of nine-eleven mini-clinics, physically arranged so patients can circulate a single site for two or three hours to receive medical care, diabetes education, and counseling. An interdisciplinary diabetes team provides health care, education, and counseling according to the American Diabetes Association Clinical Practice Recommendations. The education and counseling address such issues as nutrition, diet, exercise, tobacco use, foot care, and access to recommended services and referrals (Heuer et al., 2004). Challenges include continuity and the availability of funding for this invisible, bilingual, mobile population.

CENTURA HEALTH AT HOME

Centura Health At Home (CHAH) is the largest home care organization in Colorado and is part of the Centura Health system, a not for profit, faith based health care system. CHAH instituted an interactive Telehealth Program in 2004 for congestive heart failure patients with high recidivism. Telehealth nurses monitor patients each day in real time and can perform a video visit enabling one-on-one interactions with the patient in their home, responding to real-time diagnosis specific questions. Vital signs, oxygen saturation rates, and auscultation of heart and lung sounds using NASA technology stethoscopes is collected though the patient may be up to 50 miles away. The telehealth nurse is able to intervene at the right time to address disease-related issues, and to determine if a home visit is indicated. The telehealth nurse does all of this either from the office or from their home through a secure website. With a caseload of 40 patients, the telehealth nurse can monitor and do video visits on 12 patients a day as opposed to a home care nurse who averages five patients a day with a case load of 20 patients. Telehealth allows the nurse to intervene at the right time while the home care nurse may not know the status of patients until a home visit is conducted; by the time the home care nurse visits, the patient may already be back in the hospital. Today, over 900 Centura Health patients have received telehealth services. The number of hospital re-admissions within 30 days of hospitalization for this group is 9.7 percent, compared to hospitals nationwide which have a readmission rate of over 20% for primary diagnosis of congestive heart failure. Three years of tracking of this program shows that 81% have remained without need for further hospitalizations. The intervention has successfully kept patients from being readmitted to the hospital, with tremendous savings (estimated $5.2 million) in healthcare dollars, showing that this technology is the future for home care agencies.

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CONCLUSIONS AND RECOMMENDATIONS

These examples demonstrate how nursing can provide the leadership and skills in addressing one of the nation's top health care challenges—chronic disease. In order to continue and sustain these initiatives the following must occur:

- Establish solid local, state and federal funding for nurse-led initiatives in chronic care.
- Support the development implementation and evaluation of innovative nurse-led models of care.
- Fund education initiatives to train nurse leaders in business, public policy, outcome monitoring and quality improvement.
- Eliminate regulatory and oversight barriers that inhibit the ability of advance practice nursing to provide primary care.

Nursing is shaping health care of the future by creating innovative programs that are effective, low-cost and reach the populations that most need the care.

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Palliative and End-of-Life Care
Transformational Models of Nursing across Settings

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INTRODUCTION AND BACKGROUND

One antidote to the burgeoning crisis in healthcare is to re-conceptualize our care delivery model from episodic disease management to *living* with chronic and life-limiting diseases and injuries. Palliative care, which includes hospice care at the end-of-life, offers a promising method for actualizing this focus.

At the core of palliative care is the essence of nursing—care and caring. When people are struggling to manage their health problems, they need astute clinicians who can help interpret their responses to diseases and treatments, advocate for holistic and effective care, facilitate relationships with providers, and provide physical, emotional, and psycho-spiritual care. Although contemporary models of palliative care include end-of-life and bereavement care, they are broadly applicable for all people who are experiencing acute, chronic, or debilitating conditions from the time of diagnosis.

Nurses have been instrumental in the evolution of hospice and palliative care in Europe and the United States. Dame Cicely Saunders, who was a nurse, physician, and social worker, established the world's first hospice in London in the 1960s. Florence Wald, a colleague of Saunders, and a former dean of the Yale School of Nursing, established The Connecticut Hospice, in New Haven, as America's first hospice in 1974 (NHPCO, 2008). According to the National Hospice and Palliative Care Organization, 1.45 million patients received hospice services in 2008, including 38.5 percent of all persons who died in the United States that year. Nurses comprised the largest number of hospice providers involved in that care. (NHPCO, 2009).

Registered nurses, as well as advanced practice nurses, have also played leading roles as members of interdisciplinary teams in the development of palliative care programs. These teams focus on improving quality of life through pain and symptom management, enhanced communication and decision-making support, and facilitation of safe transitions between care settings (Morrison and Meier, 2004). Palliative care programs began to emerge in hospitals in the late 1980s and have evolved to include programs focused on intensive-care, long-term care, community-based care, and pediatric care. Between 2000 and 2005, these programs increased by 96 percent in United States hospitals (AHA, 2007). The demand for these services will continue

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to rise with the aging of the baby boomer population and the evolution of health care innovations that extend life by preventing and treating both acute and chronic illnesses.

NURSING AT THE FOREFRONT OF POLICY

The National Consensus Project, chaired by Betty Ferrell, PhD, RN, FAAN, which represents four Coalition organizations (the American Academy of Hospice and Palliative Medicine, the Center to Advance Palliative Care, the Hospice and Palliative Nurses Association, and the National Hospice and Palliative Care Organization) has developed and disseminated the Clinical Practice Guidelines for Quality Palliative Care (2004 and 2009).These guidelines serve as a national standard for informing providers, policy makers, and consumers about the attributes of high quality palliative care (National Consensus Project for Quality Palliative Care, 2009).

THE NURSE AS A KEY WORKER

Patients with palliative care needs often have multiple providers and use several different institutions. This scenario is especially true in pediatrics. To ensure continuity and avoid fractured care, it is essential that the care follow the patient and family. Palliative care provides aggressive symptom management, coordination of care, and psycho-social support with improved linkages to all sites of care (Remke, 2007). A designated "key worker," supported by an interdisciplinary team, is essential to caring for these patients and families in a holistic way (Field and Behrman, 2003). Often this key worker is a nurse who can bring in other members of the team as needed. Nurses are experts in coordinating both the physical and psychosocial care; so they are ideal providers to serve as key workers to provide continuity of care across the continuum of care and through various settings.

An example of this model is the Pain and Palliative Care Program at Children's Hospitals and Clinics of Minnesota that provides palliative care to inpatients, patients in their homes, and in a palliative care clinic. The nurse who is the key worker visits patients wherever they are, and assists with care coordination, medication reconciliation, and transition arrangements. These interventions take place in any location, including other inpatient facilities. These "continuity visits" encourage consistency and smooth transitions across sites of care.

NURSE PRACTITIONERS AS PALLIATIVE CARE CONSULTANTS

On the other end of the age continuum, the Palliative Care Center of the Bluegrass, in Lexington, Kentucky employs nurse practitioners who serve as external palliative care consultants to nursing home staff, residents, and their families. These consults can be initiated by physicians or nursing directors at the nursing homes. The nurse practitioners provide both clinical consultation and education to nursing home staff, focusing on symptom management, advance care planning, patient and family communication, and supporting transitions to hospice services, if needed. Both Medicare and Medicaid will provide reimbursement for this type of external consultation provided by a nurse practitioner. Nursing homes who have used this consultation service report improved pain and symptom management, increased patient satisfaction, and less emergency room transfers. This Center has been nationally recognized as

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one of the Palliative Care Leadership Centers by the Center to Advance Palliative Care (CAPC, 2008).

Advanced practice nurses in critical care units, such as Margaret Campbell, PhD, RN at Detroit Receiving Hospital in Michigan and Patrick Coyne, MSN, APRN, at Virginia Commonwealth University, have also demonstrated the effectiveness of interventions by palliative care services within their institutions. Campbell has developed protocols that promote both physical and emotional comfort to patients and families during the process of weaning patients from mechanical ventilation (Campbell, 1998). Coyne and colleagues have demonstrated significant improvements in their patients with pain, nausea, depression, anxiety, and shortness of breath (Coyne, 2009; Khatcheressian, 2005).

A COST-EFFECTIVE MODEL OF CARE DELIVERY

Palliative care interventions enhance physical and psychological well-being, enhance communication between patients, families, and caregivers, increase patient and family satisfaction, and facilitate transitions through complex care delivery environments. Beyond these benefits, palliative care tends to be a cost-effective model of care delivery. A recent multisite study by Morrison and colleagues (2008) demonstrated significant reductions in pharmacy, laboratory, and intensive care unit costs. In their study, which included over 5,000 hospitalized palliative care patients, the palliative care patients who died had a net savings of $4908 per hospital admission, and palliative care patients who were discharged alive had a net savings of $1696 per admission, in comparison to matched cohorts of comparable patients who received usual care.

RECOMMENDATIONS

Palliative care is a model that is consistent with basic nursing values, which include caring for patients and their families regardless of their age, culture, socioeconomic status, or diagnoses, and engaging in caring relationships that transcend time, location, and circumstances. The following recommendations enhance the role of nursing in palliative care and enhance care for both patients and families:

- Support the essential contributions of registered nurses and advance practice nurses within the evolving model of palliative care in the United States.
- Support nursing education and research that advances the palliative care model.
- Use the palliative care model as a framework when addressing the needs of the chronically ill population.
- Ensure that nurses with palliative and end-of-life care expertise are part of local, state and national health care advisory committees.
- Ensure that representation on MedPac includes nursing with expertise in palliative and end-of-life care.

Nurses address the complexity of patient and family needs and to serve as cost-effective care coordinators or health care navigators for patients and families with both chronic and life-

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limiting illnesses, to reduce suffering and improve the quality of living and dying across the lifespan.

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Nurses Close the Gap in Community Health

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INTRODUCTION AND BACKGROUND

Nurses across this country are equipped and capable of meeting the diverse needs of communities by providing leadership, engaging stakeholders and developing and implementing evidence-based models of care to close the gap between preventive and primary care services. The overall health improvement of the nation requires evidence-based health promotion and disease prevention. Nurses design and implement these solutions in a multitude of settings including public health, school-based health centers, nurse managed health centers, convenient care clinics, federal health centers, and home health. Nurses working to address the needs of community health have firsthand knowledge in understanding the healthcare needs of a diverse population, especially in underinsured and uninsured populations facing a widening rift in quality care (Hurley et al., 2005).

As far back as 1986, the Office of Technology Assessment (OTA) released a groundbreaking case study about nurse practitioners (NPs) concluding that the quality of care provided by NPs is equivalent to and in some cases better than physicians (Safriet, 1992). Using the advanced practice skills of nurses, technology builds capacity to move seamlessly from the individual-to-community level data to build statewide quality scorecards. The Commonwealth State Scorecard on Health System Performance for 2009 (Moody and Silow-Carroll, 2009) can look vastly different by 2015 by improving access and preventive care, ensuring equitable care, and decreasing avoidable hospitalizations that will help lead to improved healthy lives for the country.

EVIDENCE BASED MODELS

Nurses working in a predominately Hispanic community, using *Como Convivir Con Su Artritis* (How to Live With Your Arthritis), expanded the healthcare team by recruiting leaders from the Hispanic community to be trained to teach the Stanford Self-Management Model, which provides an evidence-based framework to help patients understand their role in chronic disease management. Classes were held at local community sites and helped to reach a vulnerable population (Lorig et al., 1999). In partnering with patients, nurses helped patients gain a better understanding of their chronic condition and improve medication adherence.

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In the African American community, high blood pressure (HBP) is one of the most common chronic disease in the U.S. A study led by Dr. Martha Hill, the dean of the Johns Hopkins University School of Nursing, demonstrated how a health care team led by a nurse practitioner, a community health worker and a physician consultant successfully lowered blood pressure by 44% as compared to control group. By lowering blood pressure, the men in the study also benefited from fewer signs of heart and kidney damage, all of which lead to lower healthcare costs. The nurse practitioner and healthcare team worked in a community setting and providing primary care interventions. An important highlight is that the health care team worked with high-risk African American males in an urban community. The multidisciplinary NP led team, ensured patients received regular health care services and established lasting, trusting relationship that led to lifestyle changes ultimately leading to improved hypertension management (Hill et al., 2003).

Nurses working in the community play a critical role in health promotion and disease prevention. A study by Dr. Loretta Sweet Jemmott, Director of the NINR Hampton-Penn Center to Reduce Health Disparities, demonstrated how black nurses working in schools, health clinics, and other primary care settings helped at risk adolescents learn the importance of using safer sex practices to reduce their exposure to HIV infection. The nurses used various evidence-based interventions designed such as audiovisual demonstrations, technical skill building demonstrations, role-playing, and discussions to engage the adolescents in protecting themselves and others in their community from HIV infection (Jemmott et al., 1998).

The Nurse-Managed Health Center (NMHC) is an evidence-based model that provides care to 2.5 million patients across the country. Services provided in NMHC include primary care, health promotion and disease prevention services to medically underserved patients living in both rural and urban areas (NNCC, 2009). They strengthen the nation's health care safety-net by providing services regardless of a patient's ability to pay or insurance status. Services are offered in easily accessible locations such as schools, homeless shelters, senior centers, churches and public housing developments by a wide array of health care professionals, including nurse practitioners serving as primary care providers, registered nurses, health educators, behavioral health specialists, community outreach workers and collaborating physicians. For many patients, the centers are their only option for accessible and affordable care. In addition to the incredible menu of services provided, NMHC are cost effective as demonstrated by researchers at Johns Hopkins University School of Public Health who analyzed Uniform Data System (UDS) data from the Bureau of Primary Health Care for 1996 to 2001 found that medical encounter costs at nurse-managed federally qualified health centers (FQHCs) were 11 percent less than encounter costs with other providers (Bureau of Primary Care, 2009).

Convenient care clinics (CCC) are a rapidly expanding, affordable, accessible, consumer-driven health care alternative. There are close to 1,200 of these clinics in high-traffic retail outlets, often with a pharmacy adjacent, in more than 30 states and the District of Columbia, reflecting a capacity to see more than 17 million patients annually, a number that is easily scalable (CCA, 2009). Generally open seven days a week, with extended weekday hours, patients are seen on a walk-in basis and visits typically take 15–20 minutes. Common treatments and diagnoses include cold/flu, rashes/skin irritation, and muscle strains or sprains. CCC clinicians, the majority of whom are nurse practitioners, also provide immunizations, physicals, and preventive health screenings. CCCs complement the medical home by connecting patients to appropriate levels of care. The low cost and accessibility of CCCs also lessen demand on emergency rooms.

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Northwest Colorado Visiting Nurse Association serving rural and frontier Colorado has begun a redesign of community health services with a focus towards cost efficiency, well being, primary care and prevention and a simplification of the medical system. The new vision of health for Northwest Colorado includes evidence based programs, best practice models and visible amenities encouraging wellness, prevention and health. By segmenting the population into five groups: Healthy Beginnings (0–3 years), Healthy Growing (3–19 years), Healthy Living (19–49 years), Healthy Aging (50 years and up) and Healthy Endings (all ages), the VNA has created a continuum of services and an integrated model of service delivery. Through early identification and detection, and community health education, residents are channeled into primary care and a true medical home model. In the past year the VNA has opened a hospice and palliative care residence, implemented an award winning "Aging Well" program, and opened a Federally Qualified community health center. Nursing leadership has been central to the holistic, community-based vision.

RECOMMENDATIONS

Policymakers, funders, educators and practitioners must look beyond the medical model as the sole solution to community health needs and recognize the contribution nursing and nurse practitioners (NPs) are making to primary care and the health of the entire community. The following recommendations strengthen the nursing role in future innovations.

- Develop and implement performance indicators like those used by the Commonwealth Fund's State Scorecard, to monitor whether the health improvement strategies are being implemented as intended and whether it is having the intended impact.
- Require the insurance industry to recognize and fund nurse practitioners as primary care providers with a full scope of practice.
- Require nurse participation on national quality committees charged with developing and implementing health information solutions, public health, community and school-based health, development of performance measures, reimbursement formulas, scientific research, clinical guidelines, and potential business solutions to help health reform in our country.
- Increase the awareness of our legislative leaders and policy makers of the role and impact of nurses using social marketing and targeted education of the insurance companies, boards of health, and business community especially the HIT Industry.
- Educate the public about the role and impact of nursing to help fill the healthcare gaps and provide access to care.

Nursing is an essential component in researching, developing and implementing community based health programming.

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School Nurses, School Based Health Centers, and Private-Programs Successfully Improve Children's Health

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"Investing in children is not a national luxury or a national choice. It's a national necessity."
Marian Wright Edelman

INTRODUCTION

School nurses serve nearly 50 million students in approximately 97,000 public elementary and secondary schools (USDE, 2008). Sadly, almost a quarter of the nation's schools do not have the benefits of a skilled nurse, and yet studies like one conducted by the Milwaukee Public School System found that "in schools with nurses, principals and clerical staff reported significant reductions in the time that they spent addressing student health issues. In support of students attending classes, nurses returned students to their classroom over 90% of the time" (Baisch, 2009).

HISTORICAL AND CURRENT OVERVIEW

Nurses have been a part of the school setting since the late 1800s, with the initial mandate to monitor vaccinations, decrease school absenteeism and prevent the spread of communicable diseases. In the last ten years school nurses have concentrated on new areas of care that have emerged as a result of:

- Medical advancements that allow children with multiple medical issues to survive;
- A rising incidence of diseases with life-threatening implications like diabetes, seizures, severe allergic reactions, asthma, bleeding disorders, and genetic conditions;
- An increase in mental health disorders, including rising incidence of autism and related neurodevelopment disorders; youth gambling, alcohol, tobacco, drug abuse, and other addictive behaviors; youth with eating disorders, anxiety, depression, and suicidal ideation; youth exhibiting bullying, harassment and violent behaviors; and
- An increasing number of children living in poverty, including those who are homeless, migrants, immigrants or refugees.

As school districts face budget cuts nationwide, school nurses are often the first to lose their jobs. This is especially true in states that do not mandate school nurses. The federal government requires that children who have health impairments need to have a connection with a school

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nurse, but in many school districts this may mean contracting for a few hours of nursing service from an agency source. The national federal guidelines for school nurses are a ratio of one nurse to 750 students. Only 12 states comply with this ratio—Vermont has the lowest ratio: one nurse for 305 students, Utah the highest: one nurse for 4,952 students (Zaslow, 2006).

The current nurse-to-student ratio means that nurses cover multiple schools and run from one emergency to another. To address the current inadequacies where nurses face work overload, nurse leaders, together with parents, children and communities have developed two innovative school health programs: school based health centers and public-private partnerships, that can be replicated nationwide and can provide many new and exciting opportunities for nurses to expand their scope of practice.

SCHOOL BASED HEALTH CENTERS

School Based Health Centers (SBHCS) are primary care clinics in the schools that provide developmentally appropriate physical, emotional, behavioral and preventive health care to students regardless of their ability to pay. SBHCS are similar to a local primary care office: with a secretary or receptionist, nurse, nurse practitioner, and at some sites a mental health therapist. Currently there are 2,000 SBHCS nationwide, and have had the following positive impacts:

- SBHCS are prevention and wellness oriented
- SBHCS see children who otherwise would not get care
- One in four adolescents who are at risk for adverse health outcomes such as teen pregnancies, suicide and substance abuse can easily and readily access services in a setting where they spend the majority of their days

Nationwide satisfaction surveys indicate that 97 percent of the students appreciate and value the care they receive; and 60 percent report that they would not have received health services without the health centers (Schlitt, 2007).

SUCCESS: SCHOOL NURSES AND SBHCS COMPLEMENT EACH OTHER

Jack, a 10th grade student at a local high school had been to school only eleven days as of December 1st 2008 due to sickness. The school nurse reviewed the absent record with Jack. Jack complained that he would become short of breath walking the half mile to school so he stayed home. With parent permission, she referred Jack to the SBHC. The nurse practitioner diagnosed Jack with asthma and prescribed medication. During the exam she also noted symptoms of depression and referred Jack to the mental health specialist at the SBHC. The mental health specialist confirmed the diagnosis of depression along with suicide ideation and additionally the potential to do harm to himself and others. Jack has remained under the care of the practitioners in the SBHC. December 1, 2009 Jack continues with a stellar attendance and academic achievement record. His asthma and mental health conditions are under control through the combination of care delivery between the school nurse and the staff in the SBHC. This partnership has been successful in keeping Jack safe and healthy and engaged in learning.

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PUBLIC-PRIVATE PARTNERSHIPS INITIATED BY SCHOOL NURSES

Another innovative example in school health programs are the public-private partnerships that nurses are developing in communities around the country. One of the primary tenets of a nurse is to be a coordinator of care. In research studies conducted by both Lamb and Sofaer, care coordination is identified as one of the most important processes that nurses perform. The IOM has identified care coordination as one of the top 20 priorities for national action to transform the health care system. In the community, the school nurse coordinates care in the public school among a variety of providers and community agencies that offer services to children and their families. The nurse can provide point of service care at the site and manage almost all of the health concerns that students present. This arrangement increases the student's time in the classroom and maximizes education. The nurse is also in an ideal position to guide children and their families into appropriate acute care, if needed.

SUCCESS: NURSES DEVELOP COMMUNITY PARTNERSHIPS

Michigan is experiencing the brunt of the economic downturn with their automotive manufacturing base disintegrating. They have been forced to create a model of public – private partnership in order to provide health care to one of their most vulnerable populations: children. The Michigan model has placed the nurse in the driver's seat of coordinating care in the school. Funding is primarily provided by the both the health system and the educational system. However, the school nurse typically coordinates over 80 community agencies to provide services for students and their families. This coordination equates to thousands of in-kind hours and dollars. None of which would happen without the nurse.

The Michigan model has utilized Community Health Workers (CHW) in their schools as well. It is imperative to note that this is only under the supervision of the Registered Nurse. The broadened responsibility has challenged nursing to gain new leadership and delegation skills. This model requires clear practice guidelines and health policies developed by the state board of nursing and adapted by the school system. The school nurse is the health leader in the school community. She has demonstrated leadership in delivering health outcomes, reducing costs and providing extraordinary benefit to the community. This model has also been replicated and is exportable.

RECOMMENDATIONS AND ACTIONS NEEDED

Certificated School Nurses need to be present in the schools in order to advocate for school nursing services for every child. SBHCS contribute to academic achievement by taking physical and behavioral health problems out of the classroom and place them into the hands of qualified medical professions and link students to health services and resources available in the community. Through collaboration with community providers and building public-private partnerships, primary care, mental health, health education and dental care services can be provided at little or no cost to the students and their families. Improved student outcomes and academic achievement result where schools have a partnership with a school nurse, an established SBHC, and community collaborations.

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- Mandate a certified school nurse/student ratio of 1:750 students in every state and in all schools.
- Allocate federal and state governments funds to school *based* health centers so that all students, regardless of their ability to pay, can access comprehensive medical, dental and mental health care by nurse practitioners, nurses and other health care professionals.
- Establish funding for school health development of public-private partnerships, including community health worker programs that are led by certified school nurses.
- Require nurses who work in schools to have a minimum of a bachelor's degree and a school nurse certificate.

SUMMARY

With an expected increase in the number of children who have complex medical, genetic and psychiatric health conditions that require more nursing oversight, school nursing provides the expertise and coordination to assure that children receive the care they need. School nurses are at the forefront of promoting and developing innovative school programs like School-Based Health Centers and coordinated partnerships with private and public agencies.

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Public Health Nursing: Transforming Health across Populations

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INTRODUCTION

A well-educated public health nursing workforce would improve the health of all people and minimize health differences among populations by addressing the physical and social determinants of health (Role PHN, 1998). Public health nursing is unique among the nursing specialties in its integration of the art and science of two distinct disciplines—public health and nursing. Public health nurses (PHNs) employ their considerable expertise in promoting health and preventing disease to address the health needs of populations, such as emerging and re-emerging infectious disease, an epidemic of chronic disease, a rapidly aging population with increasing health needs, escalating health care costs, and pressure to prepare for and respond to public health emergencies ranging from H1N1influenza to bioterrorism. Many of these challenges cannot be resolved at the individual level and must be addressed through policy and environmental change. PHNs work in partnership with multidisciplinary teams and community members to create conditions in which people can be healthy.

PUBLIC HEALTH NURSING ISSUES

As the largest component of the public health workforce, PHNs are vital to the protection of health in America's communities; almost every health department in the nation, large or small, employs PHNs (NACCHO, 2009). Unfortunately, public health nursing is in the midst of a crisis—the erosion of the public health nursing infrastructure.

- Historically, every state health department had an executive PHN position. Today, only 23 states support such a leadership position (ASTDN, 2008). Severe budget cuts in local and state health departments have led to the reduction or elimination of PHN positions. In 2004, decrease was reported in registered nurses working in community and public health settings, down from 18.3 to 14.9 percent (HRSA, 2006).
- Health departments currently face a PHN shortage; 30 out of 37 states reported public health nursing as the field that will be most affected by workforce shortages in the future (ASTHO, 2004). This critical PHN shortage may jeopardize the system's ability to respond to new and emerging public health threats.
- Many health departments, particularly those in more rural states, hire nurses from two-year associate degree programs that do not provide public health content, and who are not prepared to practice public health nursing.

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- The educational system faces a growing shortage of faculty adequately prepared to teach public health nursing, a lack of clinical sites that provide meaningful PHN clinical experiences, and little incentive or support for advanced PHN graduate study, which has led to low enrollment in PHN graduate programs.

EVIDENCE-BASED PUBLIC HEALTH NURSING MODELS
ELECTRONIC HEALTH RECORDS AND PUBLIC HEALTH NURSING OUTCOMES

A joint practice and data quality project was undertaken by public health nurse managers in four local health departments. The project utilized the Omaha System, a standardized nursing language and a computerized clinical documentation system. This project articulated standards for client assessment, developed pathways of care for typical PHN client groups and/or client problems, and defined common quality assurance standards to monitor PHN practice and data quality. Standardized data allowed PHNs to compare client outcomes between health departments As a result, public health nurses were able to influence policy decisions by reporting data to funders, stakeholders, and the community (Monsen et al, 2006).

HOME VISITING PROGRAMS

The Nurse Family Partnership (NFP) is an evidence-based program in which public health nurses visit the homes of pregnant, low-income families during pregnancy and teach them to parent during the baby's first two years of life. This program has demonstrated consistently positive outcomes in randomized controlled trials, including pregnancy (reduction in subsequent pregnancies 2 years after child's birth, reduction in preterm deliveries among women who smoked), parenting (less child abuse and neglect, reduction in behavioral and intellectual problems in child age 6, reduction in arrests of child age 15), and family self-sufficiency (fewer arrests of mothers 15 years after child's birth, increase in father presence in the household, reduction in welfare use) (NFP). The program has been shown to save taxpayers money, paying for itself based on government spending alone (Isaacs, 2008). It is important to note that nurses are central to the success of this home visiting program. Utilization of paraprofessionals to deliver the NFP demonstrated little to no effects as few as two years after program completion (Olds et al., 2004). PHNs across the nation are implementing the NFP in over 300 counties and several statewide programs. Various versions of the Health Care Reform Bill of 2010 have proposed nationwide implementation of the NFP. Public health nurses, with over a century of expertise in home visiting and established relationships with their communities, are in a position to lead this national initiative.

PREVENTION AND CONTROL OF INFECTIOUS DISEASE

Not all evidence-based programs are new. Public health nurses continue as critical players in some of the most dramatic evidence-based programs in history—*the eradication/reduction of vaccine preventable diseases and tuberculosis.* A recent PHN task analysis of 60 PHNs from 29 states revealed that the detection, prevention and control of infectious diseases are core public health nursing activities (ASTDN). Despite the fact that the PHNs in the task analysis worked in many different program areas ranging from emergency preparedness to family planning, they

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were all involved with the prevention and control of vaccine preventable diseases and tuberculosis.

Over 90 percent of PHNs reported working in immunization clinics, a classic evidence-based intervention. Most of the disease prevention and control work that the PHNs reported was population-focused: surveillance and disease investigation; identification and outreach to high risk populations; audits of immunization records in schools; audits of clinics to determine compliance with recommended immunization standards; and development of population-based immunization registries. As part of emergency preparedness, half of the PHNs were involved in planning and staffing mass dispensing clinics.

Tuberculosis (TB) is a similar cross-cutting issue. Three fourths of the PHNs reported that they work with clients who have latent or active TB; over 80 percent of PHNs administer and read tuberculin skin tests. The current CDC recommendation for the treatment of persons with TB is Directly Observed Therapy (DOT), or watching clients take their medications to ensure compliance. Over two-thirds of PHNs in the task analysis reported that they conduct Directly Observed Therapy home visits. Evidence demonstrates that PHN case management dramatically increases successful DOT completion rates (Mangura et al., 2002). In 1994, Massachusetts mandated that health departments use nurses to assess suspected TB cases and manage treatment, resulting in completion rates between 93 and 95 percent, which are among the highest in the nation (Geiter, 2000).

REINVIGORATING PUBLIC HEALTH NURSING EDUCATION

Two federal grants—one in Minnesota and another in Wisconsin—developed a new model for public health nursing education. *Linking Public Health Nursing Practice and Education to Promote Population Health* and *Linking Education and Practice for Excellence in Public Health Nursing Project* brought together public health nursing faculty from baccalaureate schools of nursing with public health nurses from local health departments that provide clinical sites for PHN students. They formed regional projects that redesigned the PHN student experience based on community priorities. Both projects recruited, trained, and supported a network of preceptors. These projects resulted in a significant increase in collaboration among and between schools of nursing and local health departments, expansion of clinical placement sites, student clinical experiences that contribute to meeting the goals of local health departments, a more active role for local health departments in assuring competencies necessary to begin PHN practice, greater emphasis on population-based PHN practice in schools of nursing curricula, and increased numbers of graduates indicating interest in pursuing a career in public health nursing.

RECOMMENDATIONS

A well-prepared public health nursing workforce in numbers sufficient to deliver essential public health services is critical for the health and economic well-being of communities. Public health nurses possess a core set of skills and knowledge that allow them to adapt to ever changing community needs. In order to achieve public health nurses' potential, however, they must increase their visibility and policy advocacy.

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Education and Leadership Development

- Partner with PHN organizations to create leadership development programs for PHNs in federal, state and local health departments. This is particularly important for state PHN leaders, of whom 80 percent are new to their job since 2005.
- Advocate for public health nursing leadership positions in all state health departments.
- Develop new models to fund, prepare and advance associate degree nurses who are working in PHN positions.
- Develop and share effective, innovative strategies to teach public health nursing, including clinical simulations, cross-disciplinary classes, and clinical immersion experiences in the community.
- Provide incentives for graduate school, including traineeships and loan forgiveness programs for advanced PHN graduate study.
- Develop and disseminate a tailored curriculum for teaching public health nursing.
- Work with stakeholders to conduct a national enumeration to determine the actual number, educational preparation, and distribution of PHNs in the United States.

Public Health Policy

- Fund research to better articulate the contributions and outcomes of public health nursing interventions. Unfortunately, when public health nurses are doing their jobs well, they are invisible and their work is often not valued.
- Market the pivotal role of PHNs to increase political influence and secure more funding.

The flexibility, versatility, and passionate commitment to the communities they serve place PHNs in a position to lead the changes necessary for creating the conditions in which people can be healthy.

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The Future of Nursing: Leading Change, Advancing Health
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H
Federal Options for Maximizing the Value of Advanced Practice Nurses in Providing Quality, Cost-Effective Health Care[1]

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INTRODUCTION

As decision makers at every level wrestle with the urgent need to broaden access to health care, three challenges have become clear. The care provided must be competent, efficient, and readily available at all stages of life; it must come at a cost that both individuals and society at large can afford; and it must allow for appropriate patient choice and accountability. Among the options available to promote these goals, one stands out: wider deployment of, and expanded practice parameters for, advanced practice nurses (APNs). The efficacy of this option is uniquely proven and scalable. These well-trained providers—including nurse practitioners, nurse midwives, nurse anesthetists, and clinical nurse specialists—can and do practice across the full range of care settings and patient populations. They have proven to be valuable in both acute- and primary-care roles, and as generalists as well as specialists.[2] By professional training as well as by regulatory and financial necessity, they have emphasized coordinated and cost-effective care, and they have tended more than other providers to establish practices in traditionally underserved areas.

The role of any professional group is typically delineated by a process that moves from awareness of capabilities, to acceptance, to acknowledgment and formal policymaking. Despite significant progress in several venues, however, this process has been stymied, in the case of APNs, by the many regulatory obstacles and restrictions that currently impede the full realization of their potential. Chief among these, as I have noted elsewhere, are "conflicting and restrictive state provisions governing [APNs'] scope of practice and prescriptive authority... as well as the fragmented and parsimonious state and federal standards for their reimbursement" (Safriet, 1992). While an extensive catalog of these restrictions appears in Section I.B(1) below, the following two examples—one state-based and one federal—will perhaps capture the flavor of the problem.

[1] The responsibility for the content of this article rests with the author and does not necessarily represent the views of the Institute of Medicine or its committees and convening bodies.
[2] For purposes of this paper, I take it as a given that APNs—like any other appropriately trained and licensed professionals—are able and effective providers within the sphere of their competencies. This has been amply confirmed by numerous studies and analyses over the years, and the literature is readily available.

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- In Louisiana, according to the Board of Medicine, no one other than a physician may treat chronic pain, even if the provider in question is trained as a nurse anesthetist, is competent to treat pain, and has been directed to do so by a physician.[3]
- Medicare precludes a certified nurse specialist from certifying a patient for skilled long-term care, or from performing the physical required for admission, even though the CNS has been treating the patient on an ongoing basis.[4]

THE DIMENSIONS OF THE PROBLEM

There are several steps that the federal government can and should take to eliminate, or at least mitigate, the wasteful effects of such needless restrictions as these. To approach the task effectively, however, decision makers must (1) understand several contextual factors specific to nursing; (2) be familiar with the extensive array of restrictions that are embedded in state and federal regulations (as well as in private organizations' policies), and grasp their historical origins; and (3) develop a clear understanding of the impediments—ranging from inertia to resistance to active opposition—to a more rational deployment of APNs.

Nurse-Specific Contextual Factors

Any effort to design more effective and cost-efficient health care delivery models by maximizing the contributions of APNs must proceed from a basic understanding of several fundamental aspects of our current framework. Among the most important of these are the following.

1. *The diversity of nursing practice.* "Nursing writ large" encompasses a wide variety of skill levels and roles, and nursing practice routinely takes place in an almost infinite variety of settings, ranging from the intensive care unit of trauma centers to schools, patients' homes, prisons, long-term care facilities and nursing homes, community health clinics, and outreach centers. While these diffuse practice settings and roles have no doubt enhanced the nation's health, the very diffusion and multi-faceted nature of nursing practice has often meant that nursing has been slighted in the nascent measurement movement which seeks to apply cost and care-effectiveness standards.
2. *Economic invisibility.* Nursing services traditionally have been treated as an expense (albeit an essential one) rather than as an individually identified revenue or income source on institutional or governmental balance sheets. And from the patient's perspective, nursing services rarely, if ever, are separated out from institutional room charges or other professional fees on billing statements. Unsurprisingly, these accounting practices promote the wide-spread perception that nurses are not "revenue generators" (RWJF, 2010). Perhaps in part because of this "revenue invisibility," nursing has been underrepresented in, or excluded from, the decision-making processes (both private and governmental) that determine the metrics upon which costs, value, pricing and payment are based. This asymmetrical financial treatment has special salience today, as most

[3] Louisiana State Board of Medical Examiners: Statement of Position, "Interventional Pain Management Procedures Are Not Delegable," June 2006.
[4] *Social Security Act* § 1819(b)(6).

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reform proposals are focused increasingly on defining the value of services and rewarding the attainment of performance measures. And as APNs continue to participate in, and often lead, the development of innovative practice models designed to better meet patients' needs, it is essential that payment schemes include complete and accurate measurement and valuation of their services.

3. *Multiple routes of entry.* Nursing is the only profession which has multiple educational pathways leading to professional licensure. In all states but one, successful completion of two-, three- and four-year degree programs is recognized as fulfilling the educational requirements for licensure as a Registered Nurse. This unique multiplicity of qualifying pathways is supported by some, and opposed by others, in the professional, educational and policymaking arenas, and it will no doubt continue to be assessed as workforce policy focuses on assuring an adequate supply of well-prepared nurses. Regardless of how this issue is ultimately addressed, however, the current reality is that two years of nursing education meets the educational requirement for licensure as a registered nurse, which is the first step for recognition and licensure as an APN. This fact has posed problems for those who seek to promote wider legal authority for, and utilization of, APNs. Even though Master's-level education and national certification are now uniformly required for APN licensure,[5] policymakers and state legislators are sometimes confused about (or susceptible to opponents' mischaracterizations of) the underlying educational and training requirements when considering expanded recognition of APNs' scopes of practice. While patience and information can overcome most of these concerns, much time and many resources are consumed in the process.
4. *Care versus cure.* As some voices in the current reform debates acknowledge, our emphasis for far too long has been on curing illness, rather than on promoting health. This has led to a systemic over-emphasis on training in acute-care, technologically-robust settings, and to a payment structure skewed toward procedural interventions by increasingly sub-specialized providers. Perhaps unsurprisingly, we have correspondingly undervalued public health. More to the point, we have consistently undervalued coordinated, primary care provided throughout the patient's life spectrum in a variety of settings, including the community, the home, long-term care facilities and hospice. As a group, APNs have extensive experience across all these settings. Their traditional approach of blending counseling with clinical care, and coordinating health services as well as appropriate community resources in support of patients, could be a model for policies that seek a more optimal balance of providers prepared to meet the needs of the American public.

[5] For a recently adopted uniform framework for APNs, see APRN Consensus Work Group and National Council of State Boards of Nursing APRN Advisory Committee (2008).

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Regulatory Barriers to the Full Deployment of APNs

Current Impediments in the Regulatory Environment

For health care providers of all types (other than physicians), the framework defining *who* is legally authorized to provide and be paid for *what* services, *for whom*, and *under what circumstances* is among the most complex and uncoordinated schemes imaginable. It reflects an amalgam of regulations, both prescriptive and incentivized, at the state, local and federal levels. The effects of these governmental regulations are further compounded by the credentialing and payment policies of private insurers and managed care organizations.

The explicit restrictions resulting from this complex and uncoordinated scheme are many, but they can be grouped into two principal categories: (a) state-based limitations on the licensed scopes of practice for APNs (and other providers) which prevent them from practicing to the full extent of their abilities, and (a) payment or reimbursement policies (both governmental and private) that either render them ineligible for payment, or preclude their being paid directly for their services, or pay them at a sharply discounted rate for rendering the same services as physicians.

In many states, the legal framework authorizing APNs' practices has evolved in step with their expanding skills, education, training and abilities. In several other states, however, their full utilization is hampered by outdated (or in some cases newly imposed) restrictions on a full range of professional services. Depending on the jurisdiction, these restrictions may preclude or limit the authority to prescribe medications, admit patients to hospitals or other care facilities, evaluate and assess patients' conditions, order and evaluate tests and procedures, and the like.

To illustrate the pervasive and detrimental variations embodied in many state licensure statutes and regulations, consider the following example.

> Imagine an APN who has attended a nationally accredited school of nursing for the BSN and Master of Nursing degrees, and who has passed the national licensure examination for RN licensure as well as national certification examinations in her APN practice area. Imagine further that two adjacent states, A and B, have adopted regulations representing both ends of the regulatory spectrum, and that our APN is licensed in both of them.
>
> In State A, she is permitted independently to examine patients, order and interpret laboratory and other tests, diagnose and treat illness and injury, prescribe indicated drugs, order or refer for additional services, admit and attend patients in a hospital or other facility, and get paid directly for her services.
>
> When she steps across the line into State B, however, it is as if her competence has suddenly evaporated. Depending on her practice area and the particular constellation of restrictions adopted by the legislature of State B, she will encounter many if not most of the following prohibitions.

Examination and Certification

She may not examine and certify for:

- worker's compensation,
- DMV disability placards and license plates, and other DMV testing,

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- jury service excusal,
- mass transit accommodation (reduced fares, access to special features),
- sports physicals (she may do them, but can't sign the forms),
- declaration of death,
- school physicals and forms, including the need for home-bound schooling,
- COLST, CPR or DNR directives,
- disability benefits,
- birth certificates,
- marriage health rules,
- treatment for long-term-care facilities,
- alcohol and drug treatment involuntary commitment,
- psychiatric emergency commitment,
- hospice care, or
- home-bound care (including signing the plan of care).

Referrals and Orders

She may not refer for and order:

- diagnostic and laboratory tests (unless the task has been specifically delegated by protocol with a supervising physician),
- occupational therapy,
- physical therapy,
- respiratory therapy, or
- durable medical equipment or devices.

Examination and Treatment

- She may not treat chronic pain (even at the direction of a supervising physician).
- She may not examine a new patient, or a current patient with a major change in diagnosis or treatment plan, unless the patient is seen and examined by a supervising physician within a specified period of time.
- She may not set a simple fracture, or suture a laceration.
- She may not perform:
  - cosmetic laser treatments or Botox injections,
  - first-term aspiration abortions,
  - sigmoidoscopies, or
  - admitting examinations for patients entering skilled nursing facilities.
- She may not provide anesthesia services unless supervised by a physician, even if she has been trained as a nurse anesthetist.

Prescriptive Authority

- She may not have her name on the label as prescriber.

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- She may not accept and dispense drug samples.
- She may not prescribe:
  - some (or, in a few jurisdictions, any) scheduled drugs, and
  - some legend drugs.
- She may not prescribe even those drugs that she is permitted to prescribe except as follows:
  - as included in *patient*–specific protocols
  - with the co-signature of a collaborating or supervising physician
  - if the drugs are included in a specific formulary or written protocol or practice agreement
  - if a specified number or percentage of charts are reviewed by a collaborating or supervising physician within a specified time period
  - if the physician is on-site with the APN for a specified percentage of time or number of hours per week or month
  - if the APN is practicing in a limited number of satellite offices of the supervising physician
  - if the prescription is only for a sufficient supply for 1 or 2 weeks, or provides no refills until the patient sees a physician
  - if a prescribing/practice agreement is filed with the state Board of Nursing, Board of Medicine and/or Board of Pharmacy, both annually and when the agreement is modified in any way
  - pursuant to rules jointly promulgated by the Boards named above
  - if the collaborating or supervising physician's name and DEA # are also on the script.
- She may not admit or attend patients in hospitals
  - if precluded from obtaining clinical privileges or inclusion in the medical staff,
  - if state rules require physician supervision of NPs in hospitals,
  - if medical staff bylaws interpret "clinical privileges" to exclude "admitting privileges," or
  - if hospital policies require a physician to have overall responsibility for each patient.

Compensation

- She may not be empanelled as a primary care provider for Medicaid, Medicare Advantage or many commercially-insured managed care enrollees.
- She may not be included as a provider for covered services for Workers Compensation.
- She may be paid only at differential rates (65%, 75%, or 85% of physician scale) by Medicaid, Medicare or other payers and insurers.
- She may not be paid directly by Medicaid.
- She may not be certified as leading a Patient-Centered Medical Home or Primary Care Home.

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- She may not be paid for services unless supervised by a physician.
- She may indirectly affect the eligibility of other providers for payment because
  - pharmacies cannot get payment from some private insurers unless the supervising or collaborating physician's name is on the script, and
  - hospitals cannot bill for APNs' teaching or supervising medical students and residents and advanced practice nursing students (as they can for physicians who provide those same services).

As this example illustrates, the restrictions faced by APNs in some states are the product of politics rather than sound policy. Competence does not change with jurisdictional boundaries; the only thing that changes is legal authority. Indeed, the point is even more sharply illustrated by those states in which an APN's authorized scope of practice may vary *within the state* depending on the geographic location of the practice, the economic status of the patient, or the corporate nature of the practice setting. In sum, this practice environment for APNs echoes the conclusion of a previous Institute of Medicine report, which succinctly described the current regulatory framework for health care providers as "inconsistent, contradictory, duplicative, outdated, and counter to best practices" (IOM, 2001). And that disturbingly accurate conclusion was based only upon *explicit* regulatory provisions. APNs must also contend with the additional debilitating effects resulting from nursing's traditional "revenue invisibility," and from APNs' absence or exclusion from key decision-making venues such as hospital governing boards and medical staffs and organizations designing quality and cost metrics.

The Costs of This Dysfunctional Regulatory Regime

Even though APNs, like all health professionals, have continued to develop and expand their knowledge and capabilities, the state-based licensure framework described above has impeded their efforts to utilize these ever-evolving skills. For historical reasons that will be explained more fully below, virtually all states still base their licensure frameworks on the persistent, underlying principle that the practice of medicine encompasses both the ability and the legal authority to treat all possible human conditions. That being so, the scopes of practice for APNs (and other health professionals) are exercises in legislative exception-making, a "carving out" of small, politically achievable spheres of practice authority from the universal domain of medicine. Given this process, it is not surprising that APNs are often subjected to unnecessary restrictions of the kind I have described. The net result is a distressing catalog of dysfunctions with their attendant costs.

- Because licensure is state-based, there are wide variations in scope of practice across the country for all professions other than physicians. This inconsistency also causes additional problems because payment or reimbursement mechanisms tied to scope restrictions in one state can become the "common denominator" for policies applied across all states. The result is often a "race to the bottom," in which decision makers, for reasons of efficiency and uniformity, adopt the most restrictive standards for payment and practice and apply them even in more progressive states. State A, that is, may be subject to perverse pressures to become more like State B, rather than the reverse. This dynamic has been especially problematic for APNs because they, more than most other

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providers, have been viewed by some in organized medicine as real or potential economic competitors.

- Access to competent care is denied to patients, especially those located in rural, frontier or other underserved areas, in the absence of a willing and available "supervising" physician.
- Able providers are demoralized when they cannot utilize the full range of their abilities, and they often relocate to more accommodating states or leave the practice altogether, thus exacerbating the current maldistribution and shortage of providers (Huang et al., 2004; Sekscenski et al., 1994; Weissert, 1996).
- Innovations in care delivery are stifled, especially in community settings that emphasize primary care, as well as in home or institutional settings for patients with chronic conditions.
- The cost of care is increased and much time is wasted by unnecessary physician supervision, and by duplication of services resulting from required "confirming" visits with a physician and co-signatures for prescriptions or orders.
- Educational and training functions and opportunities are distorted by disparate reimbursement eligibility for supervision of medical residents or students, on the one hand, and APN students on the other.
- Flexibility in deployment, both between and within existing delivery systems, is unnecessarily reduced.
- The risk of disciplinary action looms over even routine provider-patient interactions (such as a telephone consultation or filling a prescription) when these activities cross state borders.
- Millions of dollars and countless hours are spent in state and federal legislative and administrative proceedings focused on restricting or expanding scopes of practice or payment policies.
- The promise of new technologies and practice modes remains significantly unrealized. Tele-practice or tele-health systems, for example, would allow APNs and other providers to utilize telecommunications technology to monitor, diagnose, and treat patients at distant sites, but their use is stymied by multiple and conflicting licensure laws and payment provisions.

Current Impediments to Removal of These Restrictive Provisions

The principal causes of the existence and continuation of unnecessarily restrictive practice conditions for APNs can be grouped into three categories: (1) purposeful or inertial retention of the dysfunctions resulting from the historical evolution of our state-based licensure scheme, (2) lack of awareness of APNs' roles and abilities, and (3) organized medicine's continued opposition to expanding the authority of other providers to practice and be paid directly for their services. All of these causes are rooted in the historical evolution of the state-based licensure scheme. The relevance of that history to the current regulatory environment can scarcely be overstated, and it is there that we must begin if we are to understand the present situation.

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State-based Licensure and the All-Encompassing Medical Practice Acts

Historical development The United States was one of the first countries to regulate health-care providers, and physicians were the first practitioners to gain legislative recognition of their practice. By the early twentieth century, each state had adopted a so-called "medical practice act" that essentially claimed the entire human condition as the exclusive province of medicine. The statutory definitions of physicians' scope of practice were—and remain—extremely broad. The following medical practice act is representative.

> *Definition of practice of medicine*—A person is practicing medicine if he does one or more of the following:
>
> (1) Offers or undertakes to diagnose, cure, advise or prescribe for any human disease, ailment, injury, infirmity, deformity, pain or other condition, physical or mental, real or imaginary, by any means or instrumentality;
> (2) Administers or prescribes drugs or medicinal preparations to be used by any other person;
> (3) Severs or penetrates the tissues of human beings.[6]

The breadth of definitions such as this was remarkable in itself, but the real mischief was accomplished through corresponding provisions making it illegal for anyone not licensed as a physician to undertake any of the acts included in the definition. The claim staked by medicine was thereby rendered not only universal but (in medicine's own view) exclusive,[7] a preemption of the field that was further codified when physicians obtained statutory authority to control the activities of other health-care providers "so as to limit what they could do and to supervise or direct their activities" (Freidson, 1970). Not that long ago, for example, even registered professional nurses couldn't perform such basic tasks as taking blood pressure, starting an IV, or drawing blood unless under a physician's "order." Absent such a directive, they would have been deemed to be practicing medicine by "diagnosing" or "penetrating the tissues of human beings." (The full reach of the latter provision is further illustrated by the fact that, well into the 1970s, only physicians were permitted to pierce ears.)

Present-day consequences: competence, authority, and the disjunction between "can" and "may" Even though some of the more striking manifestations of this "everything is medicine" approach have gone by the wayside, the authority to supervise or direct other providers, combined with the authority to "delegate" medical procedures and tasks to non-physicians, persists to this day. It underpins the legislative infrastructure that continues to subvert even the best efforts to develop a rational, effective scheme that promotes the highest and best use of all trained providers, especially those—like APNs—who seek to practice to the full extent of their competencies. No matter what their training, experience, and abilities, as noted earlier, they are perpetually in the position of having to carve out tasks or functions from the all-encompassing medical scope of practice that still prevails in every state. And even after the carving out has been accomplished, it is often accompanied by mandatory physician supervision or

[6] *Rev. Code Washington* §18.71.011 (1)-(3) (1993).
[7] Sociologist Eliot Freidson has aptly characterized this statutory preemption as "the exclusive right to practice" (Freidson, 1970).

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collaboration. In this way, the pervasive medical practice acts "exert a gravitational force that continues to skew all attempts to rationalize the scopes of practice, or spheres of lawful activity, for providers other than physicians" (Safriet, 2002).

To be clear, the medical practice acts of every state authorize a licensed medical doctor to undertake *virtually any kind of medical or health intervention*. Indeed, by virtue of his General Undifferentiated Medical Practice authority (referred to by the profession itself as GUMP), "an MD may practice gynecology, oncology, orthopedics, pediatrics, retinal surgery, or psychiatry on alternating days, through treatment modalities that are decades old or were invented yesterday—all under the same generic medical license he obtained years ago" (Safriet, 2002, p. 311). Most physicians, of course, would never think of practicing beyond the bounds of their competence, but the point cannot be overstressed that it is not the licensure laws that prevent them from doing so. Rather, they limit their areas of practice according to norms deriving from common sense and decency, professional ethics and judgment, institutional credentialing and voluntary accreditation standards, and insurance concerns. That is, as individuals they implicitly acknowledge that their authority extends beyond the reach of their competence: They *may* do much more than they *can* competently do. And as they acquire new knowledge and skills, they may deploy them freely under their existing practice acts. Their existing authority, that is, covers any expansion of their competence.

Most APNs, in contrast, are in precisely the opposite situation. Thanks to the carving-out process that gave birth to their practice acts, their scopes of practice are so circumscribed that their competence extends far beyond their authority. They *can* do much more than they *may* legally do. In addition, they must seek administrative or statutory revision of their defined scopes of practice (a costly and often perilous enterprise) every time they acquire a new skills set. As a result, their competence—what they can do—is sometimes several years (or more) ahead of what they may do under existing law. The sum total of wasted professional assets represented by this disparity is striking.

The damage caused by the dynamic I have described is troubling enough when viewed from the perspective of a single jurisdiction, but it wreaks havoc on a national scale. Why? Because in each state the scopes of practice governing all health care providers (other than physicians) are the end product of a set of political realities, struggles, and compromises particular to that state. Stitched together, these practice acts become a crazy quilt of widely varied, often inconsistent, sometimes contradictory licensure and payment laws.

Although I have made the point already, it bears repeating: the crazy quilt makes no logical sense. Neither the underlying science of health care nor the capabilities of individuals change according to political boundaries. Bodies are bodies, and competence is competence, in both State A and State B. The only thing that changes at the border is the authority conferred or withheld by each jurisdiction. Indeed, the success of APNs and other providers in providing safe and effective care in State A and its progressive ilk—states where their authority has been enlarged in keeping with their competence—is the best possible evidence that the constraints imposed by more restrictive jurisdictions are irrational. As one national organization has noted, "no study has shown that a state with restrictive scope of practice laws has better health outcomes than a state with expansive practice acts" (AAHC, 2008, p. 24).

Rather, the more restrictive jurisdictions embody the confluence of history, legislative realities, and the continuing professional dominance of the first organized group to arrive on the scene. Indeed, the point was neatly (if inadvertently) made by the Louisiana State Board of Medical Examiners in the pain-management Statement of Position referred to in the Introduction:

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> The Board's opinion is not and cannot be altered by representations that a particular CRNA [Certified Registered Nurse Anesthetist] has received postdoctoral training in such areas or has performed such activities in this or another state. *A non-physician may have education, training, and, indeed, expertise in such an area but expertise cannot, in and of itself, supply authority under law to practice medicine* (emphasis added).

In offering the above summary, I want to be clear that I mean to attribute no malice or ill-will to individual actors in the scope-of-practice battles. The problems have become structural and cultural, and we all—physicians included—pay a huge price for the consequences, measured in extra real dollars spent on health care, in lack of access to competent care, and in the constant antagonism among health care professionals who would be better served by working cooperatively to provide optimal care. Indeed, one of the saddest consequences of the dynamic I have described is that, in fighting the dominance of medicine, the other healthcare professions have fallen into some of the same patterns of asserted ownership and control. Physical therapists vie with occupational therapists, for example, about who may treat what, and clinical psychologists are often at loggerheads with professional therapists. Even worse, intra-professional rivalries have begun to emerge: practitioners with more formal training seek to raise the ceiling for themselves while simultaneously struggling to make sure that their floor remains where it is, *i.e.* to make sure that no one with less extensive training will be permitted to perform certain contested tasks, regardless of their ability. There is a terrible irony in this "each against all" state of affairs, but it is the logical end product of a process that metes out authority based upon who one is, rather than what one can do.[8]

[8] Interestingly, when it comes to physicians'(rather than all other providers') practice, recognition of shared ability seems to trump professional status. For example, with increased medical specialization and heightened reliance on specialty "certification" as a pre-requisite for institutional privileges/credentialing as well as for payment eligibility, medical organizations themselves have begun to emphasize that a physician's *ability*, rather than professional certification or specialty *status*, should determine scope of practice, at least as far as physicians' clinical privileges are concerned. See, for example, the following from a listing of the American Academy of Family Physicians' policy statements on "Family Physicians Scope of Practice":

> "It is the position of the American Academy of Family Physicians (AAFP) that clinical privileges should be based on the individual physician's documented training and/or experience, demonstrated abilities and current competence, and not on the physician's specialty".(AAFP, 2010).
>
> The American Medical Association (AMA) holds a similar position. Regarding clinical privileges, the 1998 AMA Policy Compendium states, "The accordance and delineation of privileges should be determined on an individual basis, commensurate with an applicant's education, training and experience, and demonstrated current competence." It also states that "[i]n implementing these criteria, each facility should formulate and apply reasonable non-discriminatory standards for the evaluation of an applicant's credentials, free of anti-competitive intent or purpose" (AMA, 1998).
>
> "AAFP strongly believes that all medical staff members should realize that there is overlap between specialties and that no one department has exclusive 'rights' to privileges" (AAFP, 2010).

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General Public Lack of Awareness

Another result of the history deriving from our all-encompassing medical practice acts is the fact that the general public almost reflexively associates health care with physicians. Although nursing functions have existed for millennia, the formal development and legal recognition of APNs as a distinct professional group has occurred only in the past 40–50 years. Thus, though the public is increasingly familiar with provider titles such as nurse practitioner, nurse-midwife and nurse anesthetist, it is still "doctor" who "knows best." As the prominent medical sociologist Eliot Freidson has noted, "health services" as understood in the United States "are organized around professional authority, and their basic structure is constituted by the dominance of a single profession [medicine] over a variety of other, subordinate occupations."[9] This construct, which underpins the continued centrality of "doctor" and "physician" in the popular culture, prevents the public from forming an accurate perception of the many and diverse types of essential health care providers and their spheres of competence. Instead, misperceptions are reinforced by mass media marketing messages—for example, those declaring that "only your doctor can prescribe" a drug, when, in fact, APNs in a majority of the states can and do legally prescribe that drug on their own license. Of course, this misperception is both the result of, and sustained by, laws that require a physician's name to be listed on the label for a prescription written by an APN, or require a bill for APN services to be submitted in the physician's name.

Of the three impediments to reform that I have identified, this lack of understanding on the part of the general public is clearly the most amorphous. It is a powerful part of the overall dynamic, however, because patients and their families can't demand access to, and payment for, APNs' services if they are unaware of the availability and effectiveness of those services. Significant advocacy for more rational regulation will not emerge on a broad scale until laypeople understand what is possible, and what is at stake.

Legislative Inertia, "Scope of Practice Fatigue," and Organized Opposition to Change

Many states have recognized the evolution of APNs' education and training, as well as their documented practice abilities. In those states, APNs' licensure laws have been reformed in two important ways: first, they have been revised to eliminate requirements that APNs enter into formalized practice relationships with physicians (including practice agreements or protocols and physician supervision or direction); second, they explicitly grant APNs the authority to prescribe drugs and devices, to order and interpret tests, to admit to appropriate institutional facilities, and to be designated as primary care providers for various insurance programs—all on their own license as regulated by the Board of Nursing.[10] In undertaking such reforms, these states have shaken off the detrimental effects of the medical-preemption dynamic described above. Instead, they have based their scope of practice and corollary provisions on assessments of these providers' proven clinical abilities, to the ultimate benefit of their citizens' health and pocketbooks. Which raises the question: why all states haven't done this, especially when faced with the growing, and increasingly expensive, health needs of the general public? There may be multiple reasons for this, but three are especially noteworthy.

[9] He goes on to add that "[this] professional dominance is the analytical key to the present inadequacy of the health services." Eliot Freidson, Professional Dominance: the Social Structure of Medical Care (1970). For an especially insightful analysis of the development of the cultural, economic, political, and social authority and dominance of the physician, and especially of organized medicine, see Starr (1982).

[10] For a comprehensive review of each state's regulations, see Pearson (2009).

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Legislative inertia and scope of practice fatigue To begin with, the legislative process writ large is generally characterized by inertia. Change requires not only the identification and analysis of problems and potential solutions, but, even more importantly in the political arena, a coalescence of support sufficient to enact a measure. Given the usual context within legislators must act—a context reflecting multiple agendas and interests, as well as finite political or suasion capital—it is often easier to "let things be" than to marshal the forces required for change.

This dynamic is compounded, in the case of licensure practice act proposals, by "scope of practice fatigue." Most legislators are well-acquainted with (and many have been caught in the crossfire of) the professional "turf battles" that have played out repeatedly across the states as individual provider groups seek modifications to their professional practice acts or administrative rules to better reflect their evolving competencies (Finocchio et al., 1998, p. 50).[11] Understandably, lawmakers have grown weary of the fight, especially when there may be little to gain and much to lose in championing reform.

Organized opposition to change These two factors—legislative inertia compounded by weariness and risk-aversion—define the arena within which a more active and powerful force has been brought to bear, and that is the advocacy efforts of several national medical organizations and their state affiliates.

Countless thousands of individual physicians (including two who helped create the new roles of nurse practitioner and nurse anesthetist) have long recognized and supported the full practice capabilities of APNs. It is the official policy of several national medical organizations, however, to actively oppose legal recognition of any other providers' expanded authority to practice without physician supervision and be paid directly for their services.

Seemingly unmoved by the demonstrably safe and effective practice of unsupervised and directly paid APNs in many states, organizations such as the American Medical Association, the American Society of Anesthesiologists, and the American Academy of Pediatrics continue to oppose rational re-alignment of APNs' state practice authority and eligibility for reimbursement. The following sampling of policies, and public statements by their officers, is illustrative.

- The American Medical Association has adopted and continued to re-affirm resolutions which direct the organization to pursue, "through all appropriate legislative and other advocacy activities,"[12] measures designed to:
  - "oppose the enactment of legislation to authorize the independent practice of medicine by any individual who has not completed the state's requirement for medical licensure,"[13] (a position that may seem unremarkable until one remembers that, under the medical practice acts, *everything* is "the practice of medicine");

[11] Finocchio et al., 1998, hereinafter, the Taskforce Report. Others have characterized these considerations as "scope-of-practice firefights" and "akin to war." Jay Greene, *Physician Groups Brace for Allied Incursion*, AM. MED. NEWS, Dec. 11, 2000, at 1; LaCrisha Buttle, *Nonphysicians Gain Clout*, AM. MED. NEWS, Jan. 17, 2000, at 1, 26.

[12] Am. Med. Ass'n, H.D. Res. H-360.988 (2000).

[13] Am. Med. Ass'n, H.D. Res. H-35.988 (1982).

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- **"Overlap among professions is necessary.** No one profession actually owns a skill or activity in and of itself. One activity does not define a profession, but it is the entire scope of activities within the practice that makes any particular profession unique. Simply because a skill or activity is within one profession's skill set does not mean another profession cannot and should not include it in its own scope of practice."[22]

It is to be hoped that this "safe and effective abilities" focus will supplant the "first we must start with medicine" refrain as legislative and administrative actions to foster less restrictive practice parameters for all providers are undertaken at both state and federal levels. If so, we will move closer to the goal of enhancing the public's access to practitioners who can provide competent and cost-effective care in a wide range of practice settings.

THE GROWING RECOGNITION OF THE NEED FOR CHANGE

While professional associations, legislators and administrators are all too familiar with the difficulties encountered in reconciling regulatory authority with evolving clinical abilities, an awareness of the need for change has been slow to develop in the wider policy making and public arenas. Now, however, with sustained efforts to increase access to care in cost-effective ways, a growing and increasingly diverse chorus of voices is calling for true reform of healthcare workforce regulations.

Early Studies: The Pew Commission and Institute of Medicine Reports

One of the earliest and most thorough analyses of the regulatory context of health care providers was produced in 1998 by the Pew Commission's Taskforce on Health Care Workforce Regulation (Finocchio et al., 1998). The Taskforce Report looked broadly at professional regulatory components, including boards and governance structures as well as continuing competence requirements, and more particularly at scopes of practice authority. Noting that "differences from state to state in practice acts for the health professions no longer make sense," the Taskforce recommended the development of national standards for uniform practice authority, and the dissemination to the states of models based on "the least restrictive practice acts for each profession." Among their findings and recommendations are the following:

- "Traditional boundaries—in the form of legal scopes of practice—have blurred."
- "Some scopes of practice conferred upon licensed occupations and professions are unnecessarily monopolistic, thereby restricting consumers' access to qualified practitioners and increasing the costs of services."
- "Clinical practice is no longer based on exclusive professional or occupational domains."
- "If someone is competent to provide a health service safely, and has met established standards, then he or she should be allowed to provide that care and be reimbursed for it, even if that care was historically delivered by members of another profession."
- "Demonstration projects [can] provide an empirical basis for rational development of legally defined scope of practice provisions, which reflect evolving clinical competence, and make optimum use of skilled health care practitioners."

[22] Monograph, p. 9.

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Several years later, the lessons of the Report's scope-of-practice analysis were reflected in the 2001 Institute of Medicine publication *Crossing the Quality Chasm* (IOM, 2001), which noted that "a major challenge in transitioning to the health care system of the 21st century envisioned by the committee is preparing the workforce to acquire new skills and adopt new ways of relating to patients and each other." Among the approaches recommended by the IOM Committee was a modification of "the ways in which health professionals are regulated to facilitate the needed changes in care delivery. Scope-of-practice acts and other workforce regulations need to allow for innovation in the use of all types of clinicians to meet patient needs in the most effective and efficient way possible." This approach led to the recommendation that research be pursued "to evaluate how the current regulatory and legal systems...facilitate or inhibit the changes needed for the 21st-century health care delivery system."

The Emerging Consensus

More recently, several reports by research organizations, as well as statements by health policy analysts, have focused on the need for reform of the regulations affecting both practice boundaries and payment for providers such as APNs. A short summary of these commentaries further confirms that the views of health care analysts are converging on a central conclusion: the current scope-of-practice framework must be changed.

- In cautioning against the "Siren Song of GME [Graduate Medical Education]" expansion as a means of addressing the need for more primary care services, Fitzhugh Mullan and Elizabeth Wiley note: "The increased need for physician services can be met by better use of the physicians we have now ... and by the increased use of nurse practitioners and physicians assistants in primary care and specialty care settings. The *important principle* underlying this latter strategy is that *all clinicians should work to the maximum of their training and licensure* (emphasis added)" (Health Affairs, 2009).
- In identifying necessary foundations for cost containment and value-based care, the Engelberg Center at Brookings included as a key reform for improvement of the health care workforce: "*Create incentives for states to amend the scope of practice laws to allow for greater use* of nurse practitioners, pharmacists, physician assistants, and community health workers (emphasis added)" (Engelberg Center for Health Care Reform at Brookings, 2009, p. 2).
- In a report for the Business Roundtable evaluating the effects of health care reform through the lens of the private sector, Hewitt Associates recommended that, as part of the concept proposed in some current reform bills to create an Innovation Center at the Centers for Medicare and Medicaid, test models should include measures to fund "nurse-practitioners and physician assistants to manage chronically ill patients," and to enhance greater professional service capacity by "greater utilization of nurse practitioners" (Hewitt Associates, 2009, pp. 8, 22).
- In a comprehensive analysis of the need for a national, coordinated health workforce policy, the Association of Academic Health Centers found that "*Inconsistencies in scope of practice laws* engender numerous challenges." The report went on to add that "*lack of national uniformity in scope of practice limits health professionals' mobility and practice,*" and that "many professionals and policymakers believe that the appropriate

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president of the American Academy of Nursing. What can we learn across the issues each chose to raise?

The style of the papers differed, so what was called a recommendation, conclusion, or issue varies. I extracted each major point, regardless of label. These major points from all authors are included in the categories below. Following each theme, authors for whom this was a major point are listed in regular font. Some additional authors mentioned the same point but not at the level of recommendations, conclusions or major issues, and their names are listed in *italics*. Finally, I organized themes using categories that the RWJF/IOM Committee chose for panel presentations at their upcoming meeting (what to teach, how to teach, where to teach), adding a few remaining categories so that all major points were included.

What to Teach (or What Students Should Learn)

- Competencies necessary for continuous improvement of the quality and safety of healthcare systems—patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety and informatics (Berwick, Cronenwett, *Tanner*)
  - Mastery of knowledge of systems, interpretations of variation, human psychology in complex systems, and approaches to gaining knowledge in real-world, local contexts (Berwick)
  - Skills and methods for leadership and management of continual improvement, for nurse-teachers and nurse-executives (Berwick)
- Competencies needed in new care delivery models
  - Population health and population based care management (Tanner)
  - Care coordination (Tilden)
- Knowledge based on standardized science prerequisites (Dracup, Tanner)
- Health policy knowledge, skills and attitudes (Tilden)
- Competencies related to emerging health needs—e.g., geriatrics (Tanner)

How to Teach

- Guide students in integrating knowledge from clinical, social and behavioral sciences with the *practice* of nursing to enhance development of clinical reasoning skills (Cronenwett, Dracup, Tanner, *Tilden*)
- Enhance opportunities for inter-professional education (Cronenwett, Dracup, Gilliss, Tilden, *Tanner*)
  - Evaluate and test models of inter-professional education, including timing, determination of what levels of students should learn together, and what content is most effectively delivered with inter-professional learners (Tilden)
- Develop and test new approaches to pre-licensure clinical education, including use of simulation (Dracup, Tanner)
- Involve students in inter-professional quality improvement projects (Berwick, Gilliss, *Cronenwett*)
- Develop model pre-licensure curricula that incorporate best practices in teaching and learning and can be used as a framework for community college-university partnerships (Tanner)

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Where to Teach

- In baccalaureate and higher degree programs (Aiken, Cronenwett, Dracup, Gilliss, Tanner, Tilden)
  - Significantly increase the number and proportion of new registered nurses who graduate from basic pre-licensure education with a baccalaureate or higher degree in nursing (Aiken, Cronenwett)
  - Require the BSN for entry into practice (Dracup, *Tilden*)
  - Support community college/university partnerships that increase the number of associate degree graduates that complete the baccalaureate degree (Dracup, Tanner)
  - Allow community colleges to provide baccalaureate degrees (Dracup)
- In post-graduate residency programs
  - Develop and test clinical education models that include post-graduate residency programs (Tanner)
  - Implement requirement of post-graduate residency for initial re-licensure (Cronenwett, Tanner)
- In health care settings that foster day-to-day change and improvement (Berwick)
- In programs built on strong academic-practice setting partnerships (Cronenwett, Gilliss)
  - At Academic Health Centers, promote governance structures that combine the strategic, rather than operational, oversight for nursing (Gilliss)
- In settings that are models of integrated care where care coordination skills can be developed (Tilden)

Who Teaches (Characteristics of Desired Faculty Members of the Future)

Increase the number of faculty members:

- Whose criteria for appointment and advancement include recognition of practice-based accomplishments, including engagement in the work of improving health care (Berwick, Gilliss, Dracup, Cronenwett)
- Who can move easily during careers between practice and academe (Gilliss)
- Who shorten their career paths from BSN to doctoral degree (Aiken, Dracup)
- Who maintain professional certification and/or clinical competence (Gilliss)
- Who build alliances with faculty in other disciplines (medicine, engineering, business, public health, law) (Gilliss)
- Who are capable of leading efforts to advance inter-professional education (Dracup, Tilden)

Recommendations: To Nursing Organizations

- Ensure that schools produce ever-increasing numbers of nurse practitioners for primary care roles at a time when expanded access to health care will increase society's need for primary care providers (Cronenwett, Gilliss)
  - Challenge current credit-heavy requirements and test teaching innovations that improve competence while reducing program credits (Gilliss)

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- Support the faculty development necessary to bring about the magnitude of reforms in nursing education recommended in the Carnegie study, necessitated by advances in nursing science and practice and guided by advances in the science of learning (Tanner)
- Advance *post-master's* DNP education, maintaining *specialist* preparation at the master's program level (Cronenwett, Gilliss)
  - Fund initiative to facilitate professional consensus that DNP programs should be launched as post-master's program for the foreseeable future (Cronenwett)
  - Clarify the expectations for nurse scientists interested in translational research—will both the DNP and the PhD be required? Will the DNP alone be sufficient for tenure-track positions in research-intensive universities? (Dracup)
- Include as accreditation criteria for nursing education programs:
  - Substantive nursing education-service partnerships, e.g., in shared teaching and clinical problem solving (Cronenwett, Gilliss)
  - Inter-professional education (Cronenwett, Dracup, Gilliss, Tilden)
  - Development of competencies in health policy (Tilden)
  - Student/faculty participation in or leadership of teams that work to improve health care (Berwick, Cronenwett)
  - Student competency development related to health policy (Tilden)
- Identify top ten areas of needed faculty development and provide public recognition for success (Gilliss)
- Support a learning collaborative of state boards of nursing willing to implement regulatory requirements for transition to practice residency programs as a prerequisite for initial re-licensure (Cronenwett)
- Require proof of a nurse's participation in or leadership of teams that work to continuously improve the health care system for renewal of certification (Berwick)
- Urge testing of inter-professional teamwork and collaboration and health policy competencies in licensure exams (Tilden)

Recommendations: To Government and Other Organizations

- Increase scholarships, loan forgiveness and institutional capacity awards to increase the number and proportion of newly licensed nurses graduating from baccalaureate and higher degree programs (Aiken, Cronenwett)
- Increase scholarships, loan forgiveness and institutional capacity awards for graduate nurse education at master's and doctoral levels (Aiken, Dracup)
- Redirect Medicare GME nursing education funds to support *graduate nurse* education (Aiken, Dracup, Tanner)
- Redirect Medicare GME nursing education funds from hospital-based pre-licensure programs to postgraduate residency programs (Cronenwett, Tanner)
- Promote innovation and evaluation of novel approaches to improving preparation for the *practice* of nursing through expanded Title VIII funding (Cronenwett, *Tanner*)
- Invest in nursing education research, related particularly to the evaluation of multiple pathways to licensure (Tanner)

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- Use CTSA or other research facilitation structures to promote knowledge development at the point of care, translation of knowledge into practice, practice improvements, and inter-professional education (Dracup, Gilliss)
- Create a federal health professions workforce planning and policy capacity in the Executive Branch (Aiken)
- Expand authorities for Title VII/VIII funds to support development and evaluation of inter-professional education innovations (Gilliss)
- Expand Nurse Faculty Loan Programs and other loan forgiveness/scholarship programs that produce more faculty (Aiken, Dracup)
- Encourage public and private resource investments that incentivize students and nursing programs to expedite production of qualified nurse faculty by shortening the trajectory from entry into basic nursing programs through doctoral and post-doctoral study (Aiken, Dracup)
- Use Perkins funds to incentivize community college nursing programs to increase the proportion of their nursing students who complete their initial education with a BSN (Aiken)
- Increase programs that support greater production of nurse practitioners for primary care (and remove legal barriers to inter-professional education and practice) (Aiken, Cronenwett)
- Fund a longitudinal study to track state-based data on number and proportion of new nurse graduates from ADN vs. BSN/higher degree programs (Cronenwett)
  - Advance media attention to states that exemplify "best practices" in the distribution of new nurse graduates from ADN vs. BSN programs (Cronenwett)
- Include health services research (in addition to drug and treatment intervention trials) in initiatives to enhance comparative effectiveness research (Aiken)
- Require universities and colleges (presidents, provosts, deans) to support infrastructures and mandates for inter-professional education (Tilden)

CONCLUSIONS

The recommendations of seven leaders committed to the development of future generations of health professionals included some expected diversity of views. Nonetheless, given the long list of issues that would have been covered had we chosen to write one comprehensive paper, a remarkably small number of themes emerged. Hopefully, these rich ideas and themes can be used to inform the deliberations of the RWJF/IOM Committee on the Future of Nursing. Even more hopefully, a collective national response to these important issues will create a future that meets nursing's obligations to the society it serves.

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Nursing Education Policy Priorities

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Nursing is one of the most versatile occupations within the healthcare workforce. In the 150 some years since Nightingale developed and promoted the concept of an educated workforce of caregivers for the sick, modern nursing has reinvented itself a number of times as health care has advanced and changed (Lynaugh, 2008). As a result of nursing's versatility, new career pathways for nurses have evolved attracting a larger and more diverse applicant pool and a broader scope of practice and responsibilities. Nursing, because of its versatility has been an enabling force for change in health care along many dimensions including but not limited to the evolution of the high technology hospital, the possibility for physicians to combine office and hospital practice, length of hospital stay among the shortest in the world, reductions in the work hours of resident physicians to improve patient safety, extending national primary care capacity, improving access to care for the poor and rural residents, and contributing to much needed care coordination for the chronically ill and frail (Aiken et al., 2009). Indeed, with every passing decade, nursing has become a more integral part of health care services to the extent that a future without large numbers of nurses is impossible to envision.

A POLICY CHALLENGE

From a policy perspective, nursing's versatility is important to note for the simple reason that nursing has evolved faster than public policies affecting the profession. The result is that nursing's forward progress to better serve the public is hampered by the constraints of outdated public policies involving government education subsidies, workforce priorities, scope of practice limitations and regulations, and payment policies. An important priority in national health care reform is achieving better value for the expenditures made on health services. Since health care is labor intensive, getting more value will depend in large part on enhancing productivity and effectiveness of the workforce. Nurses represent a large and unexploited opportunity to achieve greater value.

The purpose of this paper is to identify and discuss several key changes in nursing education policy that are critically needed to shape the nurse workforce to best serve the healthcare needs of the American public in the years ahead. It is written with the assumption that nurse scope of practice and payment policy reforms will take place over the near term to remove some of the existing barriers to nurses practicing to the full extent of their education and expertise. This assumption is based on steady progress in removing barriers to nursing practice at the state level and language in current national health reform legislation showing greater neutrality in the designation of types of health professionals who can participate in and lead new initiatives in primary care and chronic care coordination. Changes in nursing education policies are needed to insure that the nurse workforce of the future is appropriately educated for anticipated role expansions and changing population needs.

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Five priority recommendations regarding the future of nursing education are advanced for consideration by the RWJF Committee on the Future of Nursing at the IOM:

- Increase and target new federal and state subsidies in the form of scholarships, loan forgiveness, and institutional capacity awards to significantly increase the number and proportion of new registered nurses who graduate from basic pre-licensure education with a baccalaureate or higher degree in nursing.
- Increase federal and state subsidies for graduate nurse education at the master's and doctoral levels in the form of scholarships, loan forgiveness, and institutional capacity with a priority on producing more nurse faculty.
- Encourage public and private resource investments to Incentivize students and nursing programs to expedite production of qualified nurse faculty by shortening the trajectory from entry into basic nursing education through doctoral and post-doctoral study by expedited BSN to Ph.D. programs and comparable innovations.
- Create a federal health professions workforce planning and policy capacity in the Executive Branch with authority to recommend to the President and the Congress health workforce policy priorities across federal agencies and departments.
- Recommend the inclusion of health services research on various forms of nursing investments in improving care outcomes including comparisons of the cost effectiveness of improving hospital nurse to patient ratios, increasing nurse education, and improving the nurse work environment. At present comparative effectiveness research is more focused on drug and treatment intervention trials than on innovations in care delivery including workforce interventions.

PRIORITY FUNDING TO INCREASE INITIAL BSN GRADUATES

Every year the percent of new registered nurses graduating from associate degree programs increases, and is now over 66 percent of all new nurse graduates. Multiple blue ribbon panels on nursing education, including the just released Carnegie Foundation Report on Nursing Education (Benner et al., 2010) as well as health workforce reports to Congress for two decades, have concluded that there is a substantial shortage of nurses with BSN and higher education to meet current and future national health care needs. Advances in medical science and technology, the changing practice boundaries between medicine and nursing, and the increase in the share of the population with multiple chronic health conditions create a level of complexity in health care that requires a more educated health care workforce. Nursing is the least well educated health profession by far but the one experiencing the greatest expansion in scope of practice and responsibilities. The National Advisory Council on Nurse Education and Practice (NACNEP) (1996), policy advisors to the Congress and the U.S. Secretary of Health and Human Services on nursing issues, urged almost 15 years ago that policy actions be taken to ensure that at least 66 percent of nurses would hold a baccalaureate in nursing or higher by 2010; the actual result is closer to 45 percent. As described in the sections below, growing evidence suggests that the shortage of nurses with BSN and higher education is adversely affecting a number of dimensions of health care delivery now and these problems will only become exaggerated in the future.

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Quality of Hospital Care

A growing body of research documents that hospitals with a larger proportion of bedside care nurses with BSNs or higher qualifications is associated with lower risk of patient mortality. Aiken and colleagues (2003) in a paper published in *JAMA* showed that in 1999, each 10 percent increase in the proportion of a hospital's bedside nurse workforce with BSN qualification was associated with a 5 percent decline in mortality following common surgical procedures. A similar finding was published by Friese and associates for cancer surgical outcomes (Friese et al., 2008). Aiken's team has replicated this finding in a larger study of hospitals in 2006. Similar results have been published for medical as well as surgical patients in at least 3 large studies in Canada and Belgium (Estabrooks et al., 2005; Tourangeau et al., 2007; Van den Heede et al., 2009).

This research has motivated the American Association of Nurse Executives, the major professional organization representing hospital nurse chief executive officers who employ 56 percent of the nation's nurses, to establish the BSN as the desired credential for nurses. Many hospitals, particularly teaching hospitals and children's hospitals, are acting on the evidence base by requiring the BSN for employment. Nurse executives in teaching hospitals have a goal of 90 percent BSN nurses, and community hospital nurse executives aim for at least 50 percent BSN-prepared nurses (Goode et al., 2001). Since only 45 percent of bedside care nurses have a BSN, many executives cannot reach their goals.

Access and Costs

There is some research evidence that the cost effectiveness of nursing improves with a more educated workforce. In Aiken's *JAMA* paper, evidence was presented to show that the mortality rates were the same for hospitals in which nurses cared for 8 patients each, on average, and 60 percent had a BSN and in hospitals in which nurses cared for only 4 patients each but only 20 percent had a BSN (Aiken et al., 2003; Aiken, 2008). More research is needed to assess the comparative value of investing in different nursing strategies that evaluate the relative cost and outcomes of increasing nurse staffing, educational levels, and improving the organizational context and culture of the nurse work environment. At this point the evidence is encouraging that a more educated hospital nurse workforce might allow for a smaller nurse workforce without adversely affecting patient outcomes. If confirmed in future research, this finding could have important implications for both cost of hospital care and for the number of nurses actually needed in the future to staff hospitals.

In the ambulatory sector, there is a strong research base documenting that nurses with advanced clinical training, usually master's degrees in advanced clinical practice, provide primary care with outcomes comparable to, and in some domains like symptom control and satisfaction better than, those of physicians and with lower costs (Horrocks et al., 2002; Griffiths et al., 2010). Rand researchers estimated, for example, that the state of Massachusetts could save up to $8 billion over a decade by attracting more advanced practice nurses and removing barriers that prevent them from practicing at the full level of their education and expertise (Eibner et al., 2009). Increased use of advanced practice nurses is one of the very few practice innovations currently under considered in national health reform, including medical homes and chronic care coordination, that would yield net cost savings nationally according to Rand researchers (Hussey et al., 2009).

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How the Shortage of BSN Nurses Impacts Future Nurse Supply

As argued above, the shortage of BSN nurses has implications for health care quality and safety, access, and costs of care. A less well recognized consequence of the shortage of BSN nurses is a shortage of faculty which could have a long term impact on national production capacity of nurses for the future.

The Department of Labor estimates that 600,000 new jobs will be created for nurses over the next 10 years, the highest rate of new job production for any profession (Bureau of Labor Statistics, 2009). In addition, over a half million nurses in the current workforce, which has an average age of around 48, will reach retirement age over the same period resulting in the need for over a million nurses to be added to the national workforce. The good news is that there is tremendous interest in nursing as a career in the U.S. after a century of difficulty attracting the best and brightest to nursing. The reasons for this unprecedented interest are multi-faceted having to do with attractive incomes, averaging nationally $65,000 a year and higher in some locations, better job prospects than in other employment sectors, and perceptions of personally satisfying work helping others. If we can take advantage of this unprecedented interest and expand nursing school production, future nursing shortages could be greatly attenuated.

The bad news is that nursing schools do not have the capacity to absorb the great windfall in applicants. Estimates suggest that at least 40,000 qualified applicants to nursing schools are being turned away each year (AACN, 2009). There are several reasons why nursing schools are unable to accept the influx of applicants. Nursing schools have expanded enrollments steadily for more than a decade with graduations increasing from about 75,000 in 1994 to 110,000 in 2008. Resources of all kinds are now stretched and schools are having difficulty expanding further. Institutions of higher education in general are experiencing serious budget constraints and as a result are slowing enrollment growth. Additionally the shortage of nursing faculty has become a major constraining factor.

A strategy for ameliorating the nurse faculty shortage that has received little attention to date is to increase entry level education of nurses to produce a larger pool of nurses likely to obtain graduate education. In a recent paper in *Health Affairs* Aiken and colleagues provided a cohort analysis to determine the highest education achieved by nurses receiving their basic or initial nursing education between 1974 and 1994 (Aiken et al., 2009). We found that choice of initial nursing education program—associate degree or baccalaureate--was the major predictor of final educational attainment. Close to 20 percent of nurses irrespective of initial nursing education obtain a higher degree. However, of the 20 percent of associate degree nurses who obtain an additional degree, 80 percent stop at the baccalaureate degree. Of the 20 percent of nurses with a baccalaureate degree who go on for additional education, almost 100 percent obtain at least a master's degree. This is an important finding for the design of policy interventions since investments in encouraging BSN education have not distinguished between RN to BSN programs and basic BSN programs. The yield for teachers is entirely different between the two types of programs. If the current scenario of distribution of nurses by type of basic education had been reversed since 1974 and 66 percent of nurses had graduated from BSN programs instead of 33 percent, we estimate that there would be over 50,000 more nurses with master's and higher degrees today.

We concluded in our *Health Affairs* paper that it was a mathematical improbability that the nurse faculty shortage could be solved without changing the distribution of nurses by type of basic education. There are simply not enough nurses who obtain a master's or higher degree to

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meet the dramatic increase in demand for clinicians, administrators, teachers, and leaders who require a graduate degree.

What would be the expected yield in terms of nursing faculty that would be likely to obtain by increasing basic BSN education? To answer this we undertook an analysis of the National Sample Surveys of Registered Nurses over time to explore whether career trajectories of nurses with graduate education had changed over time. The answer is yes—significantly. For example, in 1982, 17 percent of nurses with master's degrees and 62 percent of nurses with doctorates were in faculty positions compared to only 7 percent of master's and 41 percent of nurses with PhDs in 2004. Nurses with graduate degrees are selecting positions in clinical care and administration in ever larger numbers. The yield for teachers is clearly greater for those who earn doctoral degrees which argues for policies that aggressively recruit BSN nurses into expedited doctoral education thus bypassing the master's which has a very clinical curriculum and a different endpoint end objective focused on producing clinicians. Probably for historical reasons, many schools build their curricula sequentially from the BSN to MSN to doctoral degree. However, the clinical masters in specialty practice has little to do with learning to teach or to conduct research. The clinical masters is not a building block for doctoral study but a terminal degree like the MBA or the Masters in Engineering. In order to address the faculty shortage two things would have to happen simultaneously. More nurses would need to initiate basic nursing education at the baccalaureate level AND expedited BSN to PhD programs would need to be expanded to interest students in teaching careers earlier and expedited to bypass the clinical masters that emphasize career trajectories in clinical care. The clinical master's is not a building block for doctoral education but a different career pathway.

Tying educational loan forgiveness to teaching is a reasonable supplemental strategy along with a focus on BSN to PhD education to help offset lower incomes in faculty positions. Actually closing the gap between practice and academic salaries is not feasible. The gap exists in every practice discipline including medicine, law, business, and engineering. University faculty salaries vary for different fields depending upon market factors but not enough to close the gap between teaching and practice within disciplines. Combining clinical and academic responsibilities for nurse faculty is a potential strategy for enhancing faculty incomes. However, in only a few nursing specialties like nurse anesthesia or executive positions are rates of remuneration for clinical nursing care high enough to offset lower academic salaries for teachers with joint clinical appointments.

Articulation programs aimed at facilitating additional education for RNs with less than a baccalaureate degree have been tried for decades and do little to produce more teachers. Once nurses qualify for licensure, 80 percent do not seek further education. Oregon has the most innovative approach to improving articulation between associate degree and baccalaureate programs by standardizing requirement; the Oregon program has twice the success rate than the national average with 40 percent of associate degree nurses obtaining the BSN. However, the Oregon articulation initiative would not solve the shortage of teachers because most of those who get the BSN will not go for a second additional degree. RN to MSN programs would have a somewhat higher yield for teachers than RN to BSN completion courses but not nearly as high a yield as BSN to PhD programs.

Associate degree education is appealing to policy makers because it seems to offer upward mobility because it is less expensive and more geographically accessible. However data suggest in the case of registered nurses that initial qualification for licensure at the associate degree level actually constrains educational and career mobility compared to those who initially qualify at the

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bachelor's degree level. The advantages of associate degree education, lower out of pocket costs and geographic proximity, can be offset in the case of nursing by public subsidies for educational costs and distance learning. The length of associate degree and baccalaureate programs are not significantly different because of licensure requirements. Maintaining three (including diploma) educational pathways for nurses that at least on the surface do not seem radically different have a dramatic impact on the upward educational mobility of nurses thus contributing to the shortage of faculty and other nurses requiring graduate level education.

The majority of countries with comparable health care to the U.S. have moved to standardize nursing education at the baccalaureate entry level including the European Union. States have the authority in the U.S. to set licensure requirements for nursing. Prospects for standardizing education of nurses through licensure changes across 50 states are not good. However, financial incentives imbedded in public subsidies for nursing education could have a significant effect on changing patterns of education just as payment incentives change medical practice patterns.

The IOM Committee should recommend increasing public subsidies for basic nursing education—federal and state—and tying these funds to the production of baccalaureate graduates. Policies should be neutral on types of institutions—community colleges or 4 year colleges and universities-- that could benefit from funding. Capitation funding on the basis of BSN graduates from basic education programs could be effective in shifting the proportion of graduates towards more with BSN qualifications. Coupled with increased funding for graduate nurse education, this could be an effective strategy for addressing the faculty shortage along with shortages of advanced practice nurse clinicians and administrators.

IOM Committee members in a previous discussion of this option asked what the yield would be for faculty positions in increasing baccalaureate graduates. Additional research is needed to answer this important question directly. However, we know from existing research that BSN initial graduates are 3 times more likely to get a Master's degree and twice as likely to get a doctoral degree than associate degree nurses (Aiken et al., 2009) which would likely produce more teachers. Because the current yield of teachers is relatively low overall among nurses with graduate degrees—only 7 percent of master's graduates and 41 percent of doctoral graduates electing faculty positions—policies to increase baccalaureate initial education would have to be accompanied by efforts to increase the teacher yield. Promising strategies to increase the teacher yield among those with graduate credentials include scholarship and educational loan repayment for those in teaching roles and funds to expand BSN to PhD expedited programs. And investments in more baccalaureate nurse graduates would also likely return additional benefits in the form of better quality, improved access, and efficiency for those electing clinical practice roles, an outcome in the public's interest.

INCREASED FEDERAL AND STATE FUNDING FOR GRADUATE NURSE EDUCATION

The evidence is strong that the growth of advanced nurse practice has contributed to improved access to general care (Aiken et al., 2009). Over the past decade advance practice nurses have largely staffed the new retail clinics that currently provide about 3 million ambulatory visits a year at an estimated per visit cost of below the average cost to a physician office. Additionally, advanced practice nurses have enabled the largest expansion of Community Health Centers since the Great Society Program; CHCs currently provide over 16 million visits in 7300 sites to largely underserved people. In total, advance practice nurses are estimated to

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provide up to 600 million ambulatory patient visits a year, a national primary care capacity enhancement that will become increasingly critical to access in a context of primary care physician shortage.

The rate of production of new advanced practice nurses (APNs) which had been growing steadily since the 1970s has been flat in recent years. Interest among nurses in advanced practice roles appears strong but the shortage of student financial aid for graduate nurse education has a chilling effect on enrollment growth. It is difficult for many nurses to forego employment income to attend graduate programs full time without scholarships or loans which are in short supply. The major source of funding for graduate nurse education is Title VIII annual appropriations which currently total about $60 million (estimate for graduate education only, not all of Title VIII funding), compared to $2.4 billion for direct graduate medical education for physicians. A large proportion of APN students pursue graduate education on a part time basis which slows the production of new graduates. Employer tuition benefits, an important source of educational assistance for practicing nurses have been reduced during the economic downturn eroding available financial support for graduate nurse education, particularly at the master's level which is generally required for advanced nurse clinical practice.

Medicare, since its inception, has paid for a share of graduate medical education. It has also reimbursed some hospitals for a portion of their nursing education costs. An analysis we conducted of 2006 HCRIS data from CMS suggested that Medicare funding for nursing education was slightly less than $160 million annually, a small amount compared to medical education investments, but almost as much as all of Title VIII funding for nursing in that year. CMS has a larger estimate of $300 million in Medicare payments for nursing education but we cannot verify that estimate with publically available data. But whether Medicare funding is $160 million or $300 million annually, policies governing expenditures are very different from how the funds are spent in support of medical education, the amount is large relative to other sources of federal support for nursing education, and the funding does not materially affect the supply of nurses or the quality of nursing care for the elderly (Aiken and Gwyther, 1995). Most of the funds are limited to hospital-sponsored diploma nursing schools which currently prepare less than 5 percent of new RNs annually. Also 5 to 6 states account for almost half of Medicare nursing education funding because of the location of the relatively few surviving diploma nursing schools.

A number of workforce studies and commissions including a 1997 IOM Committee have called for the realignment of Medicare funding for nursing education to graduate nursing education (IOM, 1997). The health reform bill passed by the Senate proposes a small demonstration of up to 5 hospitals to test Medicare payments for graduate nursing education. While better than no progress at all, the proposed demonstration is too small to significantly advance a change in Medicare policy that is long overdue.

There is sufficient information available now as suggested by the Institute of Medicine in 1997 to realign Medicare nursing education funding to graduate nursing education. This could be a budget neutral programmatic shift which would more than double current federal funding levels for graduate nursing education and serve as a significant stimulus for increased production of advanced practice nurses to meet the multitude of existing and emerging needs resulting from the continuously changing boundaries between nursing and medicine.

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FEDERAL AUTHORITY ON HEALTH WORKFORCE POLICIES

There is little effective health workforce policy-making at the federal level. The modest nursing policy capacity is located within the Health Resources and Services Administration, an agency within the Department of Health and Human Services (HHS) with little of its own funding and no authority to engage the Centers for Medicare and Medicaid Services (CMS) which controls Medicare nursing education funding or the Department of Education where the largest funding for nursing education resides in the form of Carl Perkins Act funding for community colleges.

Patterns of basic pre-licensure education for nurses have changed dramatically in the 45 years since the nation's last major health reform—Medicare and Medicaid. In 1965, over 85 percent of nurses received their basic education in hospital sponsored diploma programs; now less than 5 percent do. The percentage of registered nurses receiving training in associate degree programs was less than 2 percent in 1965 but is over 66 percent today. Baccalaureate nursing programs produced about 10 percent of new nurses in 1965, which increased to about a third of new nurses by 1980, and has been stable there for 30 years (Aiken and Gwyther, 1995). Current Medicare policies for support of nursing education as implemented by CMS are still based on nursing education patterns that existed when Medicare was passed but that are practically irrelevant today. CMS has been resistant to proposals to realign existing Medicare support for nursing education to graduate nursing education through multiple different administrations in Washington.

The single largest source of federal support for nursing education is the Department of Education's funding for community colleges through the Carl Perkins. Perkins funds exceed $8 billion annually. A high priority should be set on examining whether and how Perkins funds could be targeted to incentivize community college nursing programs to increase the proportion of their nursing students who complete their initial education with a BSN. There are numerous feasible strategies to do this including having community colleges offer the BSN as in Florida and other states as well as innovative partnerships with 4 year colleges and universities perhaps using state of the art distance learning technologies supported by Perkins funding.

The most influential of the many commissions on nursing over the decades was the 1982 IOM Study, *Nursing and Nursing Education: Public Policies and Private Actions*. That study made a recommendation involving an organizational change within HHS that dramatically altered national nurse leadership and nursing education. The recommendation was to move the responsibility and budget authority for nursing research from HRSA to NIH where research was highly visible and influential. The establishment of the National Institute of Nursing Research within two decades fundamentally transformed the engagement of nursing in evidence-based innovations to improve health outcomes, helped create new and important interdisciplinary research and research training collaborations, improved the relevance and quality of nursing education in universities. The proposal to establish a nursing workforce authority at a higher level of the federal government could have an equally influential impact on the adequacy of the national nurse workforce.

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FINAL THOUGHTS

The Commission on the Future of Nursing has considered many important aspects of the education and practice of nursing. Of the many types of recommendations the Committee might consider, recommendations regarding federal (and state) funding of nursing education are among the most actionable and potentially influential in creating a future for nursing that serves the public's interests in patient-centered accessible health services at affordable costs. What is good for the public is genuinely good for nursing. Using public nursing education policy as a vehicle for achieving a better balance between the qualifications of nurses and national health care needs could result in great return on investment now and in the years ahead.

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Preparing Nurses for Participation in and Leadership of Continual Improvement

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"I see." said the nurse,
"You're saying that I have two jobs: doing my job, and making my job better."

In the 20 years since I first heard that comment from my colleague, Paul Batalden, MD (retold January 2010) who was quoting a participant in a course he was teaching on health care improvement, I have never heard a more succinct summary of the modern view of the pursuit of quality in a complex system. It is a deceptively simple idea, replete with implications for the preparation, self-image, support, and daily life of the professional. It represents a comprehensive goal for the modern nurse and for those who wish to prepare people for that role.

The capacity to "make my job better" is not inborn. Nor is it usually taught in professional education. What professional education, including nursing education, has more reliably focused on is the content of the job—the subject matter knowledge and cognitive and manipulative skills to care for patients in existing processes and institutions. Standards exist for how one ought to perform tasks, including dynamic tasks like problem-solving, professional preparation instills mastery of those tasks, and professional licensure and certification allege to assure achievement of that mastery.

W. Edwards Deming, one of the great theorists and teachers of improvement in systems contexts, distinguished this discipline-specific and subject-matter knowledge, which tells one, in effect, "how to be a nurse," from what he called "Knowledge for Improvement" (or, less felicitously, "Profound Knowledge") (Deming, 1994), which would tell one "how to improve nursing" or, more accurately, "how to help improve the system of which nursing is a component." Mastery of the first—subject-matter mastery—does not confer mastery of the second—knowledge for improvement. This form of knowledge invites attention to the system in which professional work is conducted.

In some ways it is surprising how little our pedagogy promotes appreciation of systems of care. Arguably, most graduates of most health professional educational program suffer from considerable "functional illiteracy" about the systems in which they work. Few emerge from their studies with a well-developed sense of responsibility for the performance of these systems, even though they work in those systems and depend on them every day.

The evidence of serious deficiencies in the performance of health care as a system is overwhelming and incontrovertible. It fueled the findings and recommendations of the landmark Institute of Medicine report, *Crossing the Quality Chasm,* in the year 2001, which claimed: "Between the health care we have and the care we could have lies not just a gap but a chasm" (IOM, 2001, p. 1). Its diagnosis: incapable systems of care: "In its current form, habits, and environment, American health care is incapable of providing the public with the quality health care it expects and deserves" (IOM, 2001, p. 43). The *Chasm Report* established six "Aims for Improvement" of care, which now compose a canonical list:

- safety (reducing harm from care);

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- effectiveness (increasing the reliability of alignment between scientific evidence and practice, reducing both underuse of effective practices and overuse of ineffective ones);
- patient-centeredness (offering patients and their loved ones more control, choice, self-efficacy, and individualization of care);
- timeliness (reducing delays that are not instrumental, intended, and informative);
- efficiency (reducing waste in all its forms);
- equity (closing racial and socioeconomic gaps in quality, access, and health outcomes).

In the decade since the *Chasm Report*, the social imperative for all six of these improvements has increased, with perhaps special emphasis lately on "efficiency" as the costs of American health care have come to appear less and less sustainable. Activities in health care policy, management, and payment have increased, with more or less coherence, in pursuit of those goals. Yet the response from health professionals (and the faculties who train them) to shoulder accountability for health system performance has been limited, and in many places virtually absent.

If, as the *Chasm Report* alleges, the current system of care is "incapable" of the needed improvement, then, logically, pursuit of the IOM Aims for Improvement requires that the system change. Nursing, like any health care profession, can become an object of change, or an agent of change. The latter role will require a new form of professionalism with new skills in system redesign.[2]

Nursing is positioned well to be a change agent. One recent national project to reduce patient injuries, the Institute for Healthcare Improvement's "100,000 Lives Campaign" (McCannon et al., 2006) translated the IOM aims of "safety" and "effectiveness" into operational form as "bundles" of evidence-based care procedures, such as the "Central Line Bundle" to prevent catheter-associated bloodstream infections, the "Ventilator Bundle" to present respirator-associated pneumonias, and Rapid Response Teams, to intercept patient deterioration with early warning, diagnosis, and treatment. Hundreds of hospitals reported success in improved patient outcomes, and a recurrent pattern included activated nurses, supported to standardize their own processes of care according to the IHI "bundles," and empowered and supported to monitor and enforce those standards across disciplines, including with their physician colleagues (Berwick et al., 2006). Present steadily at the point of care, committed to excellence and reliability, equipped to measure locally, biased toward teamwork, and, crucially, encouraged to innovate locally to adapt changes to local contexts, nurses proved the ideal leaders for changing care systems and raising the bar on results.

Some relevant education innovation are well-underway. The pioneering work of the Quality and Safety Education for Nurses (QSEN) project (Cronenwett et al., 2007) and the adoption by the American Association of Colleges of Nursing of the QSEN quality improvement competencies in *The Essentials of Baccalaureate Education* for undergraduate nursing education is heartening and opens the possibility that students across the professions will develop similar

[2] Some elements of that new professionalism have been labeled in the reformulation of goals of resident training by the Accreditation Council for Graduate Medical Education (ACGME) as "systems-based practice" and "practice-based learning and improvement." The Association of Boards of Medical Specialties were "partners" in the definition of competencies both for initial certification (after residency) and for Maintenance of Certification—a process adopted now by each medical specialty member of the ABMS. The latter means that every practicing medical specialist will be required to demonstrate performance improvement in practice in order to maintain their board certified specialty status.

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competencies for the improvement of care. Further, QSEN's work on faculty development (Cronenwett et al., 2009a) and graduate nursing education (Cronenwett et al., 2009b) to extend these ideas into all of nursing professional development is exciting. The Institute for Healthcare Improvement's "Open School for the Health Professions" is an interprofessional educational community that helps students from all the health professions to acquire the skills to become change agents for healthcare improvement.

From the viewpoint of nursing education, the capacity to help improve systems of care has two big elements: (a) personal skills and (b) a context of leadership and management that allows those skills to thrive in action. Nursing education fit for the needs of the 21st century will attend to both.

PERSONAL SKILLS: THE CATEGORIES OF KNOWLEDGE FOR IMPROVEMENT

Deming's four "profound knowledge" categories offer a useful framework for education goals and achievements for nurses capable of helping to improve systems:

1. Knowledge of Systems
2. Knowledge of Variation
3. Knowledge of Psychology
4. Knowledge of How to Gain Knowledge

Let us explore each.

Knowledge of Systems

"Knowledge of Systems" refers to understanding the technical characteristics of complex systems, in which factors like interdependency, feedback loops and other non-linear dynamics, uncertainty, and sensitivity to small changes constantly operate. Without systems knowledge, one approaches work (or life in general) as a series of lists, with a mentality of checking-off tasks, with assumptions of direct and linear cause-and-effect dynamics. The world, or the organization, is modeled like a machine, and simplification seems helpful. In health care, of course, things rarely work that way. In clinical work, medications can have remote, delayed, and confusing side-effects; organs interact in complex and powerful ways; patient status can be unstable, with feedback loops that spiral into sudden disasters and unwelcome surprises. Well-trained nurses are familiar with system dynamics of that sort: they understand the pituitary-adrenal-hypothalamic axis; they have studied family systems; and they are alert always to medication interactions and the effects of organ failure on physiology. Each of these requires "knowledge of systems," that is, knowledge of the body as a system, for appropriate diagnosis and response.

Where "knowledge of systems" is less robust in the preparation of nurses (as well as most other health professionals) is in understanding the *work* of health care as a system. This ignorance is the harvest less of intent than of historical accidents. In effect, modern health care is a assemblage of component roles, disciplines, and institutions built up more or less independently, and often without much regard for their interactions. Nurses and doctors who will work together for their entire professional lives rarely train together for even a single day. Tasks are compartmentalized. In many medical records "nursing notes" remain separate from

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"physicians' notes," and in many hospital wards the "Nurses' Conference Room" and "Nursing Rounds" are separate from the "Doctors' Conference Room" and "Medical Rounds." The fragmentation runs deep, as reflected in language, oaths, uniforms, schedules, and prerogatives.

In addition, the processes of care, themselves, by which I mean the flows and steps through which patients, specimens, information, and ideas pass, are often unclear and designed, if at all, only unconsciously. No one is really sure what all the steps are that a patient traverses from admission to diagnosis to treatment to discharge, and no one is in charge of the entire flow. In Paul Batalden's words, health care lacks the "catwalks" that make processes visible, and therefore analyzable, in manufacturing. It is very hard to manage and improve what one cannot see or understand, and "process illiteracy" confounds health care redesign often.

This is not inevitable. "How do we do that?" is a perfectly reasonably and tractable question for almost any set of interdependent deeds in health care, just as long as someone is in a position to ask and to mobilize the information to find the answer. The answer may prove embarrassing—there may be no stable process at all, or the one that does exist can look, upon inspection, absurdly wasteful or unscientific; but, the ability to examine and study processes opens the door to changing processes, which is on the road to improving them.

I am not a nurse, but my guess is that nursing educators will have no difficulty at all recognizing some educational goals in which "knowledge of systems" is already a high priority. For example, I suspect that nursing training for some specialist roles, such as for participation in an open heart surgery team, is full of attention to system dynamics of all sorts. No patient has ever gotten successfully onto and off of a heart-lung machine without exquisite attention by an entire team to process steps, interdependencies, and interactions, likely very consciously designed and monitored.

The task in modernization of nursing education is to generalize the pursuit of system knowledge into all that nursing is and does. Topics of relevance may include (a) health care as a system; (b) general systems theory; (c) queuing theory and flow in care systems; (d) reliability and reliability engineering; (e) lean production, and (f) resilience (Spear, 2008). In the important and special arena of safety, system topics include (g) human factors science (Reason, 1990), (h) team communications and collaboration, (i) failure mode and effect analysis, and (j) properties of high-reliability organizations (Weick and Sutcliffe, 2007), to name a few.

Knowledge of Variation

Professor George Box has said, "All systems produce information on the basis of which they can be understood." The new professional capable of leading and participating in improvement knows how to hear and use that information.

Measurement is abundant in health care, as nurses well know. Nurses spend an inordinate proportion of their time documenting and recording things; they measure all the time. However, measuring is not at all the same task as *using* measurement, especially using measurement to improve. When measuring for improvement (as opposed to measuring for judgment or measuring for selection), one is either (a) observing variation to extract ideas or (b) introducing variation to study the consequences.

Observing variation is what nurses do every day in recording a patient's vital signs, for example. The aim is inference: either that the patient is stable, or that a systematic or sudden change in status is underway. In effect, every blood pressure or temperature measurement is a test of a hypothesis that, either, "something special is going on" or that "nothing special is going

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on." Nurses in that role are like other scientists—continually measuring and making repeated inferences (Berwick, 1991).

How well they do that helps to determine patients' outcomes. "Is the antibiotic working as expected?" "Is the blood pressure coming under control?" "Is the patient entering, or staying in, proper fluid balance?" Upon the answers to those questions, based on proper interpretation of variation, rest crucial decisions about maintaining or changing theories and therapies. The challenges of proper interpretation are significant, and neither physicians nor nurses yet today receive sufficient instruction in how to understand variation correctly. The consequence of failure are what Dr. Deming referred to technically as two forms of "tampering." The first form is to react to a random change in a measurement—such as a temporary rising temperature or a temporarily falling blood pressure—*as if* it were informative ("the antibiotic is not working," or "this patient needs more pressor") when, in fact, the observed fluctuation is only random, and would revert if nothing new were done. The converse form of tampering is to classify a change as characteristic of a system when, in actual fact, it is not at all likely to be representative of the general system from which it comes. This misinterpretation can lead one to make a wholesale change in response to a special event, as when our transportation security system radically alters inspection regimes in response to a single, unlikely-to-be-repeated threat.[3]

As modern medical care and monitoring multiply the volume of information and the number of measurements flooding the nurse at the front line, the demand for technical sophistication in interpreting physiological and biochemical variation rises steadily. The modern nurse should be equipped as never before with the knowledge to interpret variation correctly, to avoid tampering, and to increase agility in appropriate response.

What applies to patients applies to systems of care, as well. The "vital signs" of health care as a system are numerous and, like measurements of patients, increasing in availability daily. System characteristics include, for example, waiting times and delays, rates of complication and outcomes of surgery and other interventions, infection, and mortality, patient satisfaction, costs and levels of waste and efficiency, safety levels and adverse events, and levels of variation in approaches to diagnosis and treatment. Many such measurements are appearing in new forms of accountability of health care organizations and professionals to payers, regulators, accreditation agencies, consumer groups, and licensing bodies. The psychology of such external measurement can be quite negative, inducing fear, anger, and sometimes deceptive practices even among the most committed professionals, but this negative cycle ought not to obscure a basic fact: that the improvement of health care systems requires very much the same type of measurement, used internally, that scrutiny bodies demand and use for other purposes externally (Berwick et al., 2003). Ideally, even if no one else required measurement of infection rates or surgical outcomes, clinicians, themselves, ought to seek them avidly as a crucial resource for making care better.

Modern nurses will, of necessity, have to learn the tasks involved in measurement for scrutiny and compliance—that's the hard fact. But, modernized nursing education will emphasize far more the role and use of system metrics as a support to the continual improvement of health care along all six of the IOM dimensions. Individual nursing practice will, in that mode, include avid measurement and sophisticated interpretation to answer questions of the form: "How is our system doing at X, and what can the variation tell us about how to do better?"

[3] The technical description of the first form of tampering is "reacting to common cause variation is if it were of special cause;" the second form is "reacting to special cause variation as if it were of common cause." Knowing the difference between "special cause" and "common cause" variation is at the heart of modern statistical process control.

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Measurement for improvement goes far beyond mere observation. It includes systematic, local interventions—making changes in processes of care and assessing and learning from the consequences of those changes. An important boundary exists between formal scientific investigations—experiments that ought to invoke the whole apparatus of planning and human subjects protection that are now required in some settings—and the daily practice of continual improvement through the introduction and assessment of better local processes—the "Plan-Do-Study-Act" approach that is at the core of modern improvement methods, and about which we will have more to say below. That said, the modern nurse ought to be equipped to participate in and often to lead systematic changes in work processes, and to assess their effects on the outcomes desired (Langley et al., 2009).

Knowledge of Psychology

Largely because interdependency, especially interdependency among people, is so much a characteristic of complex systems, like health care, human nature and psychology play a strong role in the success or failure of improvement efforts. Dr. Deming had in mind a rather long list of the components of "psychology" whose understanding and mastery underpin successful improvement work. One short subset of relevant skills is this:

- Conflict resolution and negotiation;
- Group process and meeting management;
- Forging and maintaining cooperation and coalitions;
- Adult learning;
- Understanding motivation, especially intrinsic motivation;
- Communication and signaling; and
- Maintaining a culture of safety.

The unifying concept among these topics is "managing and improving interpersonal relationships," which can be daunting in a context of high pressures on production, historical boundaries among disciplines and subsystems, hierarchy, and high risk. Scholars of so-called "high reliability organizations" ("HROs") (Weick and Sutcliffe, 2007) nonetheless find that it is exactly under conditions of stress, risk, and complexity that relationships matter the most in determining success. It may be impossible for nurses unilaterally to effect better relationships unless other professionals aims to do the same, but nurses are so central to health care processes that they may well be able to take the lead.

Knowledge of How to Gain Knowledge

Learning in complex systems is, itself, complex. Non-linear systems confound attempts to develop and enforce simple models of cause-and-effect, and so traditional, hypothetico-deductive methods to explore cause-and-effect often fail. We know that in the daily life of parenting, marital relationships, and team sports, where "continual learning and improvement" replaces "planned experiment" as an approach for gaining knowledge.

Even where firm, cause-and-effect knowledge exists in science-based health care—the knowledge, for example, that antibiotic A will almost always kill bacterium B—the *application* of that knowledge runs straightaway into the messy world of complex systems. That is, reliably getting the antibiotic safely into the body of a patient with that germ turns out to be a constant

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challenge as systems fail (the order got lost), unpredicted side-effects occur (the patient is on an incompatible other drug), local circumstances become highly relevant (the drug is unfamiliar to the new doctor), and errors multiply (the bacteriological report was on the wrong patient). The fact is frustrating and inescapable: in health care, as in any complex enterprise, the simple, scientific facts lie fallow without continual adaptation to local contexts.

The consequence for improvement is this: almost all effective improvements require continual, local experimentation—local growth in knowledge. All improvement requires change (although not all changes are improvements), and proper change requires continual learning. A modern workforce, including modern nurses, is fully equipped to act as "scientists at work." When the nurse quoted at the top of this essay said, "I have two jobs: my job and improving my job," she was entering a world of continual trial and learning for *both* of those roles.

We might call the subject, scarily, "epistemology," for it involves, after all, a theory of knowledge, itself: the idea that human beings in complex systems best acquire new knowledge by making changes and studying the effects of those changes. But, it is in fact not so arcane at all. This is the form of learning that all healthy people use in almost all the common endeavors of their daily lives—the endeavors that they care about and are in some degree of control over: sports, hobbies, loving relationships, cooking, dieting, and getting a good night's sleep. In every single case, the individual who wishes to get better finds ways continually to test new approaches, knowing that, as we all know: "If you continue to do what you've always done, you'll always get what you've always gotten." That's not good enough for your tennis game or your gardening, and it's not good enough for the work of health care, either.

The jargon of modern improvement is "PDSA"—"Plan-Do-Study-Act." This describes a simple, iconic cycle of aim-setting, testing, reflection, and change based on reflection. The modern nurse who intends to "improve the job" effectively needs to be a master of the "PDSA Cycle" at work. Unlike in gardening or tennis, PDSA at work is not a solo enterprise. Almost all forms of organized quality improvement activity today involve teams; groups, not soloists, carry out the tasks of will-building, measurement, idea-generation, design and conduct of small-scale tests of change, reflection, and guidance to further action. These compose quality improvement projects. For a modern nurse, participation and leadership in such project work is the form taken of action based on "knowledge about how to gain knowledge."

LEADERSHIP AND MANAGEMENT SKILLS

The four areas of skill and knowledge explored above—systems, variation, psychology, and epistemology—compose a strong set of goals for modernized nursing education on behalf of quality improvement. One key element is missing, however—the context of leadership and management that allows those skills to thrive. Not all nurses will become formal system leaders during their careers, but those who do will more effectively nurture system improvement if they understand how to lead improvement.

A full exploration of "leadership for improvement" is beyond the scope of this essay, and numerous resources are readily available attempting to describe what leaders need to know in order to foster improvement in the systems they lead (Reinertsen et al., 2008). However, a few leadership-dependent elements deserve special mention because they interact so strongly with the topics addressed above:

- Setting Aims and Building Will to Improve

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- Measurement and Transparency
- Finding Better Systems
- Supporting PDSA Activities, Risk, and Change
- Providing Resources.

When leaders, including nursing leaders, establish these and other preconditions in the work setting, they can effectively liberate the energy and wisdom of the front-line staff and middle managers to incorporate continuous improvement into their daily work, and they stand a better chance of assuring that these good-hearted, local improvement efforts align with and support the most important strategic goals of the organization and system as a whole. Just as good teachers in a classroom make it possible for students to become active learners, so do good managers make it possible for nurses and all health professionals to become active, curious, effective, and, ideally, joyous improvers.

SUMMARY

Modern health care demands continual system improvement to better meet social needs for safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. Nurses, like all other health professionals, need skills and support to participate effectively in that endeavor, and, often, to lead it. Nursing education is poised to accelerate progress by embedding healthcare improvement skills in all phases of professional formation.

Following are recommendations intended to support this vision:

1. Preparation of nurses should include mastery of knowledge of systems, interpretation of variation, human psychology in complex systems, and approaches to gaining knowledge in real-world contexts.
2. During professional preparation, nurses-in-training should experience and reflect upon active involvement in multi-disciplinary quality improvement projects and work settings that foster day-to-day change and improvement.
3. During professional preparation, nurses-in-training should experience, reflect upon, and develop the knowledge, skills, and attitudes that create competence in patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics.
4. Preparation of nurse-teachers and nurse-executives should include acquiring and practicing skills and methods for the leadership and management of continual improvement.
5. Organizations that license and certify nurses or accredit nursing education programs should require evidence of nurses' preparation for participation in or leadership of teams that work to continuously improve health care systems and individual and population health.

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Nursing Education Priorities for Improving Health and Health Care

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The health professions derive autonomy for establishing professional standards and regulatory mechanisms from a social contract that assumes professionals will act in the best interests of the societies they serve. Proposed changes in nursing education, therefore, must derive from broad societal aims. In the United States, we face few challenges as daunting as the one before us, namely to simultaneously improve the health of populations, enhance the patient experience of care (including quality, access, and reliability), and reduce, or at least control, the per capita cost of care (Berwick et al., 2008). Among the many issues that nursing educators could be called upon to address to meet these aims (Cleary et al., 2010; Forbes and Hickey, 2009), I have chosen three that, if addressed, would have significant impact on nursing's ability to meet society's needs as outlined by the above "triple aim."

CONCLUSION I. In order to meet the nation's need for nurses, people with strong academic preparation need to be educated in collegiate nursing programs in far greater numbers than they are today.

In 1992, Fagin and Lynaugh reviewed the history of nursing education and proposed that societal needs for nursing as an occupation (i.e. a vital work serving the public) and as a profession (i.e., a living body of knowledge and skills) were best met if the proportion of nurses prepared at the baccalaureate (BSN) level exceeded those prepared in associate degree (ADN) and diploma programs (Fagin and Lynaugh, 1992). They proposed three methods (direct transfer linkage, partnership projects, and nurse associate programs) to end the bifurcation of nursing education between universities and community colleges and to assure that graduation patterns did not result in a workforce with the majority of the country's nurses possessing the associate's degree as their highest level of educational preparation. Although features of each of Fagin and Lynaugh's (Fagin and Lynaugh, 1992) proposed methods can be found in programs implemented during the last two decades (for instance, improvements in articulation agreements, partnership projects like the Oregon Consortium for Nursing Education, and differentiation of North Dakota licensure levels), our nation continues to produce far more pre-licensure graduates from ADN than BSN programs annually (roughly 60/40 percent if one includes RN-BSN transition degrees [Aiken et al., 2009]).

The literature debating the relative merits of pre-licensure education at ADN and BSN levels is large and beyond the scope of this paper. Some evidence suggests that the percentage of nurses prepared at the BSN level on hospital units is positively correlated with better patient outcomes (Aiken et al., 2003), and during times when no shortage of nurses exists, the baccalaureate graduate is now the preferred new graduate hire. Nonetheless, most states continue to educate greater numbers of ADN than BSN graduates every year. In North Carolina, new pre-licensure graduates who completed programs in 2006 included only 29 percent who were graduates of BSN or entry-MSN programs (North Carolina Institute of Medicine, 2007). Including the RN-BSN graduates, the total proportion of BSN or higher degree graduates in 2006 rose to only 36 percent (North Carolina Institute of Medicine, 2007). Some states graduate even lower proportions of BSNs among their new nurse graduates each year (California Strategic Planning

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Committee for Nursing, 2010). Fagin and Lynaugh's (1992) predictions concerning the diminishing educational levels of the overall composition of the nursing workforce have come true.

States invest in the above combination of nursing pre-licensure programs for many reasons, not the least of which are the lower costs in faculty salaries and student tuition/fees associated with associate degree programs. But another important factor is the geographic distribution of ADN programs, which are more likely to be offered in rural and other medically underserved communities than are BSN programs in American colleges and universities. The Urban Institute, in their recent study of the nursing workforce, reported that medical personnel, including nurses, tend to work near where they are trained, so the distribution of support for nursing education matters (Bovbjerg et al., 2009). Nursing personnel are needed in virtually every community in America, and ADN programs help ensure that the nation has a broader geographic distribution of nursing personnel than we could attain with BSN graduates alone.

Nonetheless, we have created a huge problem with our current educational patterns. By educating more ADN than BSN graduates, we have narrowed the pipeline of nurses likely to go on to graduate school.

The greater the number of nurses in basic practice, the greater the number of nurses needed in advanced roles, such as nurse managers, nurse executives, clinical nurse specialists, and faculty. Health care reform bills may enable greater access to primary care, thus escalating the need for nurse practitioners and midwives. All of these roles require that nurses seek graduate education.

Nurses who receive their pre-licensure education in colleges and university programs are overwhelmingly more likely to go on to graduate school than graduates of ADN programs. Using North Carolina licensure data, Bevill and colleagues (2007) analyzed the pursuit of higher educational degrees of RNs from two cohorts. They reported:

> Only 26% of the 2,418 members of the 1983-84 cohort at 20 years and 17% of the 4,211 members of the 1993-94 cohort at 10 years pursued higher degrees, and just 19% and 12% of the respective cohorts did so in nursing. More than 80% of all nurses in either cohort who attained a master's degree in nursing or a doctorate in any field began their nursing career with a bachelor's degree. (Bevill et al., 2007, p. 60)

Aiken and colleagues (2009) reported similar results from a national study. They found that of the nearly 1.4 million nurses who obtained ADN or BSN degrees between 1970 and 1994, only 6 percent of the nurses with original ADN degrees had gone on to earn graduate (master's or doctoral) degrees, whereas nearly 20 percent of the original BSN graduates had done so. Though improving overall educational levels with programs that smooth the pathway from ADN to BSN are valuable, the *critical* need is to assure an adequate pipeline for graduate education by expanding the capacity of current and future BSN programs.

One important innovation of the last decade has been the opening of accelerated BSN (ABSN) programs for students who already have college degrees in another field. A previous argument advanced in favor of ADN education as a response to nursing shortages (that is, that you could produce new nurses in two years instead of four), became obsolete as universities opened programs that educated BSN graduates in 12–18 months. Currently, there are 218 ABSN programs in the U.S. and an additional 57 programs that accelerate students in a direct path to a

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master's degree (AACN, 2009a). ABSN programs, while addressing the need for new nurses in basic practice, have served as an unusually successful pipeline for advanced practice (APN) master's programs. They attract students who bring rich backgrounds from other fields, academically successful students, and students who are motivated and know what they want from a career (AACN, 2009a). Bentley (2006) and Brewer and colleagues (2009) found that the accelerated program graduates, when compared to traditional nursing bachelors degree graduates, were more likely to be male, non-White, and older, thus addressing the need for increased diversity in nursing. Brewer and colleagues (2009) also reported that the accelerated graduates often moved quickly into management positions.

In February, 2009, the American Association of Colleges of Nursing reported 2008–09 survey data from 663 nursing schools (87 percent of total number of collegiate-level programs) showing that almost 50,000 qualified applicants to collegiate nursing programs were turned away (AACN, 2009a). The most frequently cited reason was insufficient faculty (63 percent) (AACN, 2009a).

To ensure the future ability of nursing education to meet societal needs, therefore, we must increase our capacity to educate college/university-bound students. These graduates will expand the number of nurses in basic practice, but they will also address other critical needs, namely our shortages of nursing faculty and primary care advanced practice nurses.

An additional benefit derives from the fact that students exposed to health care leaders at early stages in their career, as collegiate students are, are likely to become the nursing leaders of tomorrow. (Personal note: At the 2009 Sigma Theta Tau International Biennial Convention, among the nursing leaders honored with prestigious Founders' Awards, *each* in accepting their award spoke about the importance of exposure to distinguished nursing leaders early in their careers).

RECOMMENDATIONS

1. Fund a longitudinal national study to track the percentages of new nurse graduates per year from ADN/diploma vs. collegiate pre-licensure programs by state. Include tracking of data regarding faculty shortages, primary care nurse practitioner and basic nursing shortages by state, with the goal of better understanding the relationships between new nurse educational levels and critical societal needs.
2. Advance media attention to states that exemplify "best practices" in the distribution of new nurse graduates derived from ADN versus BSN programs.
3. Through capitation approaches, direct enrollment expansion funds (from private or public sources, especially federal Title VIII funds) that assure expansion of pre-licensure programs at colleges/universities until such a time as there is greater equity in production of new nurse graduates.

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CONCLUSION II. To meet societal needs for primary care providers, nursing education needs to expand the numbers of annual graduations from programs that prepare nurse practitioners.

Although health care reform legislation remains unfinished, the United States may extend health insurance to more than 30 million Americans with a promise that they (and all currently insured citizens) will have access to high quality and affordable care. Shortages of primary care physicians, nurse practitioners, and physician assistants are severe under *current* conditions and will escalate dramatically (as Massachusetts is currently experiencing) if Congress passes the bills under consideration (New England Healthcare Institute, 2009). Health care costs will have to be reduced or contained, or the nation will face an economic burden that is unsustainable. Under any likely scenario, the need for nurse practitioners (NPs) will increase dramatically.

In the most recent academic year, approximately 7,500–8,000 students graduated from NP programs (AANP, 2009b). Of the 125,000 NPs practicing today, most qualify as primary care providers (49% family, 18% adult, 3% gerontological and 9% pediatric specialties) (AANP, 2009b). Currently, the vast majority of students complete educational requirements for certification exams in their NP specialty at the end of master's (MSN) programs. Recently, Doctor of Nursing Practice (DNP) programs have been introduced, adding competencies related to organizational systems leadership for quality improvement, information systems and patient care technology, healthcare policy, inter-professional collaboration and clinical prevention for improving patient and population health (AACN, 2006). These competencies, currently provided in post-master's DNP programs almost exclusively, build on specialty practice education received in MSN programs and, in most cases, practice experience from basic practice, administrative, or faculty roles. It is beyond the scope of this paper to describe fully the rationale for the practice doctorate (AACN, 2004), but major reasons include the demand for formal practice-centered education and scholarship opportunities beyond those provided by the master's degree and equity issues with other health professionals who have converted their professional master's programs to professional doctorates in programs equivalent in length to most nursing master's programs (e.g., physical therapy, pharmacy, etc.).

Most schools of nursing with graduate programs (approximately 475) feel tremendous pressure (whether or not they have the resources to mount quality DNP programs) to convert their master's or post-master's DNP programs to DNP programs that prepare NPs for entry into practice because of the American Association of Colleges of Nursing position statements on the DNP, as represented below:

> AACN members have endorsed the transition from specialty nursing practice education at the master's level to the DNP by the target goal of 2015. AACN recognizes the importance of maintaining strong interest in roles (e.g., nurse practitioner, clinical nurse specialist, nurse midwife, and nurse anesthetist) to meet existing health care needs. In response to practice demands and an increasingly complex health care system, programs designed to prepare nurses for advanced practice nursing will begin the transition to the practice doctorate for nurses who initially want to obtain the DNP, as well as for nurses with master's degrees who want to return to obtain the practice doctorate. AACN will assist schools in their transitioning to the DNP and in their efforts to partner with other institutions to provide necessary graduate level course work. Specialty focused master's level programs will be phased out as transition to DNP programs occurs. Master's programs will continue to be offered and will prepare nurses for advanced generalist practice. (AACN, 2006, p. 12)

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No licensure or certification requirements mandate this change to date. Even the Commission on Collegiate Nursing Education (CCNE), the autonomous accrediting agency associated with AACN which will accredit DNP programs, has to date said nothing about requiring a transition to entry-to-practice DNP programs

The entry level DNP has been opposed by a minority within the profession since its conception (Dracup et al., 2005; Melies and Dracup, 2005). Recently, some AACN member deans and the National Organization of Nurse Practitioner Faculties submitted letters to the AACN Board requesting that they remove the threat of the 2015 date for requiring the transition to entry DNP programs (personal communications, November 2009). With a dearth of qualified faculty, many programs of uneven quality are being mounted. But the bigger issue is that faculty members have begun to realize what a tremendous investment of faculty and student time is required to complete the DNP. Doctoral requirements for independent projects/dissertations are important for building the capacity for DNPs to contribute to quality improvement and translational science, but they take time and commitment to scholarly approaches to inquiry. Schools are realizing that they cannot educate the same numbers of DNPs per year at the entry level as they are currently graduating at the MSN level.

Inevitably, a transition to DNP programs for entry into NP practice would reduce the production of NPs at exactly the time when the country may experience a dramatic increase in need. We have not yet seen a decrease in the number of MSN graduates per year, because only a small number of schools have phased out MSN specialist programs to date. To increase, *or even maintain*, the current annual graduation numbers of primary care NPs would require funds (from students and schools) to pay for at least one additional year of study for each graduate, sufficient numbers of qualified faculty members to teach the additional year's program content and supervise individual scholarship projects, and more preceptors for the additional hours of supervised clinical time. These are significant costs during a period of economic downturn that has reduced budgets for almost all schools of nursing.

The irony is that the literature is replete with results of studies showing that the NP workforce, as currently trained, provides patient care of high quality. Pohl and colleagues (Pohl et al., in press) reviewed the literature in a recent background paper for the January 2010 Josiah Macy Conference, "Who Will Deliver Primary Care and How Will They Be Trained?" Their summary stated:

> NPs have practiced in a variety of models, and the outcomes of their practices have been studied for more than 40 years. Repeatedly, when quality of care has been assessed in studies that are highly rated on strength of evidence, NP providers have been found to provide equivalent, and in some cases, superior care. Because of the supervision requirements and payment models that have funded physicians as heads of practices, evidence about relative costs of care using various primary care provider mix teams has been difficult to obtain. Such studies are needed prior to implementation of any public policy that would reimburse primary care at significantly higher costs. (Pohl et al., in press, pp. 13–14)

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Rather than mandating the increased costs to students, faculty and schools of nursing that would be required to convert to entry DNP programs now, all pressure to start DNP entry programs should be removed, allowing the external environment (societal needs, school budgets, student and employer demand) to settle the issue over time. At a minimum, nursing education should commit to a transition period that will not diminish production capacity at a time of critical societal need. Many organizational leaders (maybe even AACN, and definitely CCNE) would welcome an external voice that emphasized that the needs of patients and society should take precedence over professional aspirations at this time.

RECOMMENDATIONS

1. Fund a project that would include RWJF/IOM Committee members and representatives of relevant professional organizations involved in APN certification, accreditation, education and practice. Provide facilitative leadership (like Ellen Kurtzman did for the RWJF-funded project to achieve consensus on establishing a Nursing Quality and Safety Alliance) for reaching consensus that DNP programs should be launched as post-master's programs for the foreseeable future so that nursing maintains or increases the numbers of NP graduates each year.
2. As a secondary goal in the process above, ensure that nursing master's programs remain targeted at *specialist* preparation, not generalist preparation as currently proposed by AACN.
3. Fund the development of briefs aimed at state governors and attorney generals that emphasize the importance (to the cost/quality of health care in their states) of removing legal, regulatory, or reimbursement policy barriers to the ability of nurse practitioners to serve as primary care providers or leaders of patient centered medical homes or other methods of patient care delivery.

CONCLUSION III. New models of education are needed to ensure that the competencies required to do the work and improve the work of nursing and healthcare are embedded in nursing education programs.

Nursing education programs began to transition out of hospital-based, apprenticeship programs into academic settings (colleges/universities and community colleges) over fifty years ago. Aligning nursing education with the dominant American approach to professional preparation in other fields fostered numerous gains for the advancement of knowledge, the development of faculty and advanced practice roles, and the quality of nursing education and practice. Throughout the decades, however, nursing leaders have been challenged by the separation of academic and practice worlds and the difficulties associated with building sufficiently strong links between practice and academe to ensure that nursing students develop the competencies that make them able to work effectively in health care settings (Cronenwett and Redman, 2003; Fagin, 1986). Recent studies of newly licensed registered nurses illustrate that the gap remains (Kovner et al., 2010; Pellico et al., 2009). For example, the new nurses in the study by Pellico and colleagues called for more educational experiences involving 8-hour clinical days, more realistic patient/nurse ratios, and better preparation for communication activities such as change-of-shift reports, delegating, rounding with physicians, and charting (Pellico et al., 2009).

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Added to this perennial problem, the first decade of the 21st century was marked by a series of Institute of Medicine reports outlining the problems with healthcare quality and safety. In response, the pace of change in practice settings escalated, as new quality improvement processes and measures were adopted, and data about quality and safety became transparent to the public. By and large, full-time faculty members in schools of nursing were uninformed about these changes as they developed. Not surprisingly, Kovner and colleagues found that 39 percent of new nurses in a 2008 survey thought they were "poorly" or "very poorly" prepared or "had never heard of" quality improvement, although BSN graduates reported significantly higher levels of preparation in evidence-based practice and assessing gaps in teamwork and collaboration (Kovner et al., 2010).

Since 2005, the Robert Wood Johnson Foundation has funded the *Quality and Safety Education for Nurses* (QSEN) project (Cronenwett et al., 2007, 2009a,b) to address the challenge of educating nurses who will be prepared to continuously improve the health care systems in which they work. Faculty have available two websites with resources for developing teaching strategies aimed at the knowledge, skills, and attitudes that must be developed to achieve competence in patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics (Cronenwett et al., 2007)—namely the QSEN website at www.qsen.org and the Institute for Healthcare Improvement Open School at http://www.ihi.org/IHI/Programs/IHIOpenSchool/. A series of faculty development conferences and national forums on this topic are being launched by QSEN (through UNC and AACN) to provide further support for embedding these topics in nursing programs.

The rapidity with which nursing faculty can become "out of touch" with the requirements of current practice was made evident during this decade (Sherwood and Drenkard, 2007), and there is much yet to learn about how to overcome the negative consequences of the gaps between nursing education and practice. The Carnegie Commission funded a study of professional formation across multiple disciplines, and a recent book by Benner and colleagues (Benner et al., 2009) described a call for radical transformation of nursing education. To the point being raised here, the multi-year study concluded that there needs to be better integration of coursework with clinical experiences, so that coursework and classroom learning are tied to what actually happens in patient care rather than being studied in the abstract. Faculty, they argue, must help students make the connection between *acquiring* and *using* knowledge, so that students develop clinical reasoning skills for the diverse, complex practice that is nursing (Benner et al., 2009). Faculties cannot perform these functions unless they possess clinical expertise or work closely with nurses in practice at each step from curriculum design to development of simulation, classroom and clinical teaching strategies and assessment of student performance. Likewise, there are great challenges associated with teaching system competencies (as opposed to the competencies related to the care of individual patients), such as inter-professional teamwork and collaboration, safety sciences or quality improvement, when faculty are not actually doing the work of improving health care systems themselves.

Nursing faculties and their practice partners have tried a variety of strategies to continuously improve the preparation of students for practice. Some examples (without citing a huge literature) are: capstone courses with staff nurse preceptors, dedicated education units, faculty practices, inter-professional learning experiences, cross-appointing nursing staff on faculties and faculty members on patient care units, requiring teachers of undergraduate students to practice at least a day a week, hiring clinical experts to help faculty develop cases for simulated clinical teaching, and keeping student clinical experiences in one institution for greater depth in exposure

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to safety cultures, quality improvement projects, electronic health records. More innovation is needed, along with studies that will help identify "best practices" for dissemination.

The other major barrier to achieving effective practice competencies is the lack of a structured and financially supported residency training program during the first year of initial licensure as a nurse. Because schools of nursing prepare pre-licensure graduates as generalists, newly licensed nurses, by definition are not prepared with the knowledge and skill base for practice with specific patient populations. Wherever a new nurse begins practice, a period of mentored supervision and support should be provided. The National Council of State Boards of Nursing is working to promote criteria for the transition to practice period that would need to be met before the new nurse was re-licensed at the end of the first year of practice (Benner et al., 2009). AACN and the University Healthsystem Consortium offer support, and accreditation through CCNE, for nurse residency programs aimed at BSN graduates (NCSBN, 2009). Nonetheless, no consistent requirement for nurse residencies reinforces the importance of this phase of education for the practice of nursing.

RECOMMENDATIONS

1. Promote innovation and evaluation of novel approaches to improving preparation for the *practice* of nursing through designated Title VIII (HRSA, USPHS) funding mechanisms.
2. Urge accrediting bodies (CCNE and NLNAC) to require evidence that faculty have the practice expertise or effective clinical partnerships to prepare students for the work of nursing practice and improving the work of nursing and health care.
3. Promote funding mechanisms for the development and testing of new methods of inter-professional education through simulation, case studies, and clinical practice.
4. Promote innovation and evaluation of models that engage nursing faculty in the work of improving health care.
5. Support learning collaboratives of state boards of nursing who are willing to work out the issues related to implementing regulatory requirements for transition to practice residencies as a prerequisite for initial re-licensure.
6. Require that any hospitals receiving GME monies for "nursing education" devote those resources to supporting transition to practice residency programs.

FINAL THOUGHTS

The exercise of choosing only three areas of focus for this paper makes me realize the challenge that RWJF/IOM Committee members face as you decide what actions to take to ensure that nursing meets the needs of the public for the foreseeable future. I hope the ideas from these collective papers on the *Future of Nursing Education* assist you in your difficult but important task.

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Nursing Education: Recommendations for the Future

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The nature of nursing has changed drastically over the past few decades. The complexity of care in many diverse settings, the role of advanced practice nurses as independent providers, and the growing recognition of the important role of scientific evidence upon which to base nursing practice have changed the way nurses are viewed by the public and the way they should be educated. The complex demands of practice combined with a shortage of experienced practitioners in many of the health care professionals have created opportunity and, in some areas, a state of potential crisis. As health care reform looms and the population continues to age, nursing education must embrace these challenges, expanding and improving on what it offers currently to better prepare the nurse of the future.

Many issues face the nursing profession today; all seem to be filled with odd contrasts.

- Nursing is a profession characterized by a highly complex practice with nurses often making life and death decisions. Yet the formal education required to prepare clinicians for this challenging practice is less than any of the other health professions (i.e., nurses can currently practice with a two-year associate degree and 80 percent who enter the profession with this degree choose not to get further formal education in the form of another degree) (Aiken et al., 2009).
- The projections for nursing shortages in the near future are alarming, but the urgency of those shortages are blunted by the current economic crisis that has kept many nurses in the workforce and has reduced vacancy rates. The seeming resolution of the shortage has diverted the attention of the media and government to other problems and has reduced the chances that nursing education will receive the resources it needs to expand enrollments.
- A current and projected faculty shortage is a serious impediment to solving the preparation of new nurses, but nursing faculty remain one of the most poorly compensated categories of nurses.
- Nursing is a profession that increasingly must be based on science and strong empirical data and yet the number of scientists within it to generate new knowledge remains disappointingly small.
- Nursing is a profession charged to care for a highly diverse population of patients and yet it remains highly non-diverse in gender, race and ethnicity. The lack of diversity among nurses, with the consequent discordance between clinician and client, serves to reduce the effectiveness of the care nurses provide.
- Finally, it is a profession that must have strong interprofessional relationships with other members of the health care team to be effective and yet nurses (and other health professionals) are educated traditionally in silos with little exposure to students in other health professions and no formal opportunities to develop team skills.

This list is undoubtedly incomplete. Even taken alone, it underscores the need for a critical reappraisal of how we educate the next generation of nurses and what recommendations we make to federal and state governments, as well as to the organizations responsible for accrediting

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nursing educational programs, to provide appropriate preparation and economic support to the next generation of nurses.

Three issues will be highlighted in this paper: the shortage of nurse scientists, the lack of educational preparation for preparing nurses to provide patient-centered care within an interprofessional team of health care providers, and the lack of effective formal teaching in pre-licensure programs in the areas of nursing science, natural and social sciences, humanities and leadership. Two of the three are particularly germane to university-based schools of nursing who are facing severe faculty shortages and to practicing clinicians who make decisions each day based on tradition rather than empirical evidence. The third area was highlighted in the recent Carnegie Foundation Report on nursing education (Benner et al., 2010) and has important ramifications for the entire nursing profession and for the future health of our nation.

THE SHORTAGE OF NURSE SCIENTISTS

According to the most recent survey of the RN population conducted by the Health Resources and Services Administration (HRSA) in 2004, the number of RNs in the United States is 2.9 million (U.S. Department of Health and Human Services, 2006). The number of nurses prepared at the masters or doctoral level rose to 376,901, which was an increase of 37 percent from 2000 (U.S. Department of Health and Human Services, 2006). Although 13 percent of nurses hold a graduate degree, only 1 percent have a PhD and are prepared to conduct independent research in their field. In fact, only 555 students graduated with a PhD in nursing in 2009, a number that has been relatively unchanged for the past decade (AACN, 2009). Thus, the numbers of nurse scientists working to create the empirical data upon which nursing practice is based is trivial compared to the need.

Why do so few nurses pursue doctoral study? The problem is not access. The number of PhD programs has doubled over the past two decades; however, the number of nursing graduates prepared at the PhD level has remained essentially unchanged (AACN, 2009). Three reasons for the continuing shortage of nurse scientists can be posited. First, educational preparation at the associate degree or hospital diploma level serves as an impediment to easy access to graduate study. In 2004, 34 percent of registered nurses (n = 981,238) reported the associate degree as their highest level of nursing or nursing-related education, while 18 percent (n = 510,209) held a hospital diploma (U.S. Department of Health and Human Services, 2006). Over 50 percent of nurses today would face approximately 8 to 9 years of formal university-based education in order to receive a PhD compared to the 4 to 5 years required to attain a PhD in other disciplines that require a baccalaureate degree. Entry into the nursing profession at the associate degree level serves as a disincentive for the majority of nurse graduates to continue further study to the PhD level (Cleary et al., 2009). Even more disheartening is that the fact that the number of nurses whose highest educational degree in nursing is the associate degree has *increased* by 232 percent since 1980 (U.S. Department of Health and Human Services, 2006). Moreover, the vast majority of these nurses (i.e., those who obtain an associate degree to practice nursing) do not pursue a bachelor's degree anytime in their career. In 2004, only 21 percent of RNs initially educated in associate degree programs had received a baccalaureate degree, while only 6 percent of this population had gone on to obtain a MS or PhD degree (Aiken et al., 2009). Thus, nurses prepared at the associate degree level are highly unlikely to undertake doctoral study during their careers.

Second, nurses have more interruptions in their careers and often begin doctoral study at a later age than individuals in other disciplines. The nursing profession traditionally has viewed

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clinical experience as a prerequisite to graduate education and new graduates were encouraged to practice clinically by faculty and peers between degrees rather than continuing straight on to obtain a PhD. This career path has resulted in the norm of nurses returning for a master's degree in their mid-thirties to become an advanced practice nurse (e.g., nurse practitioner or clinical nurse specialist) or administrator, then returning to the work force for another decade, and finally returning to graduate school to obtain a PhD in their late thirties or even older. Nurse scientists complete their doctoral degrees, on average, at the age of 46, which limits the number of years they have to build a scientific program and contribute to the scientific base of nursing practice (Dracup et al., 2009). To help reverse this trend, many nursing schools have developed programs that admit students into graduate programs directly from undergraduate or master's programs and faculty are slowing changing their commitment to this model of advisement.

Third, faculty salaries provide an important disincentive to return to school to obtain a PhD. Although academics in all disciplines are rarely compensated at the same level as their peers in industry, the disparity for nurses is one of the largest. Nurses working as clinicians make, on average, 30 percent more than assistant professors, who typically make from $50,000 to $70,000 at the assistant professor level (Dracup et al., 2009). Advanced practice nurses make, on average, 100 to 150 percent more than assistant professors (Cleary et al., 2009). In a recent survey conducted by the American Association of Colleges of Nursing (AACN) to describe the nursing faculty shortage, respondents cited inadequate salary as the number one cause of the faculty shortage (Fang and Tracy, 2009).

Besides the three reasons cited above to explain the low number of PhD-prepared nurses, the development of a professional doctorate (i.e., the Doctor of Nursing Practice of DNP) is also a trend worth noting. The degree was introduced in 2004 by the American Association of Colleges of Nursing (AACN) with a recommendation by its members to adopt the DNP degree for all advanced practice nurses by 2015. The degree is designed as the terminal degree for nursing practice and may be combined with a PhD for nurses interested in conducting translational science. The reasons given by the organization at the time of adoption were the following: the rapid expansion of knowledge underlying nursing practice; increased complexity of patient care; national concerns about the quality of care and patient safety; shortages of nursing personnel which demands a higher level of preparation for leaders who can design and assess care; shortages of doctorally-prepared nursing faculty; and increasing educational expectations for the preparation of other members of the healthcare team. The degree has been a source of contention within the profession and has evoked concerns by various physician and nursing organizations (Dracup et al., 2005; AMA, 2010). However, DNP programs have mushroomed across the states with 92 currently awarding degrees and another 102 in the planning process (AACN, 2009). Whether or not DNP programs will attract applicants that would not have been interested in a PhD is unknown and what affect it will have on future PhD applications is also unknown. However, it is important to note that the program is focused on preparing its graduates "to fully implement the science developed by nurse researchers prepared in PhD, DNSc, and other research-focused nursing doctorates" (AACN, 2010) Its graduates are not expected to contribute scientific discoveries or to lead interdisciplinary teams of scientists. Thus, the DNP will not meet the need for more nurse scientists and it may contribute to their shortage.

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Recommendations Related to Shortage of Nurse Scientists

- **Address the pipeline.** A major impediment to attracting the large number of nurses scientists needed in the future is the high percentage of nurses prepared in community colleges. Federal and state funding needs to be allocated to creating innovative solutions to assisting graduates of community colleges to get BS degrees such as allowing community colleges to award BS degrees (a controversial but attractive option) or developing programs like the Oregon model where all nursing students are enrolled in the university and have the option of completing a fourth year to attain their BS degree (Tanner et al., 2008).

  It would be helpful if the Committee clarified the role of the DNP for the broader community and considered the impact of DNP programs on the shortage of PhD graduates. It is currently not clear whether universities will appoint DNP graduates to tenure-track positions, but clarification of this point will be important for the profession as it continues to clarify the differences between the two doctoral degrees. Do nurse scientists conducting translational research need both a DNP and a PhD? If the answer is yes, the pipeline has just become longer.
- **Augment Federal and State Funding for PhD students and their research.** One way to compensate for low faculty salaries is for nursing students to be relieved of their educational debt. The Nurse Faculty Loan Program under Title VIII creates a student loan fund within individual schools of nursing that students can access. Students who teach at a school of nursing following graduation cancel up to 85 percent of their educational loans plus interest. In 2007 and 2008, 729 students were funded nationally each year, a 43 percent *decrease* from the preceding years.[4] With almost 4,000 students in PhD programs in nursing during those same years, as well as an unknown number studying in other disciplines, this program needs to be strongly augmented and widely publicized.

  A second program under Title VIII provides educational grants to schools (i.e., Advanced Education Nursing Grants) that can be used to support students in graduate programs. Again, the amount available for individual schools is paltry compared to the need. For example, the University of California San Francisco School of Nursing receives an average of $200,000 of AEN funds annually to support 720 graduate students. Student debt is inevitable and the dream of a faculty position fades quickly.

  Funding for pre- and post-PhD research and study is available through the National Institute of Nursing Research, but again this funding has been severely limited. Historically the Institute was funded at one of the lowest rates among all the institutes at the National Institutes of Health since its inception, which limits its ability to support doctoral students.

  Two other new sources of funding are pending and require strong support by the Committee on the Future of Nursing. Nursing organizations have long urged Congress to redirect Medicare funding (GME funds) that currently is restricted to hospital diploma nursing education towards graduate education (Aiken et al., 2009). This change would give hospitals incentive reimbursement for students and allow hiring of additional faculty. Also, capitation grants (similar to the Nurse Training Acts of 1971 and 1975) would allow schools to recruit additional doctoral students as well as improve facilities

[4] Source: Division of Nursing, Health Resources and Services Administration 2006–2008 as summarized in AACN's Congressional Requests: A Focus on Promoting Access to Quality Health Care.

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and hire faculty. The bleak outlook for nursing faculty shortages will not change without massive changes in federal support for nursing education.

A LACK OF INTERPROFESSIONAL COLLORATION IN EDUCATION

In both acute and chronic health care settings, there is mounting evidence that interprofessional practice models are effective in improving patient outcomes, patient and provider satisfaction, and health care costs (IOM, 2004; Needleman and Hassmiller, 2009). However, these models of interprofessional practice are not based on the educational experiences of health care professionals, who are most often taught in university departments or schools that function as educational silos that encourage little or no contact with students from other professions. Students from schools of medicine, nursing and pharmacy, for example, rarely share courses, participate in discussion groups, or experience faculty (and therefore role models) from health care professions other than their own during their formal education. The tradition of educational isolation in the health care disciplines encourages the maintenance of historical stereotypes and discourages the communication skills and understandings that are essential for effective teams.

Unfortunately, assembling multiple professionals together in a single clinical setting after graduation does not guarantee interprofessional collaboration will occur, despite the fact that it is increasingly recognized as fundamental to the quality and safety of patient care. Role confusion can abound. For example, physicians and nurse practitioners share many of the same role functions despite a very different philosophical orientation, which can be source of conflict and differing priorities. Clinical nurses specialists and social workers both focus on the family system, which may lead to confusion of responsibilities and functions. Professional organizations may fuel professional rivalries by conducting various turf protection exercises, particularly related to reimbursement. Hospitals, where much of health care is delivered, have rigid organizational structures and professional hierarchies that often serve to create a "we" vs. "they" structure within the different disciplines represented on a team that is the antithesis of a highly functioning team. Students need to gain the skills of communication and collaboration across health care disciplines early in their careers if they are to function effectively in professional teams.

The benefits of creating an interprofessional educational experience are great. Students are able to exchange different theoretical perspectives, address historical stereotypes, and develop communication and leadership skills that are critical to highly functioning teams in the clinical setting (Spear and Schmidhofer, 2005). An important benefit from the standpoint of university administrators is the potential for sharing resources, including expert faculty, space and physical equipment. For example, an increasing number of universities are beginning to build simulation centers designed for interprofessional student teams to participate in exercises designed to increase teamwork. Sharing a single simulation center provides the various professional programs with opportunities for realistic interprofessional learning that are difficult to arrange in real clinical practice. The simulation exercises build confidence before contact with real patients and provide a safe environment where mistakes become learning opportunities. Working together on patient scenarios and real-life case studies can also improve teamwork and promote better understanding between professions.

So if collaboration and effective communication among disciplines is so valuable, why is it so little in evidence in nursing education? Some of the reasons are historical. Student nurses in

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hospital diploma programs were often taught by medical faculty. When nursing education moved out of the hospital setting, some nurse educators were eager to shed the tradition of medical faculty as well. Medical schools, in turn, migrated to universities decades before schools of nursing. This difference in timing meant that many schools of medicine were established without any school of nursing, and they still do not have a nursing program in the same university. Nursing programs are now housed in community colleges or in universities that do not have schools of medicine or other health disciplines. Curriculum for different health professions were developed without collaboration from other disciplines. The most egregious symptom of the lack of collaboration in education is the large number of medical programs that are on different academic calendars than the other health care disciplines in their same university, making it difficult for students to have a platform for collaboration.

Ultimately it is the responsibility of educators in the various disciplines to create a learning environment in which students, preceptors, and patients may teach and learn from one another. They can do this through a variety of strategies:

- A single orientation day for the health professions that introduces the philosophy of interprofessional education
- Joint faculty appointments
- Shared courses across schools that includes the completion of assignments by interdisciplinary teams
- Interdisciplinary student-managed clinics
- Social networking sites that include students from all health professions, and
- Interprofessional social events sponsored by the university

Educated in an interdisciplinary model, individuals entering the workforce will do so with the mindset that collaboration among all healthcare practitioners is how patient care should be approached. The mindful inclusion of interprofessional educational experiences potentially will lead to more effective communication across disciplines and ultimately patient care that is safe, cost-effective, and of high quality.

Recommendation Related to Interprofessional Collaboration in Education

- **Develop and implement strategies to reward interprofessional collaboration in nursing education.** The development of the Clinical and Translational Science Awards by NIH is a model of how to develop a culture of interdisciplinary teams where none existed. Creating an award structure that demanded interdisciplinary collaboration among scientists forged many researcher alliances on university campuses. Similarly, the education of health professionals must be viewed through a different lens than is currently used. Accrediting bodies and university review committees should include interprofessional collaboration as part of the criteria for a quality nursing program, as well as the programs of other health professions such as medicine and pharmacy. Expectations for interprofessional collaboration must be set in university program reviews, accreditation criteria, and individual faculty promotion criteria if a change in culture is to be achieved.

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PRELICENSURE NURSING EDUCATION

This third area is the easiest and the hardest to present. It is the easiest because it has recently been the topic of an exhaustive study by the Carnegie Foundation. It is the hardest because the findings of their study are complex and required a full-length book to present (Benner et al., 2010). After numerous site visits and countless interviews, the authors made 26 recommendations that deserve serious consideration by the Committee. It seems that to ignore the major findings of the first systematic study of nursing education in decades would be folly.

Briefly, the research team of Benner and colleagues focused on a variety of basic nursing programs by which students are prepared to take the NCLEX-RN examination and become registered nurses as well as one RN-to-BSN program. They visited 2 community college programs (billed as 2 years in length but often 4 years because of the required pre-requisites and waiting list times), 3 generic baccalaureate programs, 2 fast-track second baccalaureate degree program of 14 to 18 months designed for students with a bachelor's degree in another field, a single diploma program offered through a freestanding school of nursing affiliated with and sponsored by a hospital (2 to 3 years in length), and a single master's entry level program that provided a prelicensure program for students with a bachelor's degree in any subject followed by a 2-year master's program. The researchers identified three areas of apprenticeship in basic nursing programs: acquiring and using knowledge and science, developing skilled clinical reasoning, and ethical comportment and formation. They found the latter two areas adequately or more than adequately addressed in the educational programs they reviewed. They found the former sadly deficient across all programs where students were often subjected to thousands of power point slides as a substitute for knowledge transfer. Given the complexity of patient care in today's demanding environment and the increasing independence of nurses who must judge among various treatment alternatives and select the best course of action, the lack of nurses' preparation for their role in terms of scientific principles and clinical knowledge is somewhat astounding and clearly disturbing.

The review team found the variety of pre-requisites across programs troubling, particularly in light of the large number of applicants coming with a degree from another bachelor's degree program. Some nursing programs had stringent science prerequisites while others had almost none. They were concerned that, in particular, RN to BSN programs often did not have the depth of science courses required for grounding appropriate clinical knowledge. Ultimately the sciences required to prepare students for nursing education must be rigorous and similar across programs.

Finally the pedagogies of the classroom were noted to be sadly deficient compared to the effective pedagogies of teaching in the clinical setting. Classroom instructors need to adopt the teaching methods that are so effective in the clinical world of patient care, while also increasing the quality and level of nursing science, natural and social sciences, and humanities.

Recommendations Related to Prelicensure Education

- ***Standardize Prerequisites.*** The lack of standardization across different programs means that students in the same program bring varying degrees of preparation to their learning of the clinical science required for care of patients. The profession must create a standard list of relevant prerequisites in the humanities, natural sciences and social sciences that all programs would be expected to adopt.

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- ***Require the BSN for entry into practice.*** This is perhaps the most contentious of recommendations but also the one that has alluded the profession for the past five decades. The various entry paths into the profession have been confusing to the public and to other health professionals. It will be important to provide incentives for nurses with AD degrees to return for a BSN or, when possible, a MS degree. Articulated programs will be crucial as we move towards an all BSN entry into the nursing profession.
- ***Consider more effective teaching strategies related to the transfer of clinical science in the preparation of new nurse graduates than currently used.*** A great deal of research has been conducted over the past two decades on problem-based learning and other teaching strategies effective in engaging students in learning. According to Benner and colleagues (Benner et al., 2010), many of these have not been adopted by faculty teaching the formal component clinical science. They recommend that pedagogies be developed and used to keep students focused on the patient's experience. Medical pathology and disease mechanisms are best taught in direct association with patients' illness experiences, psychosocial responses, and needs for self-care. Simulation exercises, case studies, and group experiences can all be used to enhance learning. Since many of these learning strategies have been adopted by our colleagues in the other health sciences, models are available. National repositories of case studies would be of great support in this transition from the "death-by-PowerPoint" lecture format to a more student-engaged and patient-focused format.

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The Future of Nursing: Leading Change, Advancing Health
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Nursing Education: Leading into the Future

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"Nursing is the protection, promotion, and optimization of health and abilities; prevention of illness and injury; alleviation of suffering through the diagnosis and treatment of human responses; and advocacy in health care for individuals, families, communities, and populations."
—Social Policy Statement (American Nurses Association, 2003)

INTRODUCTION

The educational preparation required for a career in nursing today is not what it was in 1971, nor should it be. Sadly, Benner, Sutphen, Leonard and Day (2010) have reported that too often nurse educators replicate their own educational experience for students, failing to recognize the many reasons why such preparation is inadequate to meet the needs of today's nurse. In fact, nursing education is *not* the business of preparing nurses for *today*, but for *tomorrow*.

The invitation to identify three critically important areas of reform in nursing education has proven to be a more difficult assignment than was initially obvious to me. A lifelong educator, I feel as though I have been given three wishes. If I could "rub the lamp" and change three things, what would they be? Why would I select these reforms and how would I undertake the needed changes? The invitation, not a simple intellectual exercise, begs the question of me—"What am I, in my capacity as a leader in nursing education, doing to address the future?" And the personal vulnerability lies in confronting the possibility that if I identify three reforms that have little relationship to my daily work, I may be part of the problem.

To contextualize my comments, I offer a few observations about my career and point of view. I have worked as a nurse educator in baccalaureate and higher degree programs since 1974. My appointments have taken me to public and private institutions, secular and religious, and most often to large academic health centers. Over the last 25 years, my classroom and mentoring activities have focused on the preparation of advanced practice nurses for primary care and the preparation of nurse scientists; I have remained in contact with entering, second degree students in nursing by teaching a course on leadership. Since 1993, I have held major administrative responsibilities, first as a department chair, later as a dean, and currently as a dean and vice chancellor in a large academic health center within a university distinctive for its culture of interdisciplinarity.

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REFORMING NURSING EDUCATION: THREE PRIORITIES FOR ACTION

The complexity of today's world could not have been imagined when nursing instructor Gwendolyn Fortune followed me from hospital room to hospital room during my senior year clinical rotation in Team Leading. I have often recalled her insistence that I make good use of my time while conducting patient rounds, doing at least three or four things at once: check on the condition of the patient, make sure the room is clean and the facilities are in good working order (e.g., night lights have working bulbs), that no unnecessary equipment has been left in the patient's room and that the members of the care delivery team have completed their assignments as scheduled. Although I was a successful pupil, at 21 years of age I found her to be a bit overbearing and exceptionally humorless. Years later, I looked back on my educational experience with her and realized two things: 1) Being organized, observant and able to multi-task were all valuable assets; and 2) Her name was "Miss Fortune."

The skills gained under the direction of Miss Fortune have continued to be valuable to me, despite the changes in the patterns of care delivery and the movement away from team leading. She introduced me to basic management and I will always be grateful. The anecdote also serves as a reminder that while some lessons are enduring, and the basic skill sets timeless, much of the content of nursing education has changed. The body of knowledge required for safe practice has grown geometrically, as have the tools for accessing information, and the skills required for the safe delivery of care. Educational reforms must address how we improve access to needed and relevant information for students within nursing, how we develop the nurse's ability to access and use information following program completion and how the educational pathway is ordered to assist in build a career pathway in clinical nursing. I believe the three reforms I have selected will address these broad concerns.

REFORM 1. Place greater emphasis on the development of committed partnerships that will enrich nursing education programs, specifically partnerships with nursing service, medical education, and a select group of disciplines that are especially relevant to health and health care delivery (engineering, business, policy, law and the environment).

The fractured relationship between nursing education and nursing service must be repaired. Although somewhat exaggerated, many would generalize that academic nurses view nurses in service delivery as anti-intellectual and, conversely, the service delivery community views academic nursing as irrelevant and out of touch. The chasm works against the progress of both communities, communities that are actually one, separated by two distinct corporate missions.

A variety of structures designed to bring nursing education and service into closer alignment were implemented at the University of Florida (Dorothy M. Smith), Rush (Luther R. Christman), Rochester (Loretta C. Ford) and Case Western Reserve (Joyce Fitzpatrick) in the 1970's. In several of these models, one leader was appointed to oversee both education and service delivery. Dually appointed faculty members were expected to teach and deliver care or provide leadership in the care delivery setting. Faculty complained that their days were unending and the combined work of delivering clinical care and teaching was impossible. By the 1990's these models unraveled and the leadership functions were again assigned to separate leaders, one for education and one for service. By necessity and given a world of competing demands, the delivery of care requires an immediate focus on the life and death needs of patients, the "tyranny of the urgent," and this overrides the needs of students or scholarly projects, which are less time-

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sensitive. But the separation of education and service has resulted in a practice-education gap that is growing. Benner and colleagues suggest that the problem is largely due to nursing education's inability to keep up with changes in the service sector (Benner et al., 2010).

The problem is not new. In 1983, the Institute of Medicine report, *Nursing and Nursing Education: Public Policies and Private Actions,* included the following recommendation:

> Closer collaboration between nurse educators and nurses who provide patient services is essential to give students an appropriate balance of academic and clinical preparation (IOM, 1983).

That 27 year old report urged the federal government to offer grants that would promote collaboration.

The American Association of Colleges of Nursing has advocated for the development of strategic partnerships between education and service and their web site includes profiles of selected arrangements that appear to be successful. The American Organization of Nurse Executives web site lists materials for education and service partners to evaluate their collaborations. Calls for education-service partnerships continue in the nursing literature (Gilliss and Fuchs, 2007).

> **Recommendation 1: Where possible, particularly at Academic Health Centers, promote governance structures that combine the strategic, rather than the operational oversight for nursing.**

> **Recommendation 2: Require the demonstration of an education-service partnership in accreditation criteria for education and service settings, to include such activities as shared governance, shared teaching, shared clinical problem solving, and participation in continuing education.**

Today's faculty shortage is thought to relate, in part to salary disparities between education and service. The median annual salary for a beginning registered nurse (who may not have a college degree) was $62,089 in April 2009 (Salary Wizard, 2010); the median salary for a doctorally prepared assistant professor was $89,973 in 2009 (Fang et al., 2009). Although the salary difference of approximately $28,000 may seem a large increase, the additional educational expenses combined with opportunity costs of returning to school may be daunting for some nurses. The implementation of the Nursing Education Loan Repayment Program has eased the financial pain for those nurses who wish to direct their careers toward roles in education. The loan program now repays 60 percent of the qualified loan balance in exchange for two years of service in an approved shortage facility. An additional 25 percent may be negotiated for a third year of service (HRSA, 2010). The program holds the promise of preparing more faculty members to teach, but that does not address the development of specific competencies required to teach in clinical areas. In fact, many newly doctorally prepared nurses anticipate moving into faculty roles where they can redirect their careers toward non-clinical pursuits. The faculty shortage is real, but the more specific problem is identifying faculty talent to teach in the clinical area. Those competencies are in short supply and we need to create incentives to promote the development or maintenance of clinical expertise and clinical engagement.

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> **Recommendation 3: Require nurse faculty members to maintain professional certification and tie these qualifications to educational accreditation. Develop institutionally based incentives for faculty to maintain clinical competency, such as participation in a faculty practice plan.**

In many fields the careers may reflect a migration from industry to education to public service and back. This has not been typical in nursing. Movement from the practice setting to the educational settings and back has not been valued. Rather, a distinct skill set and preparation has been identified for each role. Increasingly, educators are expected to have a background in curriculum design, tests and measurement and pedagogy. The criteria for advancement in the academy represent yet another barrier. Adhering to the standards set by most universities, academic nursing programs impose specific, rigorous and rather narrow criteria for appointment and promotion. These criteria rely more heavily on scholarly accomplishments than on practice acumen. The net effect is the evolution of a professorate with limited knowledge and experience in the practice environment (which is seen as a distraction to the development of a program of research) and limited understanding of how to prepare graduates for the realities of practice.

> **Recommendation 4: Expand criteria for faculty appointment and advancement to include recognition of practice-based accomplishments, including leadership, innovation and evaluation. Normalize the career movement between the practice and educational settings within nursing.**

Every report published by the IOM for the last decade has called for the use of teams for the delivery of care. (I am completely confident that one of my fellow authors will go into this issue in detail, but I will list the recommendation for the record.) Reports suggesting that teams do affect better patient care outcomes (Grumbach and Bodenheimer, 2004), but there is very little evidence that effective educational approaches for co-education of members of the health care team have been enacted, evaluated and replicated. Team work is an essential skill in today's health care delivery system and students must be prepared to function on teams. Incentives must be direct programs toward making this change.

> **Recommendation 5: Promote funding initiatives that will plan and implement classroom and clinical co-education of health care providers, particularly nursing and medicine. Explore existing federal mechanisms to sustain worthwhile results, for example the combined use of Titles VII and VIII for models within primary care.**

Although universities organize themselves into orderly pods called disciplines, real world problems seldom emerge as discipline-specific. The order imposed by disciplines directs those within the discipline toward a quasi-proprietary body of knowledge, provides a set of tools for discovery and frames data elements systematically to promote problem solving. But, the down side of that order is that disciplines tend to bring the same basic set of information and solutions to novel problems. Said another way, if your only tool is a hammer, then all your problems look like nails. Some believe that multidisciplinary collaboration has moved from the periphery to the core of our work in universities (University Leadership Council, 2009). The problems we face are simply too diverse and complex to approach with old solutions. The content and problem

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solving approaches used within the discipline of nursing will be enhanced through closer educational exchange with other disciplines.

Recommendation 6: Although others sources provide greater detail on the specific curricular changes needed (see Benner et al., 2010), alliances with other disciplines will yield new approaches to the problems faced in nursing education and service delivery. In particular content and practical experiences should be developed with engineering, business, public and health policy, legal and environmental experts.

REFORM 2: Recognize the important role that *Translation* will play in strengthening nursing education, improving nursing practice and connecting the two.

The Institute of Medicine Report, *To Err is Human: Building a Safer Health Care System* estimated in 1999 that many as 98,000 people die in hospitals each year as a result of medical error (IOM, 1999). Further, these errors have been estimated to cost approximately $37.6 billion each year; roughly half of the expense is attributable to preventable errors (AHRQ, 2010). In the decade since that report was published the care delivery community has undertaken needed reforms to appoint patient safety officers and promote cultures of safety that will assist in the creation of a quality and safety conscious work environment. Within the education community the Robert Wood Johnson Foundation sponsored the Quality and Safety Education for Nurses (QSEN) Project (Cronenwett et al., 2009), directed by Linda Cronenwett. The lessons of the QSEN project provide some direction for other areas in which there are education-practice gaps.

In brief, Cronenwett and colleagues found that faculty interested in creating a quality and safety curriculum acknowledged their limited expertise and willingness to engage in a collaborative. With a relative small financial package, teams from a group of 15 schools participated in an educational collaborative that developed and implemented systematic curricular changes that were clinically relevant. In this case, critically important knowledge was disseminated to the educational environment.

Recommendation 7: Identify the top ten priority areas for faculty learning and use similar, evidence-based approaches to accelerating the development of expertise/capacity (learning collaborative) in key areas. Provide public recognition for those educational environments that have developed expertise in the ten areas. Encourage a service-delivery focused organization, such as the American Organization of Nurse Executives, to lead the identification of topics and the development and implementation of the recognition.

Conversely, useful evidence produced within the academy does not always find its way into clinical practice. Numerous sources cite the frequent disconnect between practice decisions and the evidence that would support them (IOM, 2001; Melnyk and Fineout-Overholt, 2005). The management of information, though improved through technology, requires additional resources for use in the clinical setting.

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Recommendation 8: Enlist nursing education (that is, faculty and students) in clinically-based activities supporting knowledge development and process improvement at the point of care.

The establishment of the Doctor of Nursing Practice (DNP) has been controversial within nursing (Dracup et al., 2005; Meleis and Dracup, 2005) and beyond (Landro, 2008). The design and implementation of DNP programs has varied considerably from Columbia University's focus on the development of doctorally prepared advanced practice nurses who can utilize skills and knowledge to independently provide expert nursing care in all care settings (Columbia University, 2010), to programs like Duke's that focus on leadership, innovation and translation and aim to a prepare nurse leaders for interdisciplinary health care teams who will work to improve systems of care, patient outcomes, quality and safety (Duke University, 2010).

Although one can argue that the lack of curricular standardization in these programs is problematic for the public and the profession, their popularity is clear. In 2009, the AACN reported that 92 DNP programs were currently enrolling students and another 102 DNP programs were in the planning stages. From 2007 to 2008, DNP program enrollments nearly doubled from 1,874 to 3,415. During that same period, the number of DNP graduates increased from 122 to 361 (AACN, 2010). Data available from the AACN's 2009 Enrollment Survey indicate that enrollments in research-focused doctoral nursing programs have continued to increase slightly (from 3,439 in 2004 to 3,976 in 2008) while DNP enrollments increased from 170 to 3,415 during the same interval (Fang and Bednash, 2009). The obvious conclusion is that the programs are meeting a need. Anecdotally, our students report they would never have been interested in a PhD; they want to advance their understanding of how to effect improvements in the health care environment.

Recommendation 9: Advance the Doctor of Nursing Practice (DNP) as a vehicle for the preparation of advanced practice nurses for leadership roles in translation—to include examination of evidence, innovation, policy revision and dissemination.

At Duke we have developed the Duke Translational Nursing Institute (DTNI), housed within and partially funded by the NIH supported Clinical and Translational Science Award (the Duke Translational Medicine Institute). We have hired experts to facilitate inquiry by staff nurses at the point of care; hired experts to facilitate the evaluation of innovative models of care; and hired experts to study the barriers and facilitator of dissemination of change. We have begun a small grants program and hired staff to consult on research design and analysis, and manuscript development.

Recommendation 10: Promote the creation of research facilitation structures that promote knowledge development at the point of care, the testing and evaluation of innovative models of care and the study of implementation. Build incentives into funding mechanisms that encourage a variety of forms of similar collaboration. Explicitly promote the development of and translation of knowledge into nursing practice and practice improvements through the CTSA mechanism.

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REFORM 3: Commit to the preparation of masters prepared *specialists* in nursing, and prepare these graduates to deliver care that is safe, culturally competent, high value/low cost, and patient-centric.

For over 30 years, the research literature has consistently substantiated the safety and quality of care delivered by masters prepared nurses, particularly nurse midwives and nurse practitioners delivering primary care (Brown and Grimes, 1995). Today 1,400 Certified Nurse Midwives (CNMs), 28,000 Certified Registered Nurse Anesthetists CRNAs), 125,000 Nurse Practitioners (NPs) and over 2,300 Clinical Nurse Specialists (CNSs) are providing advanced practice nursing in the US. The proposal to move all specialty preparation to the doctoral level and use the master's degree in nursing to prepare generalist by 2015, as advanced by the American Association of Colleges of Nursing, has not been based on evidence that this will improve the quality of care delivered.

Further, the probability is high that an extended educational pipeline would deter qualified nurses from continuing through the doctorate. At a time when the nursing education community is being called upon to produce more primary care providers to meet the growing national need for primary care, such a proposal seems ill-timed, if not irresponsible. Justifications that current masters program curricula are over-credited should not substitute for more careful examination of how to teach the specialty content in a fewer number of credits.

Finally, current employers of masters prepared nurses have expressed concern that there are no roles/no needs for the masters prepared generalists and they are unlikely to hire them.

Recommendation 11: Advocate for the continued preparation of the specialist at the masters level; encourage market forces, rather than professional societies and educational accrediting groups, to drive a change that appears profession-centric, rather than in the interests of improving patient care.

Recommendation 12: Challenge the current credit-heavy requirements in existing masters programs to test innovations in teaching that would improve competence and reduce program credits. If models of care delivery using masters prepared nurse generalists are available, conduct rigorous evaluations of their use and outcomes, including value, to serve as the basis of proposed changes.

Upon reflection, this list of reforms and specific recommendations do correspond to many of my ongoing responsibilities; however, the opportunity to review the work of others and consider the limits of my own actions has served as a catalyst to do more next week. The responsibility for the educational and personal development of the nursing work force has vast and far reaching consequences for nursing and for health care. Rapid social changes, acceleration in knowledge development and the development of new tools for managing information will not go away. We must change our approach to ensure that it addresses the context and the goal. We must lead with the future in mind.

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Transforming Pre-licensure Nursing Education: Preparing the New Nurse to Meet Emerging Health Care Needs

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ABSTRACT

Evidence is accumulating that nurses completing pre-licensure programs are not equipped with the essential knowledge and skills for today's nursing practice, nor prepared to continue learning for tomorrow's nursing. Citing the need to improve quality and increase capacity, this paper offers three recommendations for transforming nursing education: (1) Create new nursing education systems which use existing resources in community colleges and universities and which provide for common prerequisites and a shared competency-based nursing curriculum and instructional materials. (2) Convene one or more expert panels to develop model pre-licensure curricula which: (a) can be used as a framework by faculty in community college-university partnerships for development of their local curriculum; (b) are based on emerging health care needs and widely accepted nursing competencies as interpreted for new care delivery models; (c) incorporate best practices in teaching and learning. (3) Invest in a national initiative to develop and evaluate new approaches to pre-licensure clinical education, including a required post-graduate residency under a restricted license. The author notes that these changes will require significant investment in the reforms, as well as in nursing education research and faculty development. The return on investment would be improved educational capacity and a better prepared nursing workforce, responsive to emerging health care needs and rapidly changing health care delivery systems.

TRANSFORMING PRE-LICENSURE NURSING EDUCATION: PREPARING THE NEW NURSE TO MEET EMERGING HEALTH CARE NEEDS

The Carnegie Foundation for the Advancement of Teaching joins a chorus of calls for transformation of pre-licensure nursing education (Benner et al., 2009). Citing the shift of significant responsibility to nurses for managing complex medical regimens, as well as increasing complexity of community based practices, Benner and colleagues concluded that nurses entering the field are not equipped with the essential knowledge and skills for today's practice nor prepared to continue learning for tomorrow's nursing (p. 31). They found: (1) weak curricula in natural sciences, technology, social sciences and humanities, and in developing cultural competency; (2) weak classroom instruction and limited integration between classroom and clinical experiences; (3) limited strategies in helping students develop habits of inquiry, raising clinical questions, seeking evidence for practices; (4) faculty and student perception that students are ill-prepared for their first job and dissatisfaction with the teaching preparation of current nursing faculty; (5) and multiple pathways to eligibility for the licensure examination,

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with tremendous variability in prerequisites, the curricular requirements, and the quality of offerings.

The Carnegie study is one of many citing the inadequate preparation of nurses for today's practice in complex, acute care environments (Burritt, 2009; Berkow et al., 2008; Joint Commission on Accreditation of Healthcare Organizations, 2002; NCSBN, 2001) There is a growing body of evidence that confirms registered nurses are indeed essential to patient safety (AHRQ, 2007) and experts warn of further compromise in patient safety and care quality as experienced nurses retire in droves and the ratio of new graduates to experienced nurses increases (Orsolini-Hain and Malone, 2007) . While 84–88 percent of new graduates are employed in hospital-based practice for their first position (Kovner et al., 2007; Kenward and Zong, 2006), increasing numbers of nurses have migrated to non-acute care settings. Currently only 60 percent of all nurses practice in hospitals while over 40 percent of nurses practice in non-acute care settings, such as ambulatory clinics, nursing homes, schools and public health (HRSA, 2004). As care continues to shift from hospitals to community-based settings, as the population ages and care management in the community becomes more complex, and as new health care needs emerge, a new kind of nurse will be needed. Educational programs must be redesigned to better prepare this nurse.

In addition to these quality issues, educational capacity issues must also be addressed. The projected shortage of nurses is well-documented (Buerhaus et al., 2009) and academic institutions have done a remarkable job of increasing enrollments (AACN, 2009b; NLN, 2009a) but without further action, the supply of new nurses will fall well-short of the demand as a result of serious limitations in educational capacity. In the 2006-07 year, over 40 percent of qualified applicants for pre-licensure programs did not gain admission (NLN, 2008) and in 2008–2009, approximately 40,000 qualified applicants were turned away from nursing programs (Kovner et al., 2009). Principal causes for limitations in educational capacity: shortage of qualified faculty, insufficient number, quality and type of sites for clinical education and budgetary constraints. AACN, 2009a,b; NLN, 2006, 2009a,b)

In this paper, I offer three recommendations related to transformation of pre-licensure education which address the quality and capacity issues and which provide for the possibility of leveraging existing resources in order to make critical changes. I will use models currently being tested in Oregon, the Oregon Consortium for Nursing Education (Gubrud-Howe et al., 2003; Tanner et al., 2008), as well as in Hawaii and regions of California as an exemplar of some of these recommendations.

Recommendation 1: Create new nursing education systems which use existing resources in community colleges and universities and which provide for common prerequisites, a competency-based nursing curriculum and shared instructional resources.

Rationale

Entry into practice at the Bachelors Level, as recommended in the Carnegie report, has been on the profession's agenda since 1965. Few would argue against the notion that more education is better, and there is growing evidence that the level of education is strongly correlated with patient outcomes. (Aiken et al., 2003, 2008; Estabrooks et al., 2005; Torangeau et al., 2007). Yet community colleges are a vital resource to meet educational capacity requirements. The roughly 1000 community college nursing programs (NLN, 2009) provide access to education in rural and

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underserved communities, educating approximately 60 percent of all new graduates each year (HRSA, 2004). The nearly 700 baccalaureate programs prepare approximately 31 percent of new graduates each year (AACN, 2009; HRSA, 2004) There are nearly 600 baccalaureate completion programs, many of which boast articulation agreements that smooth the transition from associate degree to the bachelors, yet only 20.6 percent of associate degree graduates continue for the bachelors' degree (HRSA, 2004). The net effect of a disproportionately small pool of bachelors' degree graduates is simply fewer nurses who are eligible and likely to continue for the advanced education necessary to become faculty (Aiken et al., 2009)

One approach to capitalizing on community college nursing program resources to increase the number of baccalaureate graduates is to allow community colleges to offer the bachelors' degree. Sixteen states have changed regulations to allow community colleges to offer baccalaureate degrees, and several have launched bachelors in nursing programs (Community College Baccalaureate Association, 2008).

The current patchwork of educational programs is inefficient. Community college 'two-year programs,' typically take 3 or more years to complete. Prerequisites vary widely across programs; students who may meet the course requirements for admission to one school's program do not meet those of another school. Nursing curricula, while containing similar content and meeting similar accreditation standards, are also quite variable in terms of sequence and credit hour allocation; program faculty varying in number from as few as 4 or 5 faculty in smaller programs to well over 50 each invest considerable time and resources in developing and maintaining their own program's curriculum and instructional resources. The variation in curricula creates additional challenges in clinical education: staff nurses who frequently provide supervision for students from multiple programs, at varying levels, and differing instructional goals, may end up very unclear about what students might be safely expected to do (MacIntyre et al., 2009).

Exemplar

One model for addressing these inefficiencies and for improving access to baccalaureate education is a partnership between community college and university programs. The Oregon Consortium for Nursing Education (OCNE) was designed to increase capacity for baccalaureate education by making best use of scarce faculty, classrooms and clinical education resources (Gubrud-Howe et al., 2003; Tanner et al., 2008) Eight community colleges and the 5 campuses of the public university school of nursing developed and implemented a shared, competency-based curriculum that culminates in a bachelors degree. What sets this model apart from traditional articulation agreements is that the curriculum is standard across all partner campuses: nursing faculty from full partner schools developed and approved a common curriculum plan (including competencies, benchmarks, course titles, descriptions, credit hour allocation and outcomes) as well as academic standards for student admission and progression. The potential for increasing faculty capacity and productivity is beginning to be realized, as faculty from one campus can fill in and teach a course on another campus, and as instructional materials (such as examinations, case studies, scenarios for simulations) are developed and made accessible to all faculty through a web-based searchable data base linked to the curriculum.

OCNE admitted its first class of students in Fall of 2006, and is engaged in an Robert Wood Johnson Foundation (RWJF)—funded evaluation study of outcomes, including student performance measures and degree completion. Early results are encouraging, as roughly 40 percent of graduates from community college partner schools have enrolled in the courses

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required for baccalaureate completion (Tanner et al., 2008). Need for program improvements are being identified, including improved advisement and services for students transitioning from community college to the university, development and implementation of statewide interprofessional educational experiences, and provision for ongoing faculty development. Similar statewide or regional university-college partnerships are being planned in at least 5 other states with the Hawaii statewide consortium positioned to implement in Fall 2010.

Recommendation 2: Convene one or more expert panels to develop a model pre-licensure curriculum which: (1) can be used as a framework by faculty in community college-university partnerships for development of their local curriculum; (2) is based on emerging health care needs and widely accepted nursing competencies as interpreted for new care delivery models; (3) incorporates best practices in teaching and learning.

Rationale

Demands for a new kind of nurse have been abundant for the last two decades, fueled, in part, by vast changes in the nursing practice environment, including a tremendous increase in the complexity and acuity of patient care in the hospital setting, decreased lengths of stay and the shift of care and recovery to the home and community, explosion of new technologies, exponential growth of information and knowledge, clear identification of the "quality chasm" (IOM, 2001) and the recognition of the significance of nursing in patient safety (IOM, 2004). New competencies have been promulgated to address the quality chasm and patient safety goals (IOM, 2003; Cronenwett et al., 2007), geriatric care (AACN, 1998), clinical prevention and population-based care (Allan et al., 2005) among many other areas and incorporated into requirements for accreditation (Commission on Collegiate Nursing Education, 2009; National League for Nursing Accreditation Commission, 2009).

Demographic changes alone demand different a different focus in pre-licensure programs. The number of older adults in the United State will almost double between 2005 and 2030, presenting multiple challenges for the health care system (He et al., 2005). The majority of older adults suffer from at least one chronic health condition. The fastest growing segment growing segment of the population is the "over 85" age group, and it is estimated that a minimum of 50 percent of this group will require help with activities of daily living (He et al., 2005; IOM, 2008). Direct care workers are the primary providers of paid hands-on care to older adults, and together with families, provide the majority of care for adults in community based care settings. Registered nurses in community-based settings have responsibility for guiding, teaching and/or supervising these caregivers, yet have little training or experience in how to work effectively with them.

While the amount of geriatric/gerontologic content and experiences in pre-licensure programs has increased in the last decade, it is still uneven, and effective teaching is hampered by lack of faculty expertise (Berman et al., 2005; Gilje et al., 2007; Ironside and Tagliareni, in press). Most curricula are organized around traditional nursing specialties (e.g., maternal-child, pediatrics, medical-surgical or some slight variation in name such as adult-health) and clinical experiences are largely centered in acute care settings (McNelis and Ironside, 2009). Clinical education which focuses geriatrics occurs principally in nursing homes (with some noteworthy exceptions), and often in the first year of the nursing program when students may fail to appreciate the complexities of providing care to older adults (Ironside and Taglaireni, in press).

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Interprofessional geriatrics education has been promoted (American Gerontological Society, 2006) and geriatrics competencies are similar across disciplines (Mezey et al., 2008), most health profession education continues to occur in silos. (Barnsteiner, 2007)

Curricular changes over the last decade have tended to be additive, rather than transformative, i.e. adding content or circumscribed courses as new competencies appear in the literature (Ironside, 2003; NLN, 2003). The majority of nurse educators first learned to be nurses in content-laden, highly structured curricula, and few have received advanced formal preparation in curriculum development, instructional design or performance assessment. Faculty, tending to teach as they were taught, focus on covering content (Duchscher, 2003), a practice reflected more recently in the Carnegie study; they see curriculum mandates as a barrier to creating engaging, student-centered learning environments within their schools (Schaefer and Zygmont, 2003).

O'Neil (2009) makes a compelling argument for a major overhaul of nursing curricula. He suggests that traditional nursing competencies such as care management, patient education, public health intervention and transitional care will dominate in a reformed health care system, as it inevitably moves toward emphasis on prevention and management over acute care. But he points out that "...these traditional competencies must be reinterpreted for students into the settings of the emergent care system, not the one that is being left behind. This will require faculty to not only teach to these competencies but also creatively apply them to health environments that are only now emerging" (p. 318). It is critical that we revisit possible and optimal expectations for entry level nurses, based on population needs and likely changes in care delivery models, then align pre-licensure and residency programs accordingly. Revamping curricula collaboratively with other health professions schools (Mezey et al., 2008) provides opportunity for meaningful inter-professional collaboration.

Advances in the science of learning also support curriculum overhaul. While nursing education research is sparse, a growing body of research on learning from a variety of other fields supports the need for active engagement of the learner, and a focus on deep learning of the discipline's most central concepts (Bransford et al., 2000; Weimer, 2002) As pointed out in the Carnegie study, the typically content-laden nursing curriculum results in superficial coverage of content, a failure to engage students in rehearsing for clinical practice by grappling with real-life clinical situations, and a failure to integrate across knowledge, clinical reasoning, skilled know-how and ethical comportment. Faculty complain about the demand to cover content, fearing that students will not pass their licensure examination (Schaefer and Zygmont, 2003) and, as the Carnegie study suggests, faculty need guidance in what is essential content in the curriculum, as well as how to teach it in a way that engages students. Bain (2004), from his study of expert teachers describes this practice:

> Teachers in our study... believe that students must learn facts while learning to use them to make decisions about what they understand or what they should do. To them, "learning" makes little sense unless it has some sustained influence on the way the learner subsequently thinks, acts, or feels. So they teach the "facts" in a rich context of problems, issues and questions. (p. 29)

The integrative teaching described in the Carnegie study is in stark contrast to the belief and related practices that "students cannot learn to think, to analyze, to synthesize, and to make judgments until they 'know' the basic facts" (Bain, 2004, p. 29).

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A recent example illustrates ways in which content can be reduced in order to provide for pedagogies of integration and engagement. In separate studies, Giddens (2007) and Secrest and colleagues (2005) showed that only one fourth to one third of approximately120 health assessment techniques typically taught in the standard health assessment course are used routinely by nurses in practice across settings. They suggest that this content could be significantly reduced, teaching fewer techniques well, and adding others only as they relate to specific situations and can be taught in the context of clinical judgment. Changes like this could result in a significant reduction of content, overall, providing opportunity for the integrative teaching and learning that is so aptly illustrated in the Carnegie study.

The content-laden curriculum, and resulting ineffective teaching practices is a long-standing problem which is likely to be exacerbated as practices change, and new competencies are mandated. It is a problem which is unlikely to be successfully resolved by the individual faculty in the over 1700 nursing programs across the county. Guidance from an expert panel, proposing curriculum models which meet the growing list of competencies, with processes for rapid cycle changes in curriculum content, will be necessary to lead essential changes in pre-licensure curricula.

Exemplar

The curriculum developed and implemented by OCNE partners is based on assumptions such as these above. Faculty assumed that their students would practice in an environment vastly different from the current one, one in which there would be fewer RNs; by equipping RNs with expanded skills related to delegation, coordinating care, community-based and population-based practice, use of data to affect outcomes and collaborative team management, better use can be made of RNs' full scope of practice, skills, and expertise. In this curriculum, fundamentals of nursing have been redefined as evidence-based practice, culturally sensitive and relationship-centered care, leadership and clinical judgment, with these concepts and others introduced early in the context of health promotion and spiraled throughout the curriculum. Through a 2-year faculty development program, faculty leaders in the OCNE partner programs applied advances in the science of learning by intentionally reducing content, to focus principally on the most prevalent health problems and practices. Instructional approaches have been dramatically altered toward case-based instruction, integrating simulation, drawing on best practices in the development of these approaches. In this competency-based program, the faculty role is shifting from the delivery of content to the development of learning activities that will lead students to competent performance. The RWJF study of the OCNE program includes measures of classroom teaching fidelity which allow for study of teaching practices linked with learning outcomes.

Recommendation 3. Invest in a national initiative to develop and evaluate new approaches to pre-licensure clinical education, including a required post-graduate residency under a restricted license.

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Rationale

Pre-licensure clinical education has remained essentially unchanged for at least 40 years (Tanner, 2006). As a derivation of hospital-based apprenticeships, students are placed in clinical settings, mostly acute care, and assigned to provide care for one or more patients. They learn through providing care to these patients, while being supervised by clinical faculty, with varying degrees of support by staff nurses employed by the clinical agency. (McNelis and Ironside, 2009; Chappy and Stewart, 2004). Because the experience is organized around individual patients, students may be rarely engaged with the full scope of nursing decision-making, including linking patient outcomes with larger systems issues (MacIntyre et al., 2009) or population-based care management. The nature and quality of students' clinical experience is highly dependent on events that occur during the time of placement, leaving to chance such experiences as interdisciplinary teamwork, managing crisis situations, and working with families in the provision of care.(Gubrud-Howe and Schoessler, 2008). Because the focus of learning is necessarily on acute care, there is little practical experience in strategies for management of chronic conditions, health behavior change, or coordinating care across settings. There is scant empirical literature supporting the traditional model of clinical education; indeed, the evidence that graduates feel unprepared for practice (Benner et al., 2009) and that first-line managers are dissatisfied with the level of preparation suggest that the model is not effective (Berkow et al., 2008).

Importantly, the pervasive use of this approach as the primary clinical education model results in limited capacity; the number clinical sites is cited as a major barrier to enrollment expansions (AACN, 2009b) and effective clinical teaching (McNelis and Ironside, 2009).While the use of high-fidelity simulation has been proposed as a solution to these limitations in capacity, and early studies about its effectiveness are promising (Harder, 2010), there is little evidence that it expands faculty capacity, and little guidance about what portion of clinical experience can be replaced with simulation.

The required number of clinical hours varies widely from one program to another, and most state boards of nursing do not specify a minimum number of clinical hours in pre-licensure programs (NCSBN, 2008). It is likely that many of the clinical hours do not result in productive learning. Students spend much of their clinical time doing routine care tasks repeatedly, which may not contribute significantly to new learning. Faculty report spending most of their time supervising students in hands-on procedures leaving little time focused on fostering development of clinical reasoning skills (McNelis and Ironside, 2009).

There have been some advances in clinical education, resting on strong academic-service partnerships. Preceptorships are widely used, and a recent integrative review suggests that they are at least as effective as traditional approaches (Udlis, 2006), while conserving scarce faculty resources. The Dedicated Education Unit (DEU) is receiving increasing attention as a viable alternative for expanding clinical education capacity (Moscato et al., 2007). In this model, units are dedicated to instruction of students from one program. Staff nurses who want to teach as clinical instructors are prepared for this role, and faculty expertise is used to support the development and comfort of the staff nurse as clinical teacher. Early results suggest the DEU can dramatically increase capacity and have a positive effect on student and nursing staff satisfaction; a multisite study funded by the RWJF is currently underway to evaluate outcomes of the DEU model. A variety of other clinical partnerships have been designed to increase capacity in the face of a nursing faculty shortage (Baxter, 2007; DeLunas and Rooda, 2009; Kowalski et al., 2007; Kreulen et al., 2008; Kruger, 2010).

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There is an expanding body of evidence supporting the cost-effectiveness of postgraduate residencies. In 2002, the Joint Commission on Accreditation of Healthcare Organizations, recommended the development of nurse-residency programs, a recommendation most recently endorsed by the Carnegie study. Successful programs have been launched by Versant (Beecroft et al., 2001, 2004, 2006); the AACN and University Health System Consortium developed a model for post-baccalaureate nurse residencies (Goode and Williams, 2004; Krugman et al., 2006; Williams et al., 2007, and AACN recently adopted accreditation standards for these programs (AACN, 2008) The National Council of State Boards of Nursing has developed a regulatory model for transition to practice programs, recommending that state boards of nursing enforce a transition program through licensure (NCSBN, 2008a, 2009).

Residency programs are predominantly supported in hospitals and larger health systems, with a focus on acute care. Indeed, this has been the area of greatest need as most new graduates gain employment in acute care settings (Kovner, 2007) and the proportion of new hires (and nursing staff) that are new graduates is rapidly increasing. It is clear that even the best nursing programs cannot adequately prepare new graduates to work in the current acute care environment (Goode et al., 2009).

It is essential that programs outside of acute care settings be developed and evaluated. Given the demographic changes on the horizon, the shift of care from hospital to community-based settings, the need for nursing expertise in chronic illness management, care of the older adults in home settings, and in transitional services, nurses need to be prepared for new roles outside of the acute care setting. It follows that new types of residency programs appropriate for these types of roles need to be developed and become part of the regulatory framework.

In sum, in order to increase educational capacity, improve educational outcomes, and better prepare graduates for the seismic shifts likely to occur in practice, there is an urgent need to develop and test new pre-licensure clinical education models including postgraduate residencies.

Exemplar

One model is currently being implemented and evaluated by OCNE programs, funded by the Department of Education, Fund for Improvement of Postsecondary Education (Gubrud-Howe and Schoessler, 2009), which includes some of the following desired features (Tanner, 2006):

- Focus on learning outcomes, rather than on placements and completion of clock hours, considering essential competencies such as the development of clinical judgment, ethical comportment, interprofessional teamwork, technical proficiency and new competencies required in contemporary professional practice.
- Contain a variety of learning activities, *designed* to achieve specific learning outcomes, and taking into account the level of the student, the acuity of the patient, the complexity of the desired learning, and the skill of the faculty.
- Incorporate research on learning and best practices identified by the Carnegie study pointing to: 1) the type of preparation the student would do in anticipation of the clinical learning; 2) the interaction between faculty and student to support learning (e.g., questioning, guiding); 3) the type of debriefing used to help the student learn the major lessons of the activity; 4) approaches to assessing student learning; and 5) guidance provided to the student for reflecting on the activity.

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- Include integrative or immersion experiences which recognize and incorporate the growing body of literature about apprenticeships and situated learning (e.g., Lave and Wenger, 1991) deliberate practice (e.g., Ericsson, 2004), development of expertise in practice (Benner et al., 2009), preceptorships, and academic-service partnerships.
- Integrate simulation as a complement to "hands-on" clinical experience using best available evidence to plan scenarios and incorporate into the clinical education curriculum (Harder, 2010).
- Recognize the need to vary student-faculty ratio and time on task, depending on the nature of the learning activity, the level of the student and the patient population.
- Support clinical nursing staff in clinical instruction, without overtaxing clinical resources, and at a level appropriate for the level of the student and the patient population.

SUMMARY

Implicit in these recommendations is the need for significant investment in nursing education research and in faculty development. While there is obvious need for research in nursing pedagogies, there is also a critical need for evaluation of the multiple pathways to nursing licensure. For example, fast-track curricula for students with second degrees have increased exponentially in the last five years, with very little evidence of their effectiveness, and virtually no study of curricular structures and instructional methods appropriate for this population of students (Cangelosi and Whitt, 2005). Yonge and colleagues (2005) reviewing nursing education research spanning 1991–2000 found that 80 percent had no identified funding source. Broome (2009) in calling for investment in the science of nursing education, points to the link between quality of research and funding. It seems implausible that the replacement of half of the nursing workforce during the next decade can be effectively addressed without building a stronger scientific basis for nursing education. Similarly, faculty development is critical in order to bring about the magnitude of changed recommended here and in the Carnegie study.

Taken together, these recommendations echo those of the Carnegie Foundation study, calling for transformation of pre-licensure education. It will require partnership across all levels of nursing education and health systems, redirecting Medicare funding from hospital based pre-licensure programs to postgraduate residency and advanced practice programs, expanding Title VIII funding, and other federal resources for support of educational reform. The return on investment would be improved educational capacity and a better prepared nursing workforce, responsive to emerging health care needs and rapidly changing health care delivery systems.

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The Future of Nursing Education

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The Committee on Quality of Health Care in America of the Institute of Medicine concluded that "the American health care delivery system is in need of fundamental change. The current care systems cannot do the job. Trying harder will not work. Changing systems of care will." (Committee on Quality of Health Care in America, 2001, p. 4) Since the publication of the IOM's quality chasm reports, numerous organizations have called for changing not only systems of care, but also systems of health professions *education*, realizing that it will be the clinicians of the future who can most effectively change how care is delivered. Health professions education has overall seen little fundamental change in the past 50 years and is in urgent need of new vision. New goals are needed to improve the degree to which the practice of graduates improves the health of the population; enhances the patient's experience of care; and reduces or controls the per capita cost of care.

BACKGROUND

Education in the health professions is expected to produce graduates proficient in core competencies as specified by the Pew Health Professions Commissions (*Recreating Health Professional Practice for a New Century*, Pew, 1998) and the Institute of Medicine (Greiner and Knebel, 2003). These competencies focus on issues of professional behavior (e.g., ethical standards, cultural competence) and focus of care (e.g., prevention, primary care) with the overarching intent to (1) provide patient-centered care, (2) apply quality improvement principles, (3) work in inter-professional teams, (4) use evidence-based practices, and (5) use health information technologies. Although there is wide agreement and support for these competencies, curricula have been slow to change. Faculty, themselves educated in past eras, laden curricula with factual content delivered in turgid lectures, often portrayed in dense PowerPoint slides. Students graduate with ample factual knowledge but often with little sense of integration and poor ability to function in inter-professional teams or coordinate care effectively across the multiple care settings which most patients travel.

The Carnegie Foundation for the Advancement of Teaching (http://www.carnegiefoundation.org/) recommends innovations in teaching in nursing and medicine with three emphases—*integration* (students' ability to connect basic, clinical, and social science knowledge with clinical experience); *systems improvement* (student opportunities to improve the health care system); and *professionalism* (students' acquisition of the qualities of professionalism including the formation and adoption of the shared values, behaviors, and aspirations of the profession). Its recent report, *Educating Nurses: A Call for Radical Transformation* (Benner et al., 2010), calls for teaching that invites students to develop a sense of salience, clinical reasoning, and clinical imagination. To achieve this, the best teachers must teach well beyond disembodied content, teaching students instead "how to *be* a nurse who uses evidenced-based knowledge and cultivates habits of thinking for clinical judgment and skilled know-how. Their (the best teachers') teaching is integrative and patient-centered...these teachers coach their students, engaging them in experiential learning to develop situated knowledge, skills, and ethical comportment" (p. 15).

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The looming workforce shortages in most clinical disciplines demand that educators prepare graduates for greater flexibility across disciplinary boundaries and less entrenched, siloed thinking. Many organizations speak to this. For example, the Association of Academic Health Centers cites decentralized decision-making in health workforce education and weak national health workforce policy as reasons for the growing crisis in the future supply of health professionals, and calls for urgent corrective action to improve and finance training (AAHC, Out of Order/Out of Time, 2008). The national Physicians Foundation recommends that physicians cede much clinical management "downstream" to nurse practitioners and physician assistants with the physician's consultative oversight (*Physicians and their Practices Under Health Care Reform*, 2009, www.physiciansfoundation.org/FoundtionReportsDetails). These positions by physicians indicate a greater acceptance of nursing's key place on the team in the care delivery enterprise.

In the past few years, enlightened nursing education has been moving from content-based curricula taught within segregated compartments, such as care settings isolated from each other and isolated disease-based content, to concept-based, integrated curricula that emphasize evidence-based care and clinical decision making across settings, ages, and diagnoses. New American Association of Colleges of Nursing (AACN) *Essentials* documents reflect these changes. While encouraging, this movement is slow and falls short of radical reform.

Focus of the Paper

This paper focuses on three target areas for emphasis in nursing education—*interprofessional education*, education for *care coordination*, and education for *health policy*—each essential for a transformed health care system. In such a system, nursing care must be recognized by the American public, policy makers, and others on the health care team as an indispensable ingredient to quality care. Each of these targets for curricular reform calls for pedagogy that emphasizes integration and hands-on application well beyond factual content. This will require faculty development so that teachers *engage* and *excite* students. Each of the targets should become fundamental content for baccalaureate, master's, and doctoral nursing education, with increasing levels of complexity and expectations for application and outcome. Together the three target areas could serve as pillars on which to structure the curriculum.

Others will likely select other targets for change, and there are many from which to choose. Increasing requirements for admission to nursing schools, training and recruiting a more diverse faculty, funding mechanisms for programs and students, improving mechanisms for assessing student performance, reducing and strengthening the myriad, often confusing pathways of nursing education, dealing with the issue of minimum education for entry into practice, and achieving new standards for nursing education—all are topics urgently needing new vision and bold change for the profession to receive the recognition and credit it deserves.

A major barrier of nursing education for the advancement of the profession, and specifically for embracing the three target areas of this paper, is nursing education at the community college level. Since 2006, the majority of new nurses who sit for the NCLEX-RN licensure exam each year are graduates of community college associate degree programs. The nursing profession's inability to insist that professional nursing requires a minimum of a four-year baccalaureate degree gravely impedes the stature of the profession. Because associate degree students are less likely to be educated in academic health centers, they have less proximity and exposure to students of medicine or most other health professions. Additionally, after graduation, other health professionals are disinclined to welcome collaborative teamwork with nurses who do not

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hold a baccalaureate degree. Further, the three topics of this paper vastly exceed community college curricula. Therefore, a premise of this author is that the nursing profession must require the BSN as minimum education for initial licensure for practice. It simply can no longer allow infighting and special interests to dominate. Doing so has resulted in an average *lowering* of education for nurses over the past 40 years, during a time in history when other health professions have been increasing their education requirements.

INTERPROFESSIONAL EDUCATION

Medical errors and care fragmentation are major problems that beg for change in health professions education. Poor communication among clinicians and resulting disparities in care priorities have been well documented. For example, in one study of an inpatient unit, only 48 percent of physicians talked to the RN on their team, and in only 13 percent of cases did the MD and the RN have complete agreement on the care priorities of the day (Evanoff et al., 2005).

One outgrowth of this problem has been a move, primarily in England, Canada, and the U.S., to bring health professions students in academic health science universities and medical centers together for periods of interprofessional education (IPE). Defined as "occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (Barr et al., 2005), such education is based on the premise that students' greater familiarity with each others' roles, competencies, nomenclatures, and scopes of practice will result in more collaborative graduates. Graduates from programs with IPE training will be ready to work effectively in patient-centered teams where miscommunication and undermining behaviors are minimized or eliminated, resulting in safer, more effective care and greater clinician and patient satisfaction. Specifically, IPE is thought to achieve collaboration in implementing policies and improving services, prepare students to solve problems that exceed the capacity of any one profession, improve future job satisfaction, create a more flexible workforce, modify negative attitudes and perceptions, and remedy failures in trust and communication (Barr, 2002).

Efforts have been made to evaluate the effectiveness of IPE in improving outcomes, typically including: increased student satisfaction; modified negative stereotypes of other disciplines; increased collaborative behavior; and improved patient outcomes. However, IPE's effect is not easily verified since control group designs are expensive, reliable measures are few, and time lapses can be long between IPE and the behaviors of graduates. Barr and colleagues reviewed 107 evaluations of IPE in published reports, judged to be of sufficient quality for inclusion according to Cochrane review standards (www.cochrane.org), and found support for three outcomes: IPE creates positive interaction among students and faculty; encourages collaboration between professions; and improves aspects of patient care, such as more targeted health promotion advice, higher immunization rates, and reduced blood pressure for patients with chronic heart disease (Barr et al., 2005). In further work, Reeves et al. (2009) reviewed six later studies that met methodology inclusion criteria as randomized controlled trials, controlled before- and after-studies, and interrupted time series design studies. Four of the studies found that IPE improved aspects of how clinicians worked together, such as an improved working culture and decreased errors in an emergency department, improved care management for domestic violence victims, and improved knowledge and skills of clinicians caring for mental health patients. The remaining two studies found that IPE had no effect at all. Although empirical evidence is mixed, there is wide-spread theoretical agreement and anecdotal evidence

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that students who demonstrate teamwork skills in the simulation lab or at the bed- or chair-side with patients will apply them beyond the walls of their academic programs, particularly if valued and reinforced by the care environments in which they later work.

In the early days of IPE, students graduated into patient-care environments in which siloed and hierarchical systems predominated, thus creating a significant disconnect between their college-based learning and post-graduation experience. Now, ten years into the widespread reforms triggered by the IOM's searing quality chasm reports, the practice environments students enter tend to reinforce rather than discourage cooperative behaviors and attitudes. This shift suggests a readiness for IPE and fuels the momentum among health science universities toward a growing acceptance of IPE in curricula.

IPE goes well beyond classroom-type courses comprised largely of didactic lectures, considered ineffective in cultivating team-based behaviors. Sitting side-by-side in lecture halls produces little student engagement with either the faculty or other students. From a pedagogical perspective, IPE learning comes from conjoint reflection, problem-solving, and experience. Effective IPE training produces much more than the sum of its parts, rather, it generates interprofessional discourse that *shapes* collaborative thinking and behavior. IPE typically takes one or more of three approaches: (1) clinical skills lab simulation activities using manikins or standardized patients in case scenarios often videotaped to facilitate review and reflection, (2) service learning projects that enhance students' civic engagement often with diverse communities, and (3) specific patient group clinics such as in the care of geriatric or HIV/AIDS patients.

Barriers to IPE exist (Gilbert, 2005) but are surmountable. Jurisdictions of faculty and professional organizations abound. Different accrediting bodies are loath to yield control over traditional curricula and standards. Space in curricula, with their emphasis on factual content over synthesis, integration, and cooperation, is limited. Relatively rigid academic calendars control course schedules. Other barriers pertain to motivating faculty. How to reward and give faculty credit for IPE when the traditional reward systems such as promotion, tenure, and merit raises are governed within, not across, professions. Resources of the various deans to support IPE likely differ. Typically schools of nursing have smaller overall budgets than schools of medicine but a higher percent of funding that supports the education mission. Medical school faculty typically are expected to generate a larger proportion of their salaries through clinical practice and/or research. When done well IPE can be expensive for many reasons, e.g., small groups with stability over time to allow for reflection and the development of trust, and/or expensive equipment for simulations. These budgetary issues can contribute to different levels of willingness of deans to support IPE.

Recommendations

1. Students at all levels of nursing education, baccalaureate, master's, and doctoral, must have exposure to IPE training and demonstrate competence in interprofessional collaboration.
2. Since academic curricula tend to resist change unless pressured by external forces such as accreditation requirements and licensure/certifying exam content, major education and standard-setting organizations must cooperate to bring about IPE. In addition, endorsement of IPE must come from the highest levels within academic settings, including presidents, provosts, and deans.

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3. Nursing faculty need development in IPE teaching, which requires structure and funding. The traditional notion of "teacher as expert" urgently needs replacement with teacher as coach and facilitator. Faculty, whose average age nationally is in the mid-50s, need the tools to make this transition. In addition, since most nursing faculty are not active in practice, their own clinical experience is often dated and sometimes based on past unsatisfying interprofessional relationships, making them poor champions for IPE.
4. The level and timing of bringing various students together requires analysis and pilot testing because of students' varying educational pathways and readiness for IPE. For example, evaluate pairing senior medical students with graduate nursing and allied health students, in an effort to have students bring relatively comparable amounts of university education and clinical exposure to the experiences.
5. IPE should be structured around knowledge, skills and competencies to include: interpersonal and listening skills; techniques for constructive dialogue and disagreements; how "evidence" in evidence-based practice is weighted; systems thinking and problem solving; engaging patients and families as active participants in care; verbal and non-verbal communication within the care team; effective data reports and displays; stereotypes and prejudices; and appreciating alternative conceptual frameworks and points of view.

EDUCATION IN CARE COORDINATION

Both the health professions literature and the popular press note that failures in patient care coordination are widespread in the United States. Indeed, fragmented care, lost records, hand-offs without full information, poor return of information from specialty care after referral, unnecessary and redundant procedures and services—and the attendant patient fatigue, frustration, and costs—are the very heart of the quality chasm. This problem is particularly acute for the 125 million people with chronic illness, disability, or functional limitations, and for the elderly whose numbers will swell in the decades ahead. Short hospital stays have exacerbated the problem.

Historically, primary care physicians coordinated their own patients' care within and across settings, but this function has all but been lost for myriad reasons, including the growth in hospitalist care, patient self-referrals to specialists, the breakdown in communication between primary care and specialty care, financing constraints on physician time, and overall uncoordinated systems of information technology. Failures in care coordination also can be traced to curricula where the competencies required are assumed to be intuitive and thus minimized or overlooked altogether.

Serious consequences result from poor care coordination. Especially worrisome is the post-hospital fate of patients. One study of care transitions found that 19 percent of patients experienced adverse events following discharge from a U.S. teaching hospital, most of which were avoidable and typically related to poor communication (Forster, et al., 2003). In another survey, 48 percent of newly discharged patients reported not receiving information about side effects of new prescriptions ordered at discharge (Schoen et al., 2005). In a study of urgent care patients, in 33 percent of cases information such as medical history and laboratory results was absent. In half the cases, the information was essential to patient care (Gandhi, 2005).

As defined by the National Quality Forum (http://www.cfmc.org/caretransitions; 2006), care coordination should meet patients' needs and preferences for information and services across

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settings over time. This facilitates beneficial, efficient, safe, and high-quality patient experiences and improved healthcare outcomes. Qualities and principles of care coordination include an enduring patient relationship and an established and up-to-date care plan that anticipates routine needs, manages acute, episodic, and chronic care needs and tracks progress toward goals that are jointly set by the healthcare team and the patient/family. Care coordination ensures information flow to and from referrals to specialty care or community services; ensures that all team members, including the patient, are apprised of tests and services with results readily available; reconciles medication orders and educates patients and families about side-effects and medication management; and reduces opportunities for error. Care coordination requires linguistically and culturally competent communication with the patient and family, and seeks and responds to patient/family questions and feedback.

Yawning gaps in care coordination are rallying many health professions organizations to search for solutions. For example, the American Board of Internal Medicine Foundation structured its annual Forum on this topic in 2007, and later spearheaded a consortium, referred to as the SUTTP Alliance (Stepping Up to the Plate for Managing Transitions in Care) comprised of 10 medical specialty societies, including the American College of Physicians, the American Academy of Family Physicians, and the Society of Hospital Medicine. Nurses are the logical and ideal clinicians to fill the role of care coordinator, yet a similar alliance among nursing organizations is absent. Germane to this paper, curricula in care coordination in nursing education are underdeveloped.

Nursing research has produced important findings about advance practice nurses as care coordinators. Brooten's early work on care of low birth weight infants (Brooten et al., 1986) showed significant cost and quality improvement for early discharge and follow up home care by advance practice nurses (APNs). Naylor's (Naylor et al., 1999, 2004) studies of a transitional care model by APNs for older cardiac patients post-hospitalization also demonstrated positive effects of nurse-managed transitional care. In these models, APNs tailored post-discharge services to each patient's situation and followed patients by telephone and home visits. The intervention emphasized patients' and caregivers' goals, individualized plans of care developed and implemented in collaboration with patients' physicians, educational and behavioral strategies to address needs, and coordination and continuity of care across settings. Overall outcomes were positive across a series of studies, showing lower re-hospitalization rates, fewer hospital days when re-admitted, substantial cost savings, and greater patient satisfaction with care.

Another superlative example of care coordination is On Lok Senior Health Services for older adults living in San Francisco. For over 30 years, On Lok has used multidisciplinary teams, electronic medical records, capitated payment, and a full range of services (including transportation, housing, meals, adult day health services, and geriatric aides who make frequent home visits) to provide seamless transitions for nursing home-eligible frail elders at lower cost than usual care. On Lok became the model for similar institutions around the U.S. through the Program of All-Inclusive Care for the Elderly (PACE) (Bodenheimer, 1999).

Another care coordination model is Tom Bodenheimer's "teamlet" (Bodenheimer, 2007), dyads that are a subset of the larger health care team and comprised of a physician and, ideally, an experienced nurse or an APN. Patients enter "an expanded encounter," in which pre-visit, post-visit, and between-visit care is continually monitored and coordinated by the nurse. Ingredients for success include making sure the patient understands advice and direction and agrees with the plan of care; communicating and interpreting laboratory and other diagnostic tests, and continually looping information between the patient and family, the physician, other

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care providers such as clinical pharmacists and allied health. Bodenheimer notes that ideally the coach would be an RN or an advanced practice nurse, but in their absence, a medical assistant could be trained for the role.

Thus, the role of care coordinator as patient advocate, communicator, assessor, and intervener, ideally suited to what nurses do best, presents a huge opportunity for nursing education. But, as implied by Bodenheimer, the nursing profession will be by-passed if nurses fail to seize the opportunity. To do so, however, requires that nursing school curricula incorporate not just the knowledge underlying the competencies of the role but convey the importance of the role to students by threading the concept and competencies of care coordination throughout the curricula. As already mentioned, most nursing curricula currently teach compartmentally, not across systems. Courses, particularly in the baccalaureate program where attitudes about nursing and nursing care are first formed, focus on content and skills in specific discrete clinical settings. Faculty generally teach within, not across, settings of care. Often the master's level Clinical Nurse Specialist program is the only track with a course or parts of courses that address care transitions and care coordination, and this content may be confused with case management, the latter being a more limited concept usually applied to containing costs within reimbursement systems.

Interprofessional education discussed above will by itself, improve graduates' competence in care coordination because many of the competencies students learn in IPE are relevant. However, there is a body of knowledge and sets of skills, attitudes, and role-related behaviors specific to care coordination that should be integrated throughout the levels of nursing education rather than confined to episodic IPE training.

Recommendations

1. BSN students should be placed for clinical training in new models of integrated care that require care coordination, such as accountable care organizations within universities or medical homes.
2. MSN students should study the research cited above that shows the effectiveness of APN transitional care. Components of MSN clinical training should include the care coordination role.
3. Across education levels of nursing education, care coordination should be structured around knowledge, skills and competencies to include: advanced assessment skills appropriate for senior baccalaureate and master's/DNP students; interpersonal and communication skills necessary for the ability to communicate with patients and families with a high degree of sensitivity and cultural competence, as well as the science-based skills necessary to communicate effectively with physicians and others on the health care team; competencies in care planning that integrate the biological, social, and psychological needs of patients; understanding of and ability to seek and apply evidence-based protocols and national standards for patient conditions; and payment and social services systems to better address the full range of patients' and families' needs.

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HEALTH POLICY EDUCATION

In large measure nursing education must remain patient focused. This makes sense for an applied discipline whose goal is the prevention or amelioration of illness and the improvement in the wellbeing of patients, families, and communities. However, a major lesson of the past 20 years is the degree to which health systems and policy shape the health both of populations and individual patients. Yet nursing students gain only a glimmer that health policy at multiple levels, from the hospital unit to the federal government, affects not only their practice but ultimately the fate of patients. Few educational programs include more than a token course on health policy, typically only at the graduate level. Since nursing education curricula generally treat health policy as extra rather than core, the naiveté of graduates, is no surprise. With few exceptions, nurses generally view themselves as being shaped *by*, not *shaping*, policy.

Since nurses largely take a back seat to policy processes, the profession's input has been relatively invisible, certainly compared to that of medicine (Mechanic and Reinhard, 2002). Few nurses, when asked, "What is nursing" include health policy as a component of what nurses do (Gebbie et al., 2000). Missed opportunities for nursing to shape legislation or wade into legislative debates are all too common. One example is the recent Centers for Medicare and Medical Services (CMS) rule that restricts reimbursement for such "never events" as pressure ulcers, certain catheter-related infections and injuries, and certain surgical site infections. The majority of these conditions can be prevented by excellent nursing care, yet the nursing profession has not effectively convinced the Congress or the American public that nursing care is the key ingredient safeguarding the public from these problems (Leavitt, 2009).

Another example is the "killing grandma" and "death panel" controversy, sparked by wording in the August 2009 Congressional healthcare reform bills. Thousands of nurses across the country have daily, intimate contact with patients and families in the throes of decision-making about DNR orders, advance directives, and other end-of-life issues. Nurses have close personal knowledge about how they and other clinicians facilitate discussions and considerations about palliative care and life-extending treatments. Despite this, nurses were largely silent in the face of widespread public misunderstanding and resulting acrimonious outcry over what is intended in counseling patients facing such decisions. This silence is surely an outgrowth of the inattention of nursing curricula to health policy.

The Healthy People Curriculum Task Force, convened by the Association of Academic Health Centers and the Association of Teachers of Preventive Medicine, with representatives from medicine, nursing, pharmacy, and physician assistants, as well as their educational associations recommended the following four domains fundamental to health professions curricula on health policy (http://www.atpm.org/CPPH_Framework/index.html).

- Organization of clinical and public health systems (connecting the pieces of the system; connecting clinical care to public health structures)
- Health services financing (underlying determinants of cost and options for payment and cost containment; comparison to health systems of other countries)
- Health workforce (understanding the roles and responsibilities of other health professionals)
- Health policy process (introduction to the impact of policy on health and clinical care, the processes involved in developing policies, and opportunities to participate in those processes, whether within a local institution or state or federal legislation)

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Medicine has advocated the inclusion of these domains in all medical school curricula (Riegelman, 2006). Nursing curricula should do no less.

As emphasized above, health policy curricula are needed at the baccalaureate, master's, and doctoral levels of nursing education, with increasing scope and complexity as the student advances. Political competence requires continuing skill development that begins early in students' education, thus setting the course toward the graduate's life-long engagement.

Baccalaureate students need to understand the role of policies at the unit level that shape the environment in which they will eventually work. Workplace policies (e.g., mandatory overtime, nurses' authority to close beds to new admissions based on professional judgment of adequate staffing, school nurses' authority to teach reproductive information) lend themselves for students' analysis and can help students clarify their own biases and potential ethical conflicts.

Another example of the type of policy work ideal for analysis by baccalaureate, and even graduate, nursing students pertains to The Robert Wood Johnson Foundation and the Institute for Healthcare Improvement project, *Transforming Care at the Bedside* (www.ihi.org/IHI/Programs/TransformingCareAtTheBedside/). TCAB is an excellent teaching-learning vehicle for students to gain understanding of local policy and how it is shaped. Originally designed as a way to improve hospital work environments so that more nurses would seek (and stay) in positions on medical-surgical units, TCAB also addresses care improvement processes, such as rapid PDSA (plan-do-study-act) cycles for gathering data to influence patient care policies. Faculty should engage baccalaureate students in this TCAB literature, with application in clinical assignments and an emphasis on policy implications and processes. In addition, baccalaureate students need an understanding of the important role that nursing organizations can play so as to encourage their involvement both as students and as graduates.

Graduate education in nursing, both at the master's and doctoral levels, should be infused with multiple learning experiences in health policy, including both explication and hands-on experience. Building on the foundation from the health policy curriculum at the baccalaureate level, APN students need to be actively involved in political processes that affect the care they will deliver in the future. At this stage of their education, they should be expected to understand the link between evidence and policy, i.e., the role that data can play in illuminating problems and capturing the attention of policy makers. IPE can provide collaborative efficiencies so that interprofessional student groups engage together in policy projects.

AACN's *DNP Essentials* (www.aacn.nche/DNP/pdf/Essentials.pdf) includes "Health Care Policy for Advocacy in Health Care (Essential V), which expects DNP graduates to engage in the health policy process, whether through institutional decision-making, influencing organizational standards, or governmental actions. It is expected that students will be oriented to the principles of social justice, particularly in advocating for the underserved. Examples of hands-on assignments include: preparing and presenting a policy brief analyzing a state or national health policy issue or problem related to access, utilization, cost, or quality; writing a letter (not to be sent) to an editor or an elected official on a health issue; and educating the lay public through speaking at local Rotary or other civic organization.

At the PhD level, student understanding of how to impact health policy moves specifically to the role of research. The focus at this level should be on advanced knowledge of political processes within the state and federal government and on the competencies needed to articulate research findings persuasively. Students should understand how to plan their doctoral studies and related work, such as scholarly projects and the dissertation, toward the end-goal of becoming

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influential. Many authorities (e.g., McBride et al., 2008) urge researchers to engage end users when framing research since those in position to make policy frequently complain that the research they need is rarely available. A useful exercise for PhD students early in their program is to meet with a state or federal elected member to discuss topics of mutual interest in improving health or healthcare and determining what evidence may be useful in future policy agenda.

Linking research findings to health policy formulation requires a set of specific skills which should be core to PhD education. These range from the concrete, for example, selecting a title for a policy brief or media report that reflects the key take-away message (since busy policy makers will overlook material that does not draw them in quickly), to the more conceptual, e.g., learning the separate perspectives of legislators who make policy and researchers who study health problems, which Hinshaw refers to as "moving between two cultures" (Hinshaw, 2008).

Recommendations

1. In addition to health policy courses at baccalaureate, master's, and doctoral levels, health policy objectives should be threaded throughout the curriculum, ideally embedded in every course and reflected in course assignments. Using probing questions that invite student reflection, synthesis, integration, and deduction, faculty should lead students to articulate the policy implications in everything they study.
2. Accreditation and licensure/certifying examinations must ramp up their expectations for student competencies related to health policy.
3. Health policy education should be structured around knowledge, skills and competencies to include: policy-related relationship building skills; techniques for crafting testimony and writing effective white papers and position statements; effective use of numeric and narrative data to emphasize evidence-based information; working with the media; critiquing the ethical aspects of health policy in terms of vulnerable populations; mastering health policy terminology; understanding legislators' perspectives; techniques for policy analysis; legislative processes in policy development; roles of stakeholders and special interest groups; and advocacy and strategies to influence policy.

EPILOGUE

The RWJF/IOM Initiative on the Future of Nursing will yield transformational recommendations for the nursing profession at a critical time in history for nursing and for America's healthcare system. There is much to reform in nursing education, from agreement about the minimum degree for entry into practice to producing graduates with the requisite knowledge, skills, and interprofessional competencies they will need. This paper has reviewed the rationale for and curricular implications of three target areas—*interprofessional education*, education for *care coordination*, and education for *health policy*—around which to restructure education at the baccalaureate, master's and doctoral levels. The author acknowledges the difficulties in changing entrenched curricula and habits of faculty educated in past eras. But one remains optimistic, given the many examples of progress already made (Benner et al., 2010) that an enlightened profession with a will for change can bring about a refreshing new future for nursing education.

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The Future of Nursing: Leading Change, Advancing Health
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J
International Models of Nursing[1]

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

The future of nursing in the United States will be shaped by an array of factors and forces—and each of these, in turn, will be shaped by the myriad international factors and forces created by globalization. This paper describes general trends and broad themes in globalization and international nurse migration, profiles nursing education, regulation and utilization in various countries, and relates them to the future of nursing, both in the United States and globally. It describes foreign-educated nurses in the United States workforce within the context of global variances in nursing education programs, credentialing mechanisms, and employment practices. It also provides a global snapshot of education and regulation in historic and emerging countries that have supplied migrant nurses to the U.S. workforce and describes their migration patterns.

The paper envisions a future with international models of nursing education, regulation and practice. Thus, the impact of international and regional trade agreements is described as they serve as catalysts for these international models. The paper asserts that nursing reform in the United States must be understood and envisioned within an international and historical context that integrates global trends and issues. Against this backdrop, the implications of migration and globalization for education, service delivery and health policy in the United States are identified and discussed.

Trends in International Migration

Worldwide, demand for nurses exceeds supply and chronic shortages are characteristic of the current global nurse workforce. The 2006 World Health Report (WHO, 2006) identified shortages of human resources as a critical obstacle to the achievement of the Millennium Development Goals (MDGs) for improving the health of global populations.[2] Moreover, the report identifies the importance of nursing as an integral element of health systems' infrastructure.

[1] The responsibility for the content of this article rests with the authors and does not necessarily represent the views of the Institute of Medicine or its committees and convening bodies.
[2] WHO estimates that the world needs to increase the number of health workers by more than four million. WHO defines health workers to be all people engaged in actions whose primary intent is to enhance health, such as doctors, nurses, midwives and others.

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Various studies also have documented the important link between nurse staffing levels, service delivery and health outcomes, suggesting that important issues exist with respect to how the nursing health workforce is managed. One important factor that has received considerable attention is the mobility and migration of nurses and their impact on the global delivery of health services (Kingma, 2006).

Globalization of the nursing workforce must be viewed within the context of the worldwide development of the knowledge economy. This phenomenon identifies intellectual capital as a valuable asset and encourages the export of education and knowledge workers as significant contributors to a country's economy. For example, national policies in the Philippines and India support the export of nurses (Healy, 2006; Thomas, 2006) with China and Korea beginning to follow a similar path (Fang, 2007).

The importance of the nurse export business is reflected in the exploding growth of nursing schools in the Philippines and India, and in the large sums of money received through remittances.[3] Many countries, such as India and China, see the current demand for nurses as a business opportunity. Khadria (2007) describes the process in India as "business process outsourcing" (BPO). It includes comprehensive training, recruitment and placement programs for popular destinations, like the United States and the United Kingdom. It is assumed that these growing markets facilitate care as a global product delivered by migrating nurses.

Worldwide, the education and regulation of nurses is highly diverse and varies considerably in scope and complexity. Despite these international differences, a number of factors allow nurses to migrate throughout the world, creating continuous challenges to the maintenance of nursing education, practice and regulatory standards. For example, the United States is unique in having created CGFNS International to address these issues, thus creating a comprehensive data base on variances in nursing, education, regulation and practice worldwide, making it a global resource.

A major challenge for all countries is to establish workforce planning mechanisms that effectively meet nursing resource requirements in terms of supply and demand. In that regard, nursing shortages in the United States mirror the growing interdependency of labor markets throughout the world and the need for national and international nursing workforce policies. The challenge for workforce planning related to the global migration of nurses, however, is to focus not only on the number of nurses entering the country, but also on the number of nurses leaving the country, the number of new nurse graduates and the effect of internal migration, such as the movement of nurses from state to state and from rural to urban areas. Also essential is an understanding of the education and licensure systems of migrating nurses to ensure a proper skill mix for the nursing workforce of a country (Kingma, 2006).

Thus, the global nurse workforce must be viewed, not only within the context of the health status of nations, government investment in health budgets, nurse/health care migration, economic realities, and working conditions but also within the context of the diverse preparation and practice of its practitioners.

[3] The World Bank defines remittances as the personal earnings international migrants send back to their family and friends. Remittances represent an important source of added income and stability for individuals, families and communities. Remittances play a significant role in reducing the level and severity of poverty (each social determinants of health) and contribute to the economic development in many low and middle income countries.

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Recommendations for the Future of the U.S. Nursing Workforce

The authors believe that the Committee has an unparalleled opportunity to challenge the status quo in nurse utilization and to significantly contribute not only to a national but also a global health workforce agenda. Such an agenda requires reliable, stable and competent nurses functioning at all levels of health care systems. The authors have provided specific recommendations for your consideration, and present them within a contextual framework that acknowledges the historic and current leadership role U.S. nursing plays in the international nursing community. That framework suggests that the Committee's recommendations will have dramatic domestic and global implications. The authors have identified six recommendations for action:

1. Promote targeted educational investment in foreign-educated nurses in the U.S. nursing workforce.
2. Promote baccalaureate education for entry into nursing practice in the United States.
3. Harmonize nursing curricula.
4. Add global health as subject matter to undergraduate and graduate nursing curricula.
5. Establish a national system that monitors and tracks the inflow of foreign-educated nurses, their countries of origin, the settings in which they work, and their education and licensure to ensure a proper skill mix for the U.S. nursing workforce.
6. Create an international body to coordinate and recommend national and international workforce policies.

Recommendation 1: Promote Targeted Educational Investment in Foreign-Educated Nurses in the U.S. Nursing Workforce

One response to the global shortage of nurses is to increase the number of nurses produced. Scaling up the health workforce is on the global agenda (Vujicic et al., 2009). Likewise, the growing demand in the United States for nurses and the predicted nursing shortfall require that the United States increase its number of nurses and nurse faculty (Buerhaus et al., 2009).

The clear linkage between quality nursing education and health outcomes identifies that nursing education and continuing professional development are essential elements when tackling nursing workforce challenges for the future delivery of care. Moreover, there is a clear linkage between quality nursing education and health outcomes. Since substantial numbers of foreign-educated nurses hold baccalaureate degrees, targeted opportunities for education should be directed at encouraging them to complete masters and doctoral nursing programs as preparation for clinical and faculty leadership roles. This approach would increase the applicant pool for graduate study and enlarge faculty numbers. In addition, it would prepare foreign-educated nurses with graduate degrees to serve in faculty and leadership roles in their home countries when they return—an approach used in many professions to upgrade a country's knowledge and skill base by profession. CGFNS data identify that many foreign-educated nurses have completed master's degree programs but are hired to only work in staff nurse positions, suggesting underutilization or lack of consideration for other nursing or faculty roles (CGFNS, 2002).

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Recommendation 2: Promote Baccalaureate Education for Entry into Practice in the United States

Baccalaureate programs are on the rise internationally. In most cases, the rise of baccalaureate nursing programs represents a focused, often mandated, policy agenda—without the complex history that has framed baccalaureate education in the United States. The Philippines moved to the baccalaureate for entry into the profession in the mid-1980s. Canada also requires the baccalaureate for entry for new graduates in most provinces. The United Kingdom has moved to university preparation of first level nurses. Mexico and India are phasing out their non-baccalaureate nursing programs. The Ukraine has scaled up its nursing programs, as well, in order to enhance the profession in the country and to increase the global marketability of its nurses. This international trend toward mandated baccalaureate education for entry into the profession places the United States in a less progressive and less competitive position in the global nursing community.

Although the Bologna Process[4] directly concerns Europe and its immediate neighbors, it has generated global attention because harmonization of nursing standards in this large geographical area will have worldwide implications (Zadalegui et al, 2006). It has heightened awareness in many countries of the need for baccalaureate education in nursing, motivating them to move toward the baccalaureate as the entry into practice credential.[5]

Because the requirements and competencies of the Bologna Process and the Tuning Project[6] identify the need to address educational equivalences and differences in nursing education and qualifications worldwide, careful comparisons between education systems will be necessary for the foreseeable future. For example, competencies and hours of instruction of clinical practice will need to continue to be assessed when countries import nurses[7].

Although baccalaureate education for entry into U.S. nursing has been controversial since 1965 (ANA, 1965), the present complexity and high technology used to practice nursing in all settings requires now and in the future that nurses be grounded in science and critical thinking. The rise of baccalaureate education globally, coupled with the Bologna Process, suggests that the United States must upgrade its educational standards for entry into the profession. The profession needs to muster the political will to make this unrealized goal a reality—not only to address quality gaps in educational preparation, but also to be a credible player in the future domestic and global health care labor market.

[4] The Bologna Process creates the European Higher Education Area by making academic degree and quality assurance standards more comparable and compatible throughout Europe. The Bologna Process currently has 46 participating countries committed to "Harmonizing the Architecture of the European Higher Education System." It is named after the place it was proposed, the University of Bologna, Bologna, Italy.

[5] Canada, India, and the United Kingdom are examples of countries implementing baccalaureate education for nursing.

[6] The "Tuning Process" is a methodology utilized with the Bologna Process that establishes reference points and builds templates for learning outcomes and competencies for specific academic disciplines.

[7] U.S. immigration law requires that foreign-educated nurses seeking U.S. employment must have their credentials evaluated in terms of comparability of education, English language proficiency, and licensure validity.

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Recommendation 3: Harmonize Nursing Curricula

U.S. nurse educators should form strategic partnerships to share nursing knowledge and exchange information and best practices state-to-state and regionally. The U.S. nursing education community should promote sustainable global knowledge networks and the open exchange of tools that promote curricula innovation based on learning outcomes. Sustained investment in nursing education must become a national and world priority.

Recommendation 4: Add Global Health as Subject Matter to Undergraduate and Graduate Nursing Curricula

To better prepare nurses to work within a globalized health system, U.S. nursing programs should include courses on global health. Such courses would focus on the characteristics of health systems world wide with course content including, for example, high exposure to infectious diseases, underinvestment in health system infrastructure, deteriorating working conditions and acceleration of health professional migration. This would prepare U.S. students to better deal with the migrating nurse workforce and its future demographic characteristics.

Recommendation 5: Establish a National System that Monitors and Tracks the Inflow of Foreign Nurses, Their Countries of Origin, the Settings in Which They Work, and Their Education and Licensure

A comprehensive data base that collects, monitors, and tracks information about foreign-educated nurses in the U.S. workforce would play a significant role in formulating health care policy. Such a data base would assist governmental and private agencies regarding the education, skill mix, practice and immigration patterns of immigrant nurses, all necessary data to intelligently inform health planning and policy decisions.

Recommendation 6: Create an International Body to Coordinate and Recommend National and International Workforce Policies

Globalization has created a world market for a globalized nursing workforce. For nurses to take advantage of these opportunities, mechanisms are needed that compare the education and qualifications of applicants against global standards. Such an entity would acknowledge that mobility is a core element of globalization and recognize the need for international standards of minimal competence. The United States should work closely with the International Council of Nurses (ICN) in pursuing this goal.

The *2006 World Health Report* (WHO, 2006) focused on health and human resources and identified the central role regulators play in the protection of the public. It also acknowledged that factors such as migration are placing existing approaches to regulating professionals under considerable strain. While regulators generally have well established standards and processes for initial registration, this is not usually the case for determining continuing competence. Ensuring the competence of health professionals remains an important regulatory issue that is now being framed in the broader context of promoting patient safety and advancing the quality of health care services. Ensuring the competency of health professionals entering the United States remains an important priority—as it is for other countries.

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In short, a newly established standard of continued competence needs to be offered globally. This new standard must, at a minimum, measure the aptitude, knowledge and skills of nurses around the world and predict their ability to succeed in patient care in global health care environments. The challenge is to incorporate into workforce planning, the development of appropriate quality assurance processes and mechanisms that encompass foreign providers and educational programs in such a way as to ensure predictability and competence in the workforce (Aiken et al., 2004; Kingma, 2006; Little and Buchan, 2007).

OVERVIEW OF INTERNATIONAL NURSING EDUCATION AND REGULATION

Key Issues and Challenges in Nursing Education

Although nurses share a common professional history, internationally their educational preparation, regulation, and practice patterns are highly diverse and vary considerably in complexity and scope. There are differences in credentialing requirements that include professional licensure, use of titles, and accreditation of educational programs (ICN, 2003). Because of these world-wide differences, the skill mix of the nursing workforce also is diverse. Thus, the globalization of the nursing workforce must be viewed not only within the context of the health status of nations, government investment in health budgets, nurse/health care migration, economic realities, and working conditions but also within the context of the diverse preparation and practice of its practitioners.

Achieving global standards for the education of nurses is a vision of many nursing professionals, and has been promoted by the International Council of Nurses (ICN) for over a century. However, achieving that goal remains unrealized and is complicated by the variations in nursing education throughout the world. Many countries specify university-level education as the minimum entry requirement for nursing—but the idea of university education for nursing remains challenging, with disparities being common in the programs currently offered in different parts of the world. Compounding the issue is the number of countries that still consider initial nursing education at the secondary school level to be adequate.

Educational programs also vary in type, number, size, and degrees offered. For example, all nurses from the Philippines complete a baccalaureate degree. Denmark, Ireland, New Zealand and Spain also have single programs for qualifying as a nurse. On the other hand, in the United Kingdom, nurses receive either a nursing diploma or a degree. In the United States there are three educational pathways to become a registered nurse: a 2-year associate degree, a 3-year diploma program, or a baccalaureate degree. Also in the United States the model of nurse-midwife is common, for other countries midwifery is considered a profession separate from nursing. In short, universal nursing education standards have not been achieved.

Entry-level professional nursing programs are designated as diploma, associate degree or baccalaureate. Diploma programs are the most prevalent, worldwide, with baccalaureate programs on the rise. However, many countries are experiencing faculty shortages, which substantially impacts the number of nurse graduates from all programs. For instance, schools in Vietnam and Eastern Europe still operate under the practice of physicians serving as the majority of nursing faculty. Other countries, such as those in the Middle East, do not have the infrastructure to support higher education and nurses must travel abroad to be educated as faculty. In many countries shortages of nursing faculty relate to cultural, social and economic norms about the education, status and role of women. In many instances most patient care jobs

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are held by female nurses while administrative and faculty jobs are held by male nurses or doctors. The shortage of experienced nursing faculty, worldwide, adds to the challenge of establishing and maintaining standards (Blythe and Baumann, 2008).

Action by the World Health Assembly (WHA) in 2001 included the development of global standards for the initial education of nurses. This was followed in 2006 by the World Health Organization (WHO) Task Force on Global Standards in Nursing and Midwifery Education and in 2009 by the WHO publication, *Human Resource for Health: Global Standards for the Initial Education of Professional Nurses and Midwives.* The WHO goal of global standards is to establish educational criteria and ensure outcomes that (1) are based on evidence and competency; (2) promote the progressive nature of education and lifelong learning; and (3) ensure the employment of practitioners who are competent and who, by providing quality care, promote positive health outcomes in the populations they serve (WHO, 2009).

Many source and recipient countries have established educational programs to ease the transition of migrant nurses. For example, colleges and universities in Canada have created courses to respond to knowledge deficiencies. Canada also has created prior learning assessment and recognition (PLAR) initiatives that provide practical validation of immigrant nurse competencies in lieu of and/or in conjunction with course work (Hendrickson and Nordstrom, 2007). Because there can be language and cultural adaptation issues, countries like the United Kingdom require foreign nurses to undergo orientation to the local culture of health care upon their arrival in the United Kingdom (Kingma, 2006).

Blythe and Bauman (2008) state, *"While international and national nursing bodies are focusing on international standards for nurses, more inclusive movements for educational harmonization that involve national governments are underway. One of the most significant is the Bologna Process."* The purpose of the Bologna Process is to make academic degree standards and quality assurance standards comparable and compatible throughout Europe. The process extends beyond the EU to include some 46 countries.

Global standards continue to be a goal of the future. In the meantime, countries must work to ensure an adequate source of health professionals to provide care for current and future patient needs. Ideally, global standards will be guidelines that serve as benchmarks for the profession. The commitment of the United States to pursue this goal would have a significant impact on its realization.

Key Issues and Challenges in Nursing Regulation

Regulatory Structure

In addition to differences in education, the nursing profession varies by country in how it is regulated. Many countries have had statutory nursing regulation for years, regulation that ensures a safe and competent nursing workforce. However, there are still countries with no nursing regulation, rules, or other regulatory mechanisms that emanate from the government. In still other countries there is provision for nursing regulation, either in statute or in other systems of rules, however, for various reasons no mechanisms exist that establish a legal framework for nursing as an autonomous regulated profession (ICN, 2009a). Some examples of regulatory systems include:

- A single regulatory authority, such as the Nursing and Midwifery Council (NMC) in the United Kingdom.

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- A national/governmental body that determines basic competencies but has no regulatory authority, such as Denmark, Ireland, Taiwan (ICN, 2009a).
- Regions acting as autonomous units with the government setting standards for only some of the jurisdictions, for example, Spain (ICN, 2009a).

Therefore, as nurse migration accelerates, it should be recognized that the standards, competencies and qualifications required to practice as a nurse vary globally.

Licensure

All countries do not license nurses. Some countries require nurses to pass an examination after completion of their nursing education before they can practice. Nurses in the Philippines, Australia, Thailand, Japan, Singapore, the Cameroons, Korea, and Poland take a licensing exam that provides national licensure and registration as a first level (registered) nurse. Other countries, such as Nepal and Mexico, do not require a post-graduation examination. The nursing schools administer an exit or qualifying examination and upon passage, the student is granted a diploma. The diploma allows the graduate to practice as a nurse.

While some countries provide national licensure, still others license nurses by province or state. Countries such as India only allow nurses to be licensed in one state at a time. In Canada, nurses are licensed by the individual provinces. Each province has its own educational structure and regulatory authority; however, nurses licensed in one province can achieve licensure by endorsement in another province. In the United States nursing licensure is at the state rather than the national level. The United States does not offer a single nursing license that is recognized and valid in all states and territories within the United States. Instead, each state controls the practice of nursing within its borders. The nurse must be licensed in the state in which he/she is employed. The United States does offer the mutual recognition model of nurse licensure, which allows a nurse to hold a license in his or her state of residency and to practice in other states, subject to each state's practice law and regulation. Under mutual recognition, a nurse may practice across state lines unless otherwise restricted (NCSBN, 2009).

As part of emerging practices around increased migration, some countries test nurses' competencies before they leave their country of origin. For example, the National Council of State Boards of Nursing administers the U.S. Nurse Licensure Examinations (NCLEX-RN® and NCLEX-PN®) in major cities around the world to test the competencies of nurses who desire to migrate to the United States to work. Pass rates of foreign-educated nurses on the NCLEX-RN examination are generally in the 48–52 percent range but vary by country of education and experience with multiple-choice testing.

A number of U.S. states require that foreign-educated nurses take the CGFNS Qualifying Exam® as a prerequisite for licensure. Annual CGFNS Validity Studies over the last 5 years indicate that foreign-educated nurses who pass the CGFNS Qualifying Exam on the first attempt have an 88–92 percent chance of passing the NCLEX-RN examination on the first attempt, which is comparable to, and in some cases higher than, the pass rates of U.S. graduates taking the NCLEX for the first time. Table J-1 depicts the 2007 NCLEX pass rates of U.S. and internationally educated nurses as well as nurses educated in the countries that are historical and emerging suppliers of registered nurses to the U. S. workforce. Statistics for foreign educated nurses who sat for the NCLEX-PN examination also are provided because many registered nurses who are unable to pass the RN examination go on to take the PN licensure examination.

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TABLE J-1 NCLEX Examination Statistics, 2007

Country	NCLEX-RN Pass Rates	NCLEX-PN Pass Rates
U.S. educated, first-time takers	85.5%	87.3%
Foreign educated, first time test takers	52.0%	48.6%
Historic Supply Countries		
• Philippines	49.2%	58.3%
• India	66.2%	39.1%
• Canada	65.3%	79.7%
• United Kingdom	66.7%	66.7%
Emerging Supply Countries		
• China	53.8%	53.8%
• Jamaica	50.9%	26.5%
• Nigeria	25.5%	69.4%
• Mexico	43.8%	00.0%

SOURCE: NCSBN, 2009c.

Other countries that import nurses, such as Canada, also give their licensing examinations abroad. Saudi Arabia and the United Arab Emirates give licensure examinations in the Philippines and India for potential immigrants to their countries. Still other countries ensure a supply of foreign-educated nurses by establishing agreements with governments, where nurses are comparably educated to supply quotas of nurses for defined periods (Kingma, 2006). Both the United Kingdom and Japan have such arrangements with the Philippines.

Registration

Registration of nurses is an administrative process that allows the government agency responsible for health and safety to track and monitor health care professionals. In some countries, such as the United Kingdom, registration is the recognition by the professional regulation body that the nurse has completed all educational requirements to practice as a nurse. In countries in which licensure by examination is required, registration by the regulatory body documents that the nurse has passed the examination and met all requirements to be listed on the registry. Registration requires an initial fee, and in most countries, periodic payment of fees to maintain that registration.

Graduates of nursing programs in such countries as Peru, Columbia, the Dominican Republic, the Ukraine, Armenia, Russia, and other Eastern European countries are not required to hold licenses. The graduate nurse's diploma serves as the permit to practice the profession of nursing. The nurse's professional standing is maintained by the school of nursing, the Ministry of Health, or the professional association.

With the trend of increasing globalization and mobility of the nursing workforce, regulators are under increasing pressure to deal with the myriad number of nurses who wish to move from their country of origin to work in new jurisdictions. Because regulations vary considerably in complexity and scope, not all countries or jurisdictions are able to absorb these mobile nurses into their workforce. In general, countries that receive significant numbers of foreign-educated nurses employ a variety of regulatory approaches to ensure that migrating nurses are prepared to

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practice competently and safely in new, and often unfamiliar, health systems and cultures. For example, in the United States foreign-educated nurses must meet federal requirements for obtaining an occupational visa and then state requirements for licensure before they can be employed as a nurse.

Nursing Titles

Titles are used to inform the public of the scope of practice and the professional identity of a health care worker. Titles may differ by country. The nurse's role and responsibilities also may differ by country, although the titles may be the same. Commonly, there are four categories of titles: first level or registered nurse; second level or practical nurse; specialty-midwife; and non-professional level.

In the United Kingdom and its former colonies, as well as in South Africa, the registered or first level nurse may have a diploma or baccalaureate in nursing. The enrolled nurse is considered a second level nurse, has 1–2 years of education, and reports to a registered nurse or doctor. In some countries, midwives and nurses whose initial education was in a specialty, such as entry-level psychiatric nurses, are only licensed to practice their specialty. Some countries have community health nurses who are neither registered nor enrolled. Table J-2 presents the education and title variations in select countries. These countries represent diversity geographically, culturally and developmentally. They also are countries from which we expect increasing numbers of nurses who are interested in migration.

TABLE J-2 Titles of Nursing Personnel from Select Countries

Country	First Level	Second Level	Others
Brazil	Nurse Diploma or BSN	Technical or Auxiliary	
Canada	State Registered Nurse	Enrolled Nurse	Registered Midwife
Columbia	General Nurse		
Ethiopia	Junior or Senior Clinical Nurse Chief Staff Nurse	Health Assistant	Assistant Clinical Nurse Assistant Public Health Nurse Public Health Nurse Midwife
Israel	Licensed, Registered, Graduate, or Qualified Nurse	Practical Nurse	Midwife
Lebanon	Registered Nurse or Technical Superior	Technical Nurse	Psychiatric Nurse Midwife
Nepal	Registered Nurse		Auxiliary Nurse Midwife Auxiliary Nurse and Midwife
Peru	Registered General Nurse	Auxiliary/Midwife	
Poland	Nurse	Assistant Nurse	Midwife
Ukraine	Medical Sister Medical Sister in the Specialty of Pediatrics		Midwife Feldchers

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INTERNATIONAL MODELS OF NURSING

All countries, including the United States, require that professionals who enter the country to work meet certain educational and/or licensure requirements. Those seeking to practice nursing are no exception. Although there are no universal standards of education, the nursing profession, through international health care and nursing bodies and catalyzed by the International Council of Nurses (ICN), has established baseline standards for entry into nursing education programs.

These standards posit that professional nursing is an entry level profession whose education begins upon completion of secondary school (high school). Vocational or second level nursing education is conducted either before or after secondary school or is a program that is part of the secondary school curriculum. In most instances, entry into higher education requires completion of secondary education. Initial education is the first program of education required to qualify as a professional nurse.

First Level Nurses

ICN has established guidelines and advocates for educational standards for first level, general nurses. The ICN *Guidelines for National Nurses Associations on Development of Standards for Nursing Education and Practice* and *Competencies for the Generalist Nurse* are used by countries as a benchmark to set their curricula and to measure their comparability to recommended standards. ICN has described the scope of preparation and practice to enable the generalist nurse to have the capacity and authority to competently practice primary, secondary and tertiary health care in all settings and branches of nursing. Completion of a country's initial nursing education identifies one as a registered nurse (RN, licensed nurse, professional, or qualified nurse). An RN is defined as one who (a) has successfully completed a program of education approved by the nursing board/council, (b) has passed the examination established by the nursing board/council (if appropriate), and (c) continues to meet the standards of the nursing board (ICN, 2003).

Second Level Nurses

The defining factors differentiating professional nursing from vocational/practical nursing are the educational requirements for admission to the nursing program, the educational program requirements, the curriculum, and the standards and scope of practice for the discipline. Often, nurses who are considered as first level in some countries (i.e., Germany, former Yugoslavia, Taiwan and Mexico) do not meet the criteria for such a designation in the United States. In the United States and many other countries a student pursuing education as a professional nurse must have completed secondary school (high school). This means that the student has completed 11–12 years of elementary (primary), middle and secondary school. Candidates for vocational nursing programs in other countries may enter those education programs after completing only 8–9 years of elementary/primary or middle school. In some instances, the nursing program is combined with secondary education. The United States meets and exceeds the ICN Guidelines for admission to nursing programs; however, nurses migrating to the United States present a variety of educational backgrounds.

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Vocational Nursing Programs

Vocational programs consist of theoretical courses in science and nursing competencies along with clinical experience. The length of the program varies from 12 to 18 months. Vocational education has a greater concentration on clinical experience than professional nursing. It does not incorporate the social sciences, research, management and autonomy of practice that professional nursing programs include.

Not all countries recognize vocational nursing or have a licensure or registration process for such graduates. Ironically, some countries that have labeled their nurses as first level have educational programs that are quantified by the United States and other countries as second level (vocational) because they do not occur post-secondary or their curriculum is not comparable to that of a first level nurse. When graduates of these programs immigrate to other countries, such as the United States, they are deemed to be practical or vocational nurses. This has been a frequent occurrence for nurses educated in Mexico, Eastern Europe and Taiwan.

Professional Nursing Programs

Professional nursing education programs are conducted at the post-secondary level. The students' nursing education is conducted after the 11th or 12th grade. Nursing courses are separate from the secondary or high school curriculum, which is documented by a diploma, certificate or examination. Use of these three terms varies depending on the country of education and language.

Associate degree (AD) nursing programs are conducted at the community college level. The AD nurse is primarily a western phenomenon, with very few AD programs located outside the United States. Korea has an associate degree program that is 3 years in length. China uses the title "associate degree" for programs that would be considered diploma programs elsewhere.

Several AD programs have begun in the Philippines; however, like practical nursing programs, they have not been accredited by the Commission on Higher Education (CHED) or approved by the Professional Regulation Commission (PRC). A number of the AD programs in the Philippines have sought affiliations or partnerships with U.S. community colleges or accredited AD programs to ensure recognition of their nurse graduates. One such program started in 2009 as a partnership with Fresno City College in California. After completing a year of study in the Philippines, the nurse attends Fresno's AD program and earns a dual diploma.

Prior to 2000 most nursing programs in Mexico were considered to be comparable to second level U.S. programs. Since then, the nursing profession and academic and health officials in Mexico have worked to scale up nursing education and the nursing workforce in that country. The ultimate goal is baccalaureate prepared nurses. However, many of its existing nursing programs are 2–3 years plus one year of community service. Those programs are seeking to be recognized as comparable to the U.S. associate degree.

Professional nursing programs may differ in the theoretical and clinical courses that are taught. In certain provinces in India male nursing students are not permitted to provide maternal/infant care (obstetrics). This effectively is a barrier to migration as obstetrics is considered a cornerstone of basic nursing education, and a receiving country such as the United States would find the education deficient. The male would have to return to school to acquire the requisite education to be eligible to be licensed as a nurse in the United States. Certain countries in the Middle East have prohibited women from attending nursing school, so their graduates are

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men. The result is that a significant number of male nurses from those countries have migrated to the United States. Recently, women-only nursing schools have been started in Jordan.

Community/Military Service

In a number of countries, service requirements must be met before a nurse's education is considered complete and a license is granted. Such program requirements are considered as a citizenship responsibility. In some countries, that service is payback for the student's public funding of education. Nurses in Mexico must complete a 1-year community service before they are granted licensure. Other countries, such as Egypt, Eritrea, and Israel, may require a period of military service before the nurse's education is deemed complete. The nurse will not be registered until service requirements are fulfilled.

Alternate Educational Pathways

Historically, the United Kingdom and its former colonies (e.g., Nigeria) allowed alternative education paths for those wanting to be nurses. A student could enroll in a generalist program, either diploma or university based, and upon completion of the program be eligible to provide general nursing care to patients across the continuum of life.

A second alternative was the specialist path, through which the student chose to be educated as a psychiatric or pediatric nurse or a midwife. Students received little or no education in general nursing or in the areas outside their chosen specialty. Upon graduation, the student was licensed and registered as a specialist. If the student desired to be a generalist (first level) nurse, additional education and licensure were required. In some countries these alternative programs are on the decline, in part as a response to the ICN Guidelines and the expectations of the global nursing community. It should be noted that in the United States specialization in nursing is at the graduate level rather than at entry level programs.

Some countries have combined nursing specialist programs with general nursing. In addition to the specialist courses in pediatric, psychiatric/mental health or community health nursing or midwifery, the student is required to take general nursing courses in addition to, and concomitantly with, their specialty courses. Graduates of the program can practice as general, first level nurses and/or as specialists. Several nursing schools in Germany have combined their pediatric nursing specialist program with general nursing. Graduates meet the requirements to practice as first level nurses as well as pediatric nurses. The Ukraine has established midwifery programs that incorporate general nursing courses in medical, surgical, pediatric and psychiatric nursing. Graduates are midwives but are not limited to just providing care to pregnant women.

Physician to Registered Nurse Programs

The worldwide nursing shortage, demand for first level nurses, and recruitment of foreign-educated nurses have spawned a recent phenomenon—physician to registered nurse programs. In some countries many physicians are unemployed or underemployed and may work alternatively as nurses. One such country is Kazakhstan. A graduate of a medical college in that country who is granted the qualification of obstetrician will also be allowed to be employed as a Registered Nurse of General Practice.

Physicians who want to find employment overseas often discover that their medical education does not meet the criteria for medical practice in the country of intended migration.

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For this reason many physicians have sought to be recognized or licensed as nurses in countries experiencing nursing shortages. Although physicians and nurses may take the same science courses and have similar clinical exposure, medicine and nursing are distinct disciplines with different orientations and cultures. In most countries, including the United States, the physician cannot become a nurse de-facto as desired without supplemental education. The distinct and different regulatory expectations of the two disciplines in the United States increase this complexity.

Typically, the physician will need 12 to 18 months to complete nursing science and clinical courses. In the United States these programs are modeled after the accelerated RN to BSN tract. Other models are specific to physicians. Physician-to-RN programs tend to be located in states with large, recent-immigrant populations. Immigrant physicians who have not met the criteria to practice medicine in the United States have been viewed as excellent candidates for accelerated nursing programs, which increases nursing numbers and diversity representation.

St. Petersburg University in Russia has a specific Physician-to-RN program that is marketed internationally as a way to facilitate migration and with the promise of economic security. The courses are taught in English. In the Philippines a large number of nursing schools now offer nursing programs for physicians with the physician being given transfer credit for previous education. The Philippines has significant unemployment of nurses which suggests that the incentive for these programs is migration.

Mexican physicians have been attracted to Physician-to-RN nursing programs developed by U.S. recruiters affiliated with hospitals in Southwest Border States. Health care professionals who are bilingual and have cultural competency skills are aggressively recruited by employers where there are significant Spanish speaking populations. Reportedly, there is underemployment of physicians in Mexico—and nursing offers economic security and migration opportunities. Because Mexico is part of the North American Free Trade Agreement (NAFTA), visa quotas do not limit nurses and this provides an added incentive for physicians to pursue the nursing profession.

Two Physician-to-RN programs that have been successful in the United States are conducted by Lehman College in New York, part of the State University of New York (SUNY) system, and Florida International University, in Miami, Florida. Programs such as these demonstrate unique responses to the global nursing shortage. Because these programs are a new phenomenon, there has been no measurement to date of the integration of these graduates into the culture of nursing in the United States.

MIGRATION AND THE GLOBAL NURSING WORKFORCE

Globalization of Nursing

Migration is the movement of people across borders, usually for the purpose of acquiring a new residence and employment. It can occur within countries (internal) or across national borders (external)—through daily commuting, seasonal relocation, particularly from colder to warmer climates, rural/urban shifts, and internationally (Davis and Richardson, 2009). The annual flow of international migration has continued to increase over the past decades—to the point that in the early 21st century it is estimated that 1 out of every 35 individuals worldwide is an international migrant (Kingma, 2006).

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U.S. immigration policy is shaped by both political factors and the concerns of the health care community. It has evolved over time to respond to the country's need not only for various labor skills but also for health care delivery. Foreign-educated nurses have been a part of the U.S. workforce since World War II.[8] However, their recruitment has ebbed and waned as the health care system has been challenged by demographic, economic and workforce changes, as well as changing immigration laws (Nichols et al., 2009). Thus, the flow of foreign-educated nurses into the U.S. workforce is unpredictable and shaped by multiple, dynamic international and national forces. The absence of a national system to monitor inflow patterns further complicates the understanding of the impact of foreign-educated nurses on the U.S. health care workforce.

Cumulative CGFNS data from 1978 to 2000 indicate that the majority of foreign-educated nurses seeking to migrate to the United States were educated in the Philippines (73%), followed by the United Kingdom (4%), India (3%), Nigeria (3%), and Ireland (3%). That profile has now changed. Although nurses educated in the Philippines continued to be in the majority in 2008, their overall percentage declined from 73 percent to 59 percent—while the percentage of nurses educated in India increased from 3 percent to 19 percent. Canada (5%) and the Republic of Korea (3%) are now among the top countries of education of nurses seeking an occupational visa, while the number of nurses coming from the United Kingdom and Ireland has declined (Nichols et al., 2009).

Factors Affecting Migration

Nurses and other allied health professionals have many reasons for migrating—reasons usually identified as push factors (reasons for leaving their own country) and pull factors (reasons for choosing a host country). Push factors may include such things as poor wages and working conditions, poverty, civil war, little opportunity for advancement, and other factors that make living and working in a country difficult. Pull factors are those that make a host country desirable and include such things as better living conditions, higher wages, greater professional opportunities, and better work environments (Davis and Richardson, 2009).

In a CGFNS survey (2007), foreign-educated nurses in the United States most frequently cited poor wages and few jobs (due to the nursing shortage, underutilization of nurses and maldistribution of nurses) as the primary reasons for leaving their home countries (push factors). The United States was identified as the destination country of choice because of such pull factors as better wages and working conditions, an improved way of life, and greater opportunity for advancement. Many of the nurses had friends and family members living in the United States, another pull factor.

The world is seeing a sharp increase in the number of highly skilled workers moving across international borders (Kingma, 2006). Health care professionals, including nurses, make up a significant portion of that increase. Workforce planning is essential if the global migration of nurses is to be addressed effectively. Such workforce planning, however, requires not only data on the number of nurses entering a country, but also on the number of nurses leaving the country, the number of new nurse graduates, and the effect of internal migration, such as the movement of nurses from state to state and from rural to urban areas (Buchin and Sochalski, 2004).

[8] In 1977 the United States Departments of State, Labor, Health Education and Welfare, and the Immigration Service mandated that CGFNS be created to assess the education and licensure credentials of foreign-educated nurses seeking employment in the United States.

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The 2004 National Sample Survey of Registered Nurses (BHP, 2004) indicated that the number of RNs who received their education outside of the United States increased by about 1.3 percent between 2000 and 2004. Nearly 90 percent (89,860) of foreign-educated RNs were employed in nursing, with the majority concentrated in a handful of states in 2004. Almost 70 percent of foreign-educated RNs worked in six states: California (28.6%), Florida (10.7%), New York (10.4%), Texas (7.5%), New Jersey (6.9%), and Illinois (5.6%). The survey also found that foreign-educated RNs (64.7%) are more likely than the U.S. registered nurse population overall (56.2%) to be employed in hospitals and more likely to be staff nurses (72.6 versus 59.1 percent of employed RNs overall).

CGFNS International (2002) conducted a survey of foreign-educated nurses to generate baseline data that might better guide policy and inform both the profession and the public about the trends in nurse migration to the United States. The findings from this study are summarized below and place the nurse immigrating to the United States within the larger framework of global migration. Results were based on a sample of 789 foreign-educated nurses (461 U.S. registered and 328 non-U.S. registered) through a 76-question telephone interview. The survey revealed pertinent data on the immigration, education, licensure, and employment characteristics of foreign-educated nurses in the United States and provides one of the few such data bases in the United States.

Foreign-Educated Nurses in the U.S. Workforce

Registered nurses entering the United States for purposes of employment tend to be female, younger than their U.S. counterparts, and educated in either diploma or baccalaureate programs in their home countries. They are generally licensed in their home countries and have worked for a number of years before migrating to the United States (CGFNS, 2002).

Nearly two thirds of those who responded to the survey worked for some time as nurses in their home countries and most continued to hold a current foreign nursing license after entering the United States. Work experience ranged from a low of 1 to 5 years to a high of 16 years and longer—but did not figure into job placement or promotion in the United States.

The overwhelming majority worked as staff nurses in a hospital setting in the United States, with the most common specialty areas being adult health and critical care. Seventy percent of the employed registered nurses worked in hospital settings, and 15 percent worked in nursing homes or extended care facilities. Less than 5 percent worked in community health despite the emphasis on that area in many nursing programs internationally. This may be due to the fact that community health nursing in the United States requires that the nurse function more independently than in a hospital setting; have an in-depth understanding of the U.S. health care system; have the communication skills necessary to bridge diverse populations; and be well acclimated to U.S. nursing practice. Since it takes foreign-educated nurses approximately 12 months to become fully acclimated, most tend to work in hospital and long term care facilities.

Eighty-one percent of the employed registered nurse respondents reported feeling moderately or extremely satisfied with their jobs as registered nurses, with most reporting that their nursing experience in the United States had met their expectations. The overwhelming majority indicated that it was certain or likely that they would be employed in nursing 5 years from the date of the survey.

Since graduating from their basic nursing education programs, 188 of the 789 survey participants, or 24 percent, had gone on to complete a formal academic program—161

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completing a program in nursing. Forty percent of the 188 respondents obtained a baccalaureate degree, 26 percent an associate degree, and 13 percent a master's degree.

Most of the participants spoke at least one language in addition to English. Overall, 15 percent reported using a non-English language on the job, with Spanish being the most common. The majority indicated that they had experienced no difficulty speaking or understanding English in their work setting. Of those who did experience difficulty, telephone situations presented the greatest challenge. Almost two thirds of those who noted difficulty in speaking or understanding English had taken steps to improve their language proficiency.

Transitioning to the United States workforce presented numerous challenges for respondents, particularly related to immigration, licensure and entry into practice. Information on the U.S. health care system and on nursing in the United States, facilitation of the immigration process, and an in-depth, culturally sensitive orientation were methods suggested by respondents for easing their transition.

Comparison to the 2000 National Sample Survey of Registered Nurses

Overall foreign-educated nurses in the CGFNS sample were approximately 10 years younger than participants in the 2000 National Sample Survey. A higher percentage of U.S. licensed foreign nurse graduates were educated in diploma (43.4%) and baccalaureate programs (38.8%) than in the NSSRN, in which 29.6 percent of registered nurses were educated at the diploma level and 29.3 percent in baccalaureate programs. Although associate degree programs are not common internationally, 12.6 percent of respondents in the CGFNS survey did indicate that they completed a two-year nursing program. This is far less than the 40.3 percent of nurses in the NSSRN. Foreign nurse graduates were more likely to hold a baccalaureate degree as their basic nursing preparation than their U.S. counterparts.

Registered nurse participants in the CGFNS survey tended to have a higher employment rate overall (87.5%) compared to participants in the National Sample Survey (81.7%). A greater percentage of foreign nurse graduates worked full time as registered nurses as compared to the NSSRN, while the rate of part-time employment was higher among participants in the NSSRN. The most common work setting for nurses in both samples was the hospital. A greater percentage of foreign-educated nurses worked in long term care settings compared to nurses in the National Sample Survey. Interestingly, fewer foreign-educated nurses reported working in a community health setting in the United States than respondents in the NSSRN, despite the fact that much of nursing practice internationally tends to be in the community.

Participants in the CGFNS survey (30%) were more likely to complete additional academic nursing or nursing-related preparation following their basic nursing education than participants in the NSSRN (18.6%). As in the NSSRN, the highest level of academic preparation most often achieved by foreign nurse graduates was the baccalaureate degree. When these data were categorized by ethnic/racial group, those who identified themselves as Asians and Hispanics in the CGFNS survey were more likely to hold a baccalaureate degree than those who identified themselves as Black/African and Caucasian. In the NSSRN, Asians and Black/African Americans were more likely than Hispanics and white (non-Hispanics) to hold a bachelor's degree (CGFNS, 2002).

There are no data documenting the number of U.S. born nurses who attend nursing schools outside the United States. CGFNS is aware of nurses who were educated in countries such as Germany because their parents were military or government employees. Those nurses are treated as foreign-educated nurses who were born outside the United States and must go through an

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educational credentialing process to ensure the comparability of education. A positive bonus is that they are English proficient and often multilingual.

A recent phenomenon is the establishment of off shore schools, such as St. Kitts International School of Nursing, which are recruiting U.S. students who have not been able to enroll in U.S. nursing programs because of the shortage of faculty and seats. Reportedly, there are Filipino students who are U.S. born or permanent residents who are returning to their parents' country where there are an abundance of nursing schools to enroll in a nursing program with the intent of returning to the United States to be licensed and to practice. Enrollment data also show that there are significant numbers of nursing students who are immigrants enrolled in U.S. nursing schools. This is especially reflected in schools that have a high number of international students. Howard University's nursing school reportedly has had enrollments of over 50% of its students who were immigrants.

Transition to U.S. Practice

In an effort to augment descriptive data about foreign-educated nurses in the United States, CGFNS International investigated challenges the nurses confront in their transition to U.S. practice by surveying members of the American Organization of Nurse Executives who employed foreign-educated nurses. The study's outcomes indicated that employers recognize the need to address the transition issues of foreign-educated nurses. Precepting, clinical assessment, and a more extensive orientation were the most common measures put in place by nurse executives working in hospitals that employed foreign-educated nurses. Precepting was the measure identified by nurse executives as the most critical to a successful transition (Davis and Kritek, 2005).

Additional services provided to aid in the transition were English language classes, temporary housing assistance, classes on medical slang and idioms, and assertiveness training. Cultural workshops for staff, orientation to the U.S. health care system, and cultural and regional socialization activities, such as welcome and support groups, also were cited as measures introduced to facilitate transition to practice (Davis and Kritek, 2005). Many nurse executives indicated that personal interaction with the nurse prior to coming to work in the hospital helped to make the foreign-educated nurse more comfortable in the new surroundings. Personal interaction included formal "buddy" and pen pal programs through which staff corresponded with foreign-educated nurses prior to their arrival.

The cost of orienting a foreign educated nurse is generally comparable to that of a new graduate but is influenced by a number of factors: the similarity of the health care system in the nurse's home country to that of the United States; the similarity of the nurse's scope of practice to that of U.S. nurses; the nurse's command of the English language; the amount of clinical experience the nurse had prior to entering practice in the United States; and the amount of orientation to the United States and its health care system by the recruiting firm, if one is used.

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Challenges During Transition to Practice

Although most foreign-educated nurses look forward to working in the United States, their adjustment to practice can be affected by several factors, such as the health care system of the nurse's home country, language competence, knowledge of medications and their administration, and familiarity with technology (Edwards and Davis, 2006).

- **Variations in Health Care Systems:** The more similar a nurse's health care system is to that of the United States, the easier the transition and the more comfortable the nurse is in the clinical setting, focusing more on specific practice needs than on the transition process itself. Foreign nurse graduates consider receiving information about the U.S. health care system as the most necessary component of clinical orientation. Because health care systems vary greatly from country to country, they believe it is essential to have an understanding of how the U.S. system works in order to function competently within that system.

  Orientation to the health care system should include a description of the health team, its members, and their roles. Information on how the system is accessed by patients and the nurse's role in management of care also should be included. Although nurses educated outside the country will not come to understand the system thoroughly until they work within it, preliminary knowledge helps to make the transition to U.S. practice less stressful (Davis and Kritek, 2005).
- **Language Competency:** Nurses for whom English is a second language have repeatedly indicated to CGFNS that perception of their nursing competence by patients and health care personnel is tied to their ability to speak English as a native English speaker. Employers cite language competence as the most critical skill that foreign-educated nurses need during their first year of practice in the United States (Davis and Kritek, 2005).
- **Knowledge of Medications and Pharmacology:** Western medicine relies heavily on drugs to treat patient illness, many of which are not used in other countries. Some of these medications are available internationally but have different trade names, while others are not yet known internationally, making it difficult for the nurse entering U.S. nursing practice. Medication administration can be intimidating, mainly because of the volume of medications given on a daily basis in the United States and the various medication routes. Most of the errors made by foreign-educated nurses in their first year of practice are related to medication administration (Davis and Kritek, 2005).
- **Proficiency in Technology:** The U.S. health care system relies heavily on technology for diagnostic, preventive, and palliative care—much more so than other countries around the world. Because foreign-educated nurses tend to work in adult health and critical care units in hospitals, they are confronted with technology on a daily basis as they transition to U.S. practice. However, foreign-educated nurses participating in a joint CGFNS/Excelsior College study on their perception of readiness for practice in the United States indicated that technology was one of the areas in which they felt least prepared (Edwards and Davis, 2006).

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Acculturation to the United States

Acculturation—the process of adapting or learning to take on the behaviors and attitudes of another group or culture—is an essential aspect of working in a host country. For nurses transitioning to practice in the United States, it generally takes 4 to 6 months to become fully productive and 12 months to feel fully acclimated to the new setting (Adeniran et al., 2005).

Acculturation can be divided into four phases: acquaintance, indignation, conflict resolution, and integration. Familiarity with the process of acculturation helps foreign-educated nurses know what to expect within their first year of practice in a new culture and new work environment. It also helps employers to plan an orientation that addresses the foreign nurse graduate's needs when entering practice in a host country.

The *acquaintance phase* of acculturation occurs from entry into the culture to 3 months post arrival. It is the stage of initial contact, during which time there is excitement about the new life and new place of employment. This is the time that foreign-educated nurses become oriented not just to the practice environment but also to the community—the time during which they begin to develop a supportive social network of both colleagues and friends (Adeniran et al., 2005).

The *indignation phase* occurs 3 to 6 months after arriving in a host country. The feelings of excitement about the new position and the new environment give way to feelings of anxiety, which can lead to a sense of isolation and psychological discomfort. Understanding the U.S. health care system and their role in it, and determining what is expected of them and how quickly it is expected, can become overwhelming for foreign-educated nurses. It is during this time that a preceptor is critical. The support that preceptors provide is invaluable because they have knowledge of the system and contacts within and outside of the system. This also is the time that the foreign-educated nurse needs to rely on family, friends and colleagues for support, especially those who have been through a similar experience (Adeniran et al., 2005).

Now also is the time for foreign-educated nurses to seek out regional support groups designed to help immigrants adapt to their new life. Such support groups are generally comprised of individuals with the same ethnic background who have been through the same immigration and transition processes and are willing to share their experiences with those who are new to this country (Nichols, et al., 2009).

The *conflict resolution phase* generally occurs 6 to 9 months after arrival in a host country. This is the time when foreign-educated nurses need to clarify their new roles, gain insight into problem solving, and make personal and professional decisions about their new workplace and community. During this phase they may feel that they are a part of two cultures—their native culture and its work values and the culture of the U.S. health care system and U.S. nursing (Adeniran et al., 2005).

It is in this phase that preceptors and colleagues should help foreign-educated nurses determine what values and beliefs are essential to them. What values and knowledge from their own culture make them comfortable as a nurse in the United States? Which of the values of the new culture and the new workplace can they incorporate into their practice as a nurse? What aspects of nursing practice in the United States do they find difficult to adopt—and why? Exploring these issues with a preceptor, or someone familiar with the process of adapting to a new culture and work environment, will be invaluable to the adjustment of the foreign-educated nurse (Nichols et al., 2009).

The *integration phase* of acculturation occurs 9 to 12 months after arrival. Foreign-educated nurses now experience renewed enthusiasm for their work and their new country, have reconciled the differences between their native culture and their host culture, and are confident in

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their ability to practice as a nurse in the new culture. It is a time when foreign-educated nurses know they made the right decision to migrate—a time when they will have a sense of belonging to the new culture and, most importantly, a sense of the skills and knowledge that they bring to the profession (Nichols et al., 2009). Because acculturation can take up to a year, preceptors should be available to foreign-educated nurses during that entire time.

Foreign-Educated Nurses and Safe Practice

Foreign-educated nurses generally demonstrate safe practice within 6 months of entering practice. Employers report that there are few, if any, differences in practice after that time. Most errors made by foreign-educated nurses occur during the first 6 months of practice. They usually are errors in medication administration, and tend to occur after preceptorship has been concluded. Nurse executives report that the error rate of foreign-educated nurses is comparable to that of new U.S. graduates. Overall, the experiences of hiring foreign nurse graduates are viewed as positive—mainly due to the characteristics of the nurses themselves (Davis and Kritek, 2005).

Summary

During the last ten years CGFNS International has conducted studies in an effort to provide data that may assist the U.S. health care community with integrating the foreign-educated nurse into the health care delivery system. These studies provide a glimpse of the overriding concerns and issues that have particular impact on recruitment and utilization best practices. The findings, however, are best understood within the context of the diverse education and licensure systems of foreign-educated nurses, since this diversity has significant impact on the skill mix of the U.S. nursing workforce.

The following sections of the paper provide an overview of the education (entry level) and regulatory systems in two groups of countries: those that traditionally have provided registered nurses to the U.S. nursing workforce and those countries that are emerging as sources of migrating nurses. Summary tables are provided to better make comparisons among the supplier countries.

HISTORIC SUPPLIERS OF REGISTERED NURSES TO THE U.S. WORKFORCE

Nurses entering the United States for purposes of employment must undergo a federal screening program as part of the visa process to ensure that their credentials are valid, that their education and licensure is comparable to that of a nurse educated in the United States, and that they are proficient in written and spoken English. CGFNS International was named in the 1996 immigration law as an agency to provide such screening, thus, the CGFNS VisaScreen Program is one of the requirements for nurses seeking an occupational visa to work in this country. CGFNS is an immigration neutral organization and does not make decisions on who actually receives a visa nor does it have oversight of foreign-educated nurses entering the country (See Appendix A, About CGFNS International, Inc.). CGFNS VisaScreen® data indicate that from 2005 to 2009, the top countries of education of applicants were the Philippines, India, Canada, the Republic of Korea and nurses born outside of, but educated in, the United States (CGFNS, 2010a).

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Philippines

Overview

The Philippines has traditionally been considered a source country, one that prepares nurses for the global market. Filipino nurses can be found in almost all countries around the world. However, the majority of nurses educated in the Philippines have usually migrated to the Middle East, the United Kingdom, Canada, Australia, and the United States. CGFNS VisaScreen data, 2005-2009, indicate that nurses educated in the Philippines and seeking an occupational visa to practice in the United States most frequently identified their intended states of practice as California, New York, Texas, Florida, Illinois, and Vermont (CGFNS, 2010b). It should be noted that some states, such as Vermont and California, are considered "gateway" states. Nurses often obtain licensure in these states because requirements are viewed as less burdensome and then endorse into the actual state of intended practice.

Nursing Education

Prior to 1984, nursing education in the Philippines was at the diploma and baccalaureate level. Currently, there is only one type of nursing education program, the Bachelor of Science in Nursing, which is housed in colleges and universities and is 4 years in length. Candidates can apply after completion of 10 years of primary (6 years) and secondary (4 years) education.

Nursing education in the Philippines is modelled after that of the United States and includes courses in the humanities and social sciences, as well as in mathematics and the natural sciences. Nursing content focuses on the four major areas of nursing (adult health, maternal/infant, psychiatric/mental health nursing and nursing of children), as well as community health, nursing research and nursing administration. Nursing courses contain both theory and clinical content, with clinicals being termed "related learning experiences" (CGFNS, 2009).

The number of clinical hours may vary from school to school. Some schools have integrated courses so that certain areas such as psychiatric/mental health nursing and adult health nursing are not individual tracts—a practice in U.S. programs as well. With the advent of technology more programs are integrating simulation to provide clinical experience. Because of the nursing shortage some facilities cannot accommodate students, and those that do, often are unable to accommodate all the students in the clinical areas. Consequently, more and more programs are using simulations to meet the objectives of the related learning experiences.

Accreditation

Education in the Philippines is overseen by two agencies: the Commission on Higher Education (CHED), which is responsible for baccalaureate and higher education programs, and the Technical Education and Skills Development Authority (TESDA), which oversees any program below the baccalaureate level. The Philippine government is promoting the concept of "ladderization" of education. The ladder concept would apply to nursing in the following manner: If an individual entered a nursing program and left at any given point in that education,

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they would be employable based on the most recent semester completed and certificate achieved according to the following schema:

- At completion of first semester: caregiver certificate. Graduates are able to provide basic care to children, the elderly and the disabled in the home or in an institution—may include course in home management.
- At completion of second semester: nurse aide certificate. Graduates function under the supervision of a registered nurse. Job skills are comparable to nurse aides in the United States.
- At completion of third semester: nursing assistant certificate. Graduates function under the supervision of a registered nurse. Job skills are comparable to a certified nursing assistant in the United States.
- At completion of fourth semester: practical nurse certificate (certified by TESDA). Graduates are able to assist physicians and nurses and are responsible for direct patient care in hospitals, nursing homes, physician offices, clinics and community agencies.
- At completion of third year: midwifery certificate. Graduates are certified as midwives rather than nurse midwives. Midwives are responsible for the health of both mother and child, only referring to obstetricians if there are medical complications. By law they must have a named supervisor of midwives to ensure safe practice. Midwives work in multidisciplinary teams in both hospital and, increasingly, community health care settings.
- At completion of fourth year: professional nurse degree (must complete Board of Nursing examination given by the Professional Regulation Commission). Four year education is under the oversight of CHED.

If a school is ladderized, both TESDA and CHED are involved in the educational oversight; if the school is not ladderized, only CHED has oversight. Schools have the option of ladderizing—as of September 2008, 40 percent of schools were ladderized (Personal communication between Nona Ricafort, PhD, Officer-in-Charge, CHED and Barbara Nichols and Catherine Davis, CGFNS, September 17, 2008).

There has been a moratorium on opening professional nursing programs in the Philippines, due primarily to (1) the proliferation of poor quality nursing programs whose graduates are not able to pass the Philippine licensure examination; (2) the high unemployment rate of nurses in the Philippines—it is estimated that over 400,000 Philippine nurses are not able to find jobs; and (3) U.S. immigration retrogression, which has made it more difficult for Philippine nurses to obtain U.S. visas.[9]

In an effort to bolster Philippine nursing education, CHED, in June 2008, mandated a new, 5-year baccalaureate curriculum that would increase both theory and clinical throughout the program. The schools were to implement the curriculum, which is competency based and introduces nursing in the first semester, by the end of 2009 (Personal communication between Hon. Eufemia F. Octaviano, RN, EdD, Chairperson, Philippine Board of Nursing and Barbara Nichols and Catherine Davis, CGFNS, September 17, 2008). Because of opposition to the 5-year

[9] Immigration retrogression is a U.S. State Department process that limits the number of visas issued when the number of applicants exceeds the number of available visas.

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program from various factions, including students, prospective students, and their parents, the program is under review and a hold has been placed on implementation.

Regulation

Once the nursing program is completed, the baccalaureate graduate is allowed to sit for the nurse licensure examination, which is administered by the Professional Regulation Commission (PRC). The examination is given two times a year and consists of five parts: Community Nursing; Maternal and Child Nursing; Medical Surgical Nursing; Fundamentals of Nursing; and Psychiatric Nursing. Questions for the examination are written by the Board of Nursing.

Passing the licensure examination enables the graduate to take the nursing oath, which is required to enter work as a registered nurse in the Philippines. The oath ceremony occurs after successful completion of the licensure examination and is administered by the Board of Nursing or a government official authorized to administer oaths. The nursing license is national in scope and allows the holder to work in all provinces in the Philippines.

The PRC does not recognize or regulate vocational nursing programs, practice or graduates (Personal communication between Hon. Ruth Padilla, Chairperson, Professional Regulation Commission and Barbara Nichols and Catherine Davis, CGFNS, September, 17, 2008).

Licensure Renewal

Prior to 2000, registered nurses were required to renew their licenses every three years. As of 2000, registered nurse licensure is valid until either revoked or suspended and does not have to be renewed. However, renewal fees will accrue. Should the nurse require license validation at some time, such as when applying for a visa, he/she must satisfy those back fees before the validation will be performed by the PRC (CGFNS, 2009). Nurses who leave practice and who wish to re-enter may do so by paying back fees.

Scope of Practice

According to Philippine law, a person shall be deemed to be practicing nursing when he/she "singly or in collaboration with another, initiates and performs nursing services to individuals, families and communities in any health care setting and across the life span. As independent practitioners, nurses are primarily responsible for the promotion of health and prevention of illness. As members of the health team, nurses collaborate with other health care providers for the curative, preventive, and rehabilitative aspects of care, restoration of health, alleviation of suffering, and when recovery is not possible, towards a peaceful death" (Congress of the Philippines, 2002).

Nurses are expected to provide care through use of the nursing process. Nursing care includes, but is not limited to, "traditional and innovative approaches, therapeutic use of self, executing health care techniques and procedures, essential primary health care, comfort measures, health teachings, and administration of written prescription for treatment, therapies, oral, topical and parenteral medications, internal examination during labor in the absence of antenatal bleeding and delivery" (Congress of the Philippines, 2002).

The scope of practice further allows nurses to "establish linkages with community resources and coordination with the health team and provide health education to individuals, families and communities. They may undertake consultation services; engage in such activities that require

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the utilization of knowledge and decision-making skills of a registered nurse; and undertake nursing and health human resource development training and research, which shall include, but is not limited to, the development of advance nursing practice" (Congress of the Philippines, 2002).

The nurse is duty-bound to observe the Philippine Code of Ethics for Nurses and uphold the standards of safe nursing practice. The nurse also is required to maintain competence through continued professional education to be provided by the accredited professional organization or any recognized professional nursing organization.

Supply and Demand in the Philippines

Supply exceeds demand for nurses in the Philippines, with over 400,000 registered nurses unable to find employment in their home country as there were only 60,000 nursing jobs available (Philippine Star, 2008). The recent immigration restrictions in the United States and the United Kingdom, two of the choice destination countries for Philippine nurses, have further exacerbated the numbers of unemployed nurses in the Philippines. Compounding that problem is the graduation of approximately 100,000 nurses each year, over 40 percent of whom, in recent years, have been unable to pass the Philippine licensure examination. Pass rates have declined from 54 percent in December of 2005 to 39.7 percent in November of 2009.

Issues and Challenges

- **Employment Patterns:** To be eligible to leave the Philippines for employment overseas, nurses must have at least two years of work experience in a tertiary hospital. Because of the oversupply of nurses, these types of clinical experiences are not always available to those who seek overseas employment. Consequently, many volunteer to work for experience rather than pay—and still others take non-nursing positions in such areas as call centers and medical transcription. Still others enter family businesses (Mateo, 2008).
- **Physician Retraining:** A phenomena that has emerged in recent years is the retraining of physicians to become nurses so that they can emigrate under the Philippine government's export policy. Government-regulated health care salaries are so low that it is estimated that 100,000 nurses work outside the profession or migrate to increase their earning capacity (Gorman, 2007). For the same reason physicians are now retraining to become nurses so that they can migrate to countries in which health care salaries are higher.
- **Remittances:** The remittances sent back home by nurses who have migrated to countries in which the salaries are higher than in the Philippines have had a substantive effect on the Philippine economy and have supported the local population. Remittance refers to the portion of migrant income that, in the form of either funds or goods, goes back into the home country, primarily to support families back home, to cut poverty, and to improve education and health within the family (Focus Migration, 2006). Until 5 years ago, this transfer of funds was thought to be minor. However, nurse remittances alone increased from less than $2 billion in 1970 to over $70 billion in 1995 (Seago, 2008).
- **Practical Nurse Programs:** Because of the moratorium on baccalaureate programs, practical nurse programs have proliferated in the Philippines—with one estimate being as high as 200 programs. Practical nurse programs can be part of the four year baccalaureate curriculum (ladderized) or can stand alone. The stand alone programs must show that the graduate is eligible to matriculate to a four year program or that there is an affiliation

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with a school abroad for completion of the four year baccalaureate program. Practical nurses are not licensed under the PRC but are certified by TESDA.

As of 2008 there was no standardized curriculum for practical nurse programs and considerable use of simulation to meet clinical assignments (Personal communication between Nona Ricafort, PhD, Officer-in-Charge, CHED and Barbara Nichols and Catherine Davis, CGFNS, September 17, 2008). Graduates of these Philippine practical nurse programs, for the most part, do not meet U.S. state requirements for practical nurses and would most likely be identified as nursing assistants or home health aides in most states. However, each state makes this determination based on their rules and regulations for licensure.

Presently, the Professional Regulation Commission, which regulates health care professions in the Philippines, does not recognize, license or regulate practical nursing. It has not established standards for practical nursing education or licensure, nor does the PRC approve practical nursing schools. The major nursing organizations and the Board of Nursing are opposed to the practical nurse programs as well as to ladderization. They have opposed all attempts to change the law regulating nursing to include practical nurses, mainly because of the high unemployment rate of registered nurses in that country (Personal communication between Hon. Ruth Padilla, Chairperson, Professional Regulation Commission and Barbara Nichols and Catherine Davis, CGFNS, September 17, 2008).

India

Overview

India, in recent years, has been considered a source country for migration, supplying nurses to the workforces of countries such as the United States and the United Kingdom, as well as to the Middle East. Nurses educated in India form the second largest cohort of nurses seeking occupational visas to practice in the United States (CGFNS, 2010a).

Data from the National Council of State Boards of Nursing (NCSBN) also indicate that India is second to the Philippines in the number of nurses taking the U.S. licensure examination, although the numbers are much smaller. From January through September of 2009, 11,854 nurses educated in the Philippines sat for the NCLEX-RN® examination compared to 1,086 educated in India (NCSBN, 2009). CGFNS VisaScreen data, 2005-2009, indicate that nurses educated in India and seeking an occupational visa to practice in the United States most frequently identified their intended states of practice as Vermont, Florida, California, New York, and Texas (CGFNS, 2010b).

Nursing Education

Nursing education in India is at both the diploma and baccalaureate level. Diploma programs, housed in schools of nursing affiliated with teaching hospitals, are generally 3-3 1/2 years in length and post-secondary in nature, following completion of 12 years of primary and secondary education. Graduates are awarded a Diploma in General Nursing and Midwifery. This enables the graduate to sit for the State Nursing Council Examination and to become registered as a nurse and midwife in India. Three Board examinations are conducted, one at the end of each year. The

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successful candidate is registered as a nurse and midwife by the respective state nursing council (Current Nursing, 2009).

The course in general nursing and midwifery consists of two years general nursing, one year in community health nursing and midwifery, and a six month internship that includes courses in nursing administration and nursing research. India is in the process of phasing out these programs and replacing them with baccalaureate programs. This modelling after the western hemisphere is not limited to nursing but is also being experienced in the allied health fields such as physical and occupational therapy.

The Bachelor of Science in Nursing is a generic, 4-year, university-based program entered after completion of 12 years of primary and secondary education. Successful completion of the program allows the graduate to sit for the University Examination and, ultimately, apply for registration with the State Nursing Council.

The 4-year program includes courses in the humanities and social sciences, as well as the physical and biological sciences. Nursing content focuses on the four major areas of nursing (adult health, maternal/infant, psychiatric/mental health and nursing of children), community health, nursing research, administration and teaching.

The Bachelor of Nursing (post-basic) is a 2 year RN to BSN program for those holding a Diploma in General Nursing and Midwifery. The goal of the program, which leads to the Bachelor of Science in Nursing, is the preparation of a generalist nurse. Candidates for the program must be registered nurses who have 2 years of experience and a working knowledge of English (Indian Nursing Council, 2009a).

Accreditation

The Indian Nursing Council is the accrediting body for nursing education in India. The Council is an autonomous governmental body constituted by law in 1947 to establish uniform standards of training for nurses, midwives and health visitors. The Council approves nursing programs and is advisory to the individual state nursing councils and examining boards (Indian Nursing Council, 2009b).

Regulation

Nursing registration in India varies from state to state. Each state has a nursing council comparable to a state board of nursing in the United States, which is responsible for the registration of its nurses. Most Indian states do not require registration renewal. Those that do, require renewal every 3–5 years.

Scope of Practice

India subscribes to the International Council of Nurses (ICN) definition of nursing, viewing nurses as qualified and authorized to provide nursing services for the promotion of health, the prevention of illness and the care of the sick. The entitlement to practice as a nurse and/or midwife is determined by the law for nursing and midwifery; that is, the Indian Nursing Council Act of 1947 (ANMC, 2009).

The Bachelor of Science in Nursing Syllabus and Regulations of the Indian Nursing Council, established in 1981, defines the essential elements of nursing practice in India as those that are related to "maintaining or restoring life functions, assessing the physical and emotional state of

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patients, assessing environmental factors, and formulating and implementing a plan for the provision of nursing care based on scientific principles" (Indian Nursing Council, 2009c).

Supply and Demand

India has experienced what has been termed a significant drain on its nursing labor force due to circular migration. Circular migration is a term used to describe a phenomenon whereby nurses, motivated by higher salaries and better working conditions work abroad temporarily then return to their country of origin. It should be noted that circular migration often is mandated in agreements between the host and source countries. For example, Cuba allows its nurses to go to Trinidad/Tobago for a period of 2 years after which time they must return home.

Circular migration also may be a matter of public policy to ensure that there is a continuous feed of health care professionals to provide care to the country's citizens or it can be an agreement negotiated by recruiters with a country in order to function in that country. Some utilize such a policy as an educational development model so that the professional returns with international experience, which is then shared with his/her colleagues at home and enhances the quality of education.

Hawkes and colleagues (2009) found that Indian nurses who engaged in circular migration tended to be female and older than the nursing average, with more work experience and greater seniority than the general nursing population in India. It has been argued that circular migration does not produce the same degree of loss to a country's skilled labor force as permanent migration. However, the Hawkes and colleagues (2009) study indicated that the collective labor time spent outside of the country suggests temporary migration may have a profound and underestimated impact on the Indian nursing workforce. They found that the median time of working outside of India was 6 years, a period of time that allowed the nurses to sufficiently increase their incomes. Hawkes and colleagues (2009) further estimated that up to one-fifth of the nursing labor force in India may be lost to wealthier countries through circular migration.

Issues and Challenges

- **Recruitment of Nurses:** As the demand for nurses rises worldwide, commercial recruiters have become increasingly interested in exporting nurses from India to countries experiencing shortages. At present India does not have enough professional nurses to meet its own domestic needs and has a lower ratio than the recommended international norm of 2:1 to 3:1 for nurse/physician ratios. Shortages in rural areas are the most urgent (Khadria, 2007).

  Recruitment has focused on Indian nurses because of their education and their ability to speak English. Delhi-based agencies tend to focus on the U.S. market while those in Kochi and Bangalore mainly facilitate the migration of nurses to the Gulf countries, Australia, New Zealand, Singapore and Ireland. Thus, India is faced with the double challenge of producing more nurses for immigration and at the same time filling more vacancies within India (Khadria, 2007).

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Canada

Overview

Canada is considered both a source and a host country for migration. Many Canadian nurses choose to work in the United States under the North American Free Trade Agreement (Trade NAFTA), either living in Canada and crossing the border daily or moving to the United States temporarily. Canada also may be considered a host country, receiving nurses from such countries as the Philippines, India, Russia and the Caribbean to mitigate its own nursing shortage.

Approximately 10 percent of Canadian nurses seeking entry into the United States under Trade NAFTA are nurses born outside of Canada (CGFNS, 2007). CGFNS VisaScreen data, 2005-2009, indicate that nurses educated in Canada and seeking to practice in the United States most frequently identified their intended states of practice as California, Michigan, New York, Texas and Arizona (CGFNS, 2010b).

Education

Education and health care are provincial responsibilities under the Canadian constitution. Thus the systems of education are ones in which the decision-making authority is provincial; however, through organizations such as the Canadian Nurses Association (CNA), national coordination is achieved through promulgation of guidelines and standards. CNA is a federation of 11 provincial and territorial nurses' associations and colleges representing more than 136,200 registered nurse and nurse practitioner members, which is approximately 53 percent of employed nurses. Quebec is not a member of CNA.

Nursing education programs in Canada require completion of 12 years of primary and secondary education for entry. There are three types of programs for registered nurses: 3 year diploma programs, which are being phased out, 4 year generic baccalaureate programs and post-basic baccalaureate programs for nurses holding a diploma in nursing that are 2-3 years in length. Alberta and British Columbia also offer entry level psychiatric nursing diploma, certificate and degree programs. Graduates of these programs are not considered general nurses, are licensed under a college or association separate from nursing, and are prepared to work only in the field of mental health.

CNA began advocating for degree preparation of nurses in 1982 and has worked with the provinces to achieve that goal. In 2004 the Canadian Association of Schools of Nursing (CASN) and CNA issued a joint position paper that recommended a baccalaureate degree in nursing as the educational entry-to-practice standard for registered nurses in Canada (CASN and CNA, 2004).

Today, the majority of provinces require the baccalaureate for entry into the profession. Students in Alberta, Manitoba, Quebec, and the Territories can still choose either a diploma or a degree program to prepare for a career in nursing but they must be aware of the trend toward a university level of education. In all other provinces students must obtain a baccalaureate degree in nursing to prepare for a nursing career. In all provinces the change to the degree as a minimum requirement for entry into practice applies only to new entrants and has no effect on the eligibility of currently registered diploma nurses for continuing registration (CNA, 2009).

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Accreditation

The Canadian Association of Schools of Nursing is officially recognized as the national agency responsible for the accreditation of nursing programs throughout Canada. Accreditation in Canada is a voluntary process, comparable to that of the United States in that it requires a self evaluation report (including information on the nursing program, administration, faculty, students, curriculum, learning resources and graduates) as well as an on-site visit (CASN, 2009). In addition to profession-specific accreditation processes, nursing programs may be reviewed as part of periodic quality review processes established by provincial authorities for universities and colleges.

Regulation

The regulatory system for nursing in Canada reflects the country's federal and provincial/territorial government structure. Health-care delivery is the responsibility of the provincial and territorial governments, as is the regulation of all health-care professions. Provinces and territories grant responsibility for nursing regulation to professional colleges and/or nursing associations. Therefore, a nurse seeking to practice nursing in a specific province or territory must apply to be licensed and registered by the college and/or association in that province or territory. There is no national license in Canada; each province or territory licenses nurses within the individual jurisdiction (CNA, 2010). The licensure fee, except in Ontario and Quebec, includes both licensure registration and membership in the provincial and national nurses association.

All provinces, with the exception of Quebec, require licensure candidates to take the Canadian Registered Nurse Examination (CRNE) developed by CNA. The CRNE is a multiple choice examination that is competency based and reflects a primary health care nursing model. The examination consists of approximately 300 multiple-choice questions, about 40 percent of which are independent questions and 60 percent are case based.

The framework developed to identify and organize the competencies in the CRNE is designed to assess Professional Practice (accountability for safe, competent and ethical nursing practice); Nurse-Person Relationship (therapeutic partnerships established to promote the health of the person); Nursing Practice: Health and Wellness (recognizing and valuing health and wellness as a resource); and Nursing Practice: Alterations in Health (care across the lifespan for the person experiencing alterations in health that require acute, chronic, rehabilitative or palliative care) (CNA, 2009b).

The Québec Ordre des Infirmières et Infirmiers du Québec (OIIQ) grants licensure to nurses in Quebec. Two components must be met to obtain a registered nurse license in that province:

- Successful completion of a licensure examination. The Quebec licensure examination, offered twice a year, is a comprehensive examination that includes a written section (short answer) and an objective, structured clinical evaluation section.
- Proof of proficiency in the French language. Quebec law requires that candidates possess a working knowledge of the French language and have proficiency in verbal and written French. Candidates are required to pass a language examination unless they can show completion of 3 years of full-time instruction in a French, post-primary school (OIIQ, 2009).

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Licensure/Registration Renewal

License renewal in Canada varies by province, but is generally on an annual basis. Most provinces have continued competency requirements that must be met annually for registration renewal. The Code of Ethics and Standards of Practice of the jurisdiction form the basis of continued competency programs and are the framework that nurses use to reflect on their practice in order to maintain competence throughout their careers (CNA, 2000).

For example, when nurses apply to the College and Association of Registered Nurses of Alberta (CARNA) for a registered nurse practice permit, they must assess their practice by reflecting on the CARNA Nursing Practice Standards (NPS), collect feedback about their practice, identify their learning priorities and report the NPS indicator(s) that they will focus on for the coming year or remainder of the current practice year. Continuing Competence Program (CCP) activities are reported annually. Competence conditions are imposed on a member's practice if the member does not provide evidence of having met the continuing competence program requirements. Members applying for, or renewing, RN practice permits report selected indicators for professional development for the upcoming practice year. At registration/renewal for the subsequent practice year, members report on the implementation of the completed year's learning plan(s) and any influence the learning had on their nursing practice (CARNA, 2009).

Scope of Practice

The activities that registered nurses are authorized to perform are set out in legislation by each province/territory and based on the definition of nursing within that jurisdiction. While each scope of practice is specific to the respective province/territory, there are similarities. Most address health promotion, illness prevention, and provision of care—with many also focusing on teaching and coordination of care.

Ontario's scope of practice statement, for example, indicates that the "practice of nursing is the promotion of health and the assessment of, the provision of care for, and the treatment of health conditions by supportive, preventive, therapeutic, palliative and rehabilitative means in order to attain or maintain optimal function (CNO, 2009). Nova Scotia's definition of practice, contained within the Registered Nurses Association Act of 1985, also addresses health promotion, illness prevention and the provision of care. It defines nursing as "the application of professional nursing knowledge or services for compensation or the purpose of assisting a person to achieve and maintain optimal health through (1) promoting, maintaining and restoring health; (2) preventing illness, injury or disability; (3) caring for the sick and dying; (4) health teaching and health counseling; or (5) coordinating care (CRNNS, 2009).

Supply and Demand

The Canadian Nurses Association estimates that there was a shortage of nearly 11,000 full-time equivalent (FTE) registered nurses in Canada in 2007, a shortage that is expected to increase to almost 60,000 FTEs by 2022 if no policy interventions are implemented. CNA identified short term policy solutions to address the shortage that include increasing registered nurse productivity and reducing absenteeism. Long term solutions focus on reducing registered nurse exit rates, reducing attrition rates in entry level education programs, increasing enrollment in registered nurse programs, and reducing international in-migration. The combined effects of

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the policy solutions are believed to be sufficient to eliminate the registered nurse shortage in Canada within 15 years (CNA, 2009c).

Issues and Challenges

- **Aging Nursing Workforce:** Canada, like the United States, is experiencing an aging of its nursing workforce. Recent figures from Canada reveal that registered nurses between age 50 and 54 years make up 17 percent of the workforce, compared to 11 percent in 1994 (Canadian Institute for Health Information, 2008). Over the next 10–15 years both Canada and the United States will experience a large exodus of nurses from their workforces as nurses retire—at a time when demand for nursing and health care is on the rise due to the growth in the older population.

  This trend, if left unaddressed, is set to deepen the current shortage of employed nurses, especially if there continues to be a shortfall of new nurses entering the labor market. It also will affect developing countries where the age profile is often very different but where aggressive international recruitment efforts may drain the supply of nurses in active practice (ICN, 2008). CNA, as noted previously, has taken the lead in recommending short and long term policy solutions for eliminating the nursing shortage in Canada within 15 years.

United Kingdom

Overview

The United Kingdom has served as both a source and host country for migration. As a host country, the United Kingdom experienced an increase in in-migration in the last decade, particularly from India, Australia, the Philippines and sub-Saharan Africa, so that in the early to mid-2000s, there were more overseas nurses entering the country than nurses graduating from U.K. schools.

Nurses educated in the United Kingdom have traditionally migrated to Australia, the United States, New Zealand and the Republic of Ireland, and also have been recruited to the Caribbean. CGFNS VisaScreen data, 2005–2009, indicate that nurses educated in the United Kingdom and seeking an occupational visa to practice in the United States most frequently identified their intended states of practice as California, Arizona, Florida, New Mexico and New York (CGFNS, 2010b).

Today, the United Kingdom does not consider nursing a shortage profession and has, in fact, tightened its immigration requirements for overseas nurses. Nurses from the European Union countries may enter the UK for purposes of employment. While their numbers are not large, they are rising, with most nurses coming from Poland, Romania, Bulgaria and Germany (NMC, 2009a).

The Nursing and Midwifery Council (2009) reports that the number of overseas nurses entering the Register (excluding nurses from the EU countries) declined significantly from 14,122 overseas entries in 2004 to 2309 overseas entries in 2008. There was a small corresponding increase in the number of EU educated nurses entering the Register during that same time period—from 1033 entries in 2004 to 1872 entries in 2008 (NMC, 2009a).

Education

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Prior to the early 1990s, nursing education programs in the United Kingdom were 3 years in length and located in hospital-based schools. Currently, all nursing programs are located in, or affiliated with, university settings. This transition from hospital setting to university began with Project 2000, an initiative to make nursing a more professional career and to move nursing education into higher education.

Education programs are comprised of a 12-month Common Foundation Programme (CFP) and a 2-year Branch Program in one of the following specialty areas: adult nursing, mental health nursing, learning disability nursing or children's nursing. All students are required to take the Common Foundation Programme for 12 months and then select one of the Branch Programs. Both the CFP and Branch Programs contain 50 percent clinical and 50 percent theory. The Branch Program also allows a period of clinical practice of at least three months towards the end of the program to enable students to consolidate their education and competence in practice. At completion of the program the graduate is awarded a Diploma of Higher Education in Nursing or, if they have completed a degree program, a Bachelor of Science in Nursing (NMC, 2009b).

Regulation

The Nursing and Midwifery Council (NMC) was established under the Nursing and Midwifery Order of 2001 as the successor to the United Kingdom Central Council for Nursing, Midwifery and Health Visitors (UKCC) and the four National Boards for Nurses, Midwives and Health Visitors for England, Northern Ireland, Scotland and Wales. The NMC registers all nurses, midwives and specialty community public health nurses and ensures that they are properly qualified and competent to practice in the United Kingdom. The NMC also establishes the standards of proficiency to be met by applicants to different parts of the register, the standards it considers necessary for safe and effective practice.

By law (Nursing and Midwifery Order 2001), the Register is divided into individual sections with each section having a designated title indicative of different qualifications and education. The registrant is entitled to use the title corresponding to that part of the NMC Register in which he/she is listed. Currently, there are three parts to the Register: Nurses, Midwives, and Specialist Community Public Health Nurses. Each profession has its own education, registration and practice standards (Statutory Instruments 2002).

To become a registered nurse, an applicant must complete a 3-year program at a school or college of nursing approved by the NMC and linked to a university. Once completed, the graduate must apply for the NMC registry. The NMC evaluates the graduate's credentials and if approved, the graduate may practice as a nurse. Under the Nurse's part of the register the nurse selects the field of practice that corresponds to the Branch Program chosen: adult nurse, mental health nurse, learning disabilities nurse or children's nurse (NMC, 2009c).

Midwifery programs are 3 years in length, unless the applicant is already on the NMC Register as a registered (adult) nurse, in which case the program is 18 months in length. Midwifery programs also are linked to universities. Specialist community public health nurse programs are 52 weeks in length beyond initial registration as a nurse or midwife. The NMC established a part of the Register for specialist community public health nurses because it believed that this form of practice has distinct characteristics that require public protection. These characteristics include working with both individuals and a population, which may mean making decisions on behalf of a community or population without having direct contact with every individual in that community. Specialist community public health nursing aims to reduce health inequalities by working with individuals, families, and communities promoting health,

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preventing ill health and in the protection of health. The emphasis is on "partnerships that cut across disciplinary, professional and organizational boundaries that impact on organized social and political policy to influence the determinants of health and promote the health of whole populations" (NMC, 2009d).

Renewal

Registration must be renewed every 3 years and a retention-of-registration fee paid annually. Those seeking renewal also must submit a signed Notification of Practice form, through which they attest that they have met the Post-Registration Education and Practice (PREP) requirements and are of good health and good character. PREP is a set of Nursing & Midwifery Council standards that are designed to help nurses keep up to date with new developments in practice and encourage them to reflect on their practice. PREP also provides a framework for continuing professional development (CPD), which, although not a guarantee of competence, is a key component of clinical governance in the United Kingdom (NMC, 2009e).

There are two separate PREP standards that must be met for registration renewal: Practice and Continuing Education. To meet the PREP Practice Standard, nurses must have worked in some nursing capacity for a minimum of 450 hours, or have successfully taken an approved return to practice course, within the preceding 3 years. To meet the PREP Continuing Professional Development Standard, nurses must have undertaken and recorded continuing professional development related to their practice over the 3 years prior to registration renewal (NMC, 2009e).

Scope of Practice

The Royal College of Nursing defines nursing as "the use of clinical judgment in the provision of care to enable people to improve, maintain, or recover health, to cope with health problems, and to achieve the best possible quality of life, whatever their disease or disability, until death" (RCN, 2009).

The NMC, which develops the standards of proficiency, recognizes that there is comparability between the standards achieved by all nursing students, and that it is through the application of these standards to practice within the different contexts of nursing that defines the scope of professional practice. The standards of proficiency define the overarching principles of being able to practice as a nurse; the context in which they are achieved defines the scope of professional practice. Applicants for entry to the nurses' part of the register must achieve the standards of proficiency in their chosen specialty area (NMC, 2009b).

For example, adult nursing standards of proficiency require the care of adults, from 18 year olds to elder people, in a variety of settings for patients with wide ranging levels of dependency. Adult nursing is patient centered and acknowledges the differing needs, values and beliefs of people from ethnically diverse communities. Adult nurses engage in and develop therapeutic relationships that involve patients and their care givers in on-going decision-making that informs nursing care. They also must have the skills to meet the physical, psychological, spiritual and social needs of patients, supporting them through care pathways and working with other health and social care professionals to maximize opportunities for recovery, rehabilitation, adaptation to ongoing disease and disability, health education and health promotion (NMC, 2009b).

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Supply and Demand

In 2008 the United Kingdom determined that it no longer had a nursing shortage and suspended the immigration of overseas nurses. At the same time the government implemented a points-based system for assessing immigration applications, which changed the way individuals from outside the European Union and the European Economic Area can work, train or study in the United Kingdom. The points based system has five tiers ranging from highly skilled individuals who contribute to growth and productivity to youth mobility and temporary workers (UKBA, 2009).

Issues and Challenges

- **Immigration Reform:** Individuals immigrating to the United Kingdom must gain points to qualify for a specific tier before they can apply for permission to enter or to remain in the country. The number of points required and the way the points are awarded depend on the tier the migrant is applying under and will reflect his/her qualifications, experience, age, previous earnings and language competence.

  Under the points based system the United Kingdom Border Agency (UKBA) decides who is admitted to or allowed to stay in the United Kingdom. In order to assess this, the migrant nurse will need to provide evidence of a sponsor in the United Kingdom who is licensed by the UKBA. If an overseas qualified nurse has a job offer from a U.K. employer, he or she may be able to apply to work in the United Kingdom as a sponsored skilled worker (UKBA, 2009).
- **Aging Nursing Workforce:** The United Kingdom, along with Canada, the United States, and a number of European States, is facing the challenge of an aging nursing workforce and an aging population. In the United Kingdom an estimated 180,000 nurses will reach retirement age over the next decade (RCN, 2006). In the European Union, concerns about the sustainability of pensions, economic growth and the future labor supply have stimulated a range of policy recommendations to promote the health and working capacity of workers as they age; to develop the skills and employability of older workers; to examine raising the pension age; and to provide suitable working conditions as well as employment opportunities for an aging workforce (European Foundation for the Improvement of Living and Working Conditions, 2007).

Summary

The historic suppliers of nurses to the United States—the Philippines, India, Canada and the United Kingdom—generally have education and regulatory systems comparable, but not equivalent to, that of the United States. For the most part, they have moved nursing education into institutions of higher learning, have formal licensure and/or registration systems in place, and have scopes of practice that focus on health promotion and maintenance and the provision of care to the sick. Table J-3 provides a profile of the countries that have been historic suppliers to the U.S. workforce.

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TABLE J-3 Historic Suppliers of Registered Nurses to the U.S. Workforce

	Philippines	India	Canada	United Kingdom
Education for Entry	Baccalaureate	Diploma in General Nursing Bachelor of Science in Nursing	Baccalaureate Diploma (Quebec)	Diploma Baccalaureate Moved from hospitals to universities
Educational Requirements for Entry into Nursing Programs	10 years primary and secondary education	10 years for diploma programs 12 years for Bachelor degree programs	12–13 years based on province 11 years for diploma programs in Quebec	11 years primary/secondary education
Licensure	Examination	Board Examination for diploma programs University Exams for BS programs	Examination	Registration
Licensure Renewal	No, license valid for life.	No, most states do not require renewal	Yes	Yes, to maintain registration
Title	Registered Nurse	Registered Nurse and Midwife	Registered Nurse	Registered Nurse (Sister)
Types of Nursing Education in Country	BS in Nursing Practical Nursing MD to BSN program Master of Arts in Nursing Master of Science in Nursing Doctor of Philosophy	Diploma BS Masters Doctor of Philosophy	Diploma Baccalaureate Practical Nursing MS in Nursing Doctorate in Nursing	University-based diploma and baccalaureate programs Advanced practice programs
Number of Nurses in Workforce	Graduate approximately 100,000/year (25% enter nursing workforce)	300,000	230,300 (6% foreign-educated	500,000 (8% foreign-educated)

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Number of Nurses and Midwives per 10,000 population: 2000-2007	61	13	101	128
Nursing Shortage	In rural areas	Possibly developing	Yes	No
Source/ Host Country for Migration	Source	Source	Host/Source	Source. Host status is suspended
In-Country Nursing Issues	Unemployment of nurses/inability to secure work experience needed to migrate. Variable accreditation and standardization of schools. Proliferation of nursing schools Chronic low pass rates on PRC nurse licensure exam	Quality of schools Shortage of nurses to meet in-country needs, especially in rural areas	Aging workforce Under staffing in rural areas Educational reform Health policy reform	Immigration of overseas nurses Aging workforce Vulnerability to out-migration Health sector reform Immigration reform
Official Language	Official: Tagalog and English Arabic and Spanish are auxiliary.	Official: Hindi Subsidiary Official Status: English for business	Official: English and French	Official: English, Welsh, Scottish form of Gaelic, and Irish
Challenges and Issues	Prepares nurses for export, which fuels proliferation of low-quality nursing schools	Circular migration creates temporary loss of experienced RNs Prepares nurses for export	Nursing shortage Aging of the nursing workforce	Aging of the nursing workforce EU directives and migration of nurses

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Emerging Suppliers of Registered Nurses to the U.S. Workforce
China

Overview

China is viewed as an emerging source country for the migration of nurses. However, because nurses educated in secondary school nursing programs make up the majority of nurses in the workforce in China, they do not easily meet licensure requirements in many host countries. The international migration of Chinese nurses began in the early 1990s when the government organized groups of English speaking nurses to work in Singapore and Saudi Arabia. Today, hundreds of Chinese nurses work in these countries every year under a government arranged contract. The Chinese government charges 10–15 percent of the nurses' annual salary as a handling fee for such an arrangement. These contracts usually last about 2–3 years, and then most nurses return to work in their original hospitals. In many cases, returning is required and clearly stated in their contracts (Fang, 2007).

There has been a similar increase in the number of nurses migrating to Australia, with lesser numbers going to the United States. CGFNS VisaScreen data, 2005–2009, indicate that nurses educated in China and seeking to practice in the United States most frequently identified their intended states of practice as California, New Mexico, New York, Michigan and Pennsylvania (CGFNS, 2010b).

Education

Nursing education programs in China are at the certificate (mid-associate degree), associate degree, and baccalaureate levels and are approved by the Ministry of Education in that country. Mid-associate degree programs are 2–3 years in length and administered by secondary nursing schools that accept candidates who have completed 6 years of primary education and 3 years of junior middle education, usually at 15–16 years of age. The majority of new recruits to nursing enter at this level. However, nurses graduating from these programs would not meet entry requirements to practice nursing in most developed countries unless they completed a separate secondary school education or its equivalent (Fang, 2007).

Associate degree programs are generally 3 years in length and post-secondary in nature. These programs accept candidates who completed 6 years of primary education, 3 years of junior middle education and 3 years of senior middle education. At completion of the program, graduates are awarded a diploma comparable to a nursing diploma in the United States.

The Bachelor of Science in Nursing is a 4–5 year degree program entered after completion of 12 years of primary and secondary education. These programs are administered by medical universities and colleges and government approved.

The national basic nursing education curriculum includes courses in Chinese medicine (i.e., acupuncture), mathematics, Chinese and foreign languages as well as the physical and biological sciences. Nursing content includes pediatric, obstetric and adult health nursing and infectious diseases. Psychiatric nursing became part of the curriculum in the mid-1990s (Fang, 2007).

Future trends in nursing indicate an increase in overall enrollments, particularly in those types of programs that produce nurses who qualify for employment outside of China (Fang, 2007).

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Regulation

Since 1994, first level nurses who graduate from mid-associate and associate degree programs are all required to pass a national registration examination to become licensed. Graduates of baccalaureate programs, until recently, were exempt from this requirement and were granted an automatic license. However, in 2007 the Ministry of Education reviewed this process and determined that graduates of all programs should take the licensure examination. The directive was implemented in May, 2009 (Personal communication between Dr. Feng Li, Director, Health and Human Resources Development and Training, Ministry of Health and Barbara Nichols, CGFNS, December, 10, 2007).

Renewal

All nurses must renew their license every 2 years. Continuing education courses are required for renewal.

Scope of Practice

China's 1994 Nurses Act described nursing practice as including care that focuses on clinical observation; assisting physicians to complete treatment and administer drugs; implementing care plans through use of the nursing process; patient rehabilitation and education; and quality assurance. Nurses working in public health areas have responsibility for health management along with general practitioners in the community and public health education. Nursing education, administration and research also are nursing functions allowed under the 1994 Act (ANMC, 2009).

Supply and Demand

There is a nursing shortage as well as a high level of unemployment and underemployment of nurses in China. Overall, China has not invested in nurses to meet the health care needs of the public. In fact, the supply of physicians exceeds that of nurses. There is approximately one nurse for every thousand people in China compared to one nurse for every one hundred people in the United States (Fang, 2007). As more funds are invested in health services in China, the health care system will require more nurses and a closer look at their distribution.

Issues and Challenges

- **Enhancement of the Profession:** As a result of limited job opportunities, low salary, and low job satisfaction, many Chinese nurses intend to leave nursing or work outside China (Fang, 2007). Commercial recruiters have expressed a strong interest in recruitment of nurses in China, but to date there are few examples of successful ventures. Fang (2007) suggests that even if the Chinese government were to implement health care financing reforms that led to an increase in nursing jobs and improved work conditions, some level of surplus will remain.

  China's nursing education system is huge in size (about 500,000 nursing students in 2005), but weak in quality and career development (Fang, 2007). In addition, nurses in China have to carry a heavy workload and are faced with 10 times the population responsibility compared to U.S. nurses. Hospital demand is for younger nurses, as they

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are paid less and can handle more physically demanding work loads. As a result, age discrimination is a problem—and it is not unusual to find hospitals dismissing most nurses older than 45 years of age (Fang, 2007).

Future issues for nursing in China include the upgrading of education and the requiring of a baccalaureate degree for entry into the profession; expanding nursing's research base; increasing the globalization of nursing; and creating new cooperative programs worldwide (Smith and Tang, 2004).

Sub-Saharan Africa

Overview

Sub-Saharan Africa is a geographical term used to describe the area of Africa that lies south of the Sahara. Many of the countries in sub-Saharan Africa are considered sources for the migration of nurses, particularly Nigeria in the West, Kenya and Ethiopia in the East, and South Africa. During the nursing shortage in the United Kingdom in the last decade, nurses from sub-Saharan Africa provided a significant increase in that country's nursing workforce.

Nurses educated in sub-Saharan Africa also migrate to the United States to improve their working conditions and salaries. Using Nigeria as a prototype, CGFNS VisaScreen data, 2005–2009, indicate that nurses educated in that country and seeking an occupational visa to practice in the United States most frequently identified their intended states of practice as Texas, California, New York, Maryland, Illinois and Pennsylvania (CGFNS, 2010b).

Education

Most formal nursing education programs began in sub-Saharan Africa in the 1900s. Initial nursing programs educated auxiliary or enrolled nurses, a classification that is comparable to practical nurses in the United States. Entrance requirements generally included 9 years of primary and middle school education. Many countries in sub-Saharan Africa have phased out these enrolled nurse programs; however, faith-based hospitals in some countries have kept enrolled as well as hospital-based professional nurses (Munjana et al., 2005). Generally, countries that eliminate the position of enrolled nurse offer bridge programs for those individuals who seek to transition to professional nursing. Individuals who do not transition often work as nurse aides or health aides.

Professional nurse (RN) education requires completion of a full primary and secondary education (12 years) and 3 years of nursing education. Most schools are hospital based and federally or state funded. There also are university based programs in sub-Saharan Africa: 4 year generic programs that lead to a Bachelor of Nursing degree and 2–3 year post-basic RN to BSN programs. Post-basic programs require 2 years of work experience prior to entry.

The nursing curriculum in many parts of sub-Saharan Africa is framed around the medical model, which is considered by some as too westernized for nursing and midwifery requirements in Africa. Opponents of the medical model believe that there should be a greater focus on community nursing and primary health care—and that the curriculum should be more culturally sensitive (Munjana et al., 2005). There also is a need for faculty with higher qualifications to teach in the programs, since many of the higher educated nurses leave the country through migration.

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Regulation

The Nursing Councils of each country are the statutory bodies that develop standards for the profession and regulate the practice of nurses and midwives in their respective countries. They also license and register those nurses who meet the educational requirements, with some countries, such as Nigeria, requiring licensure by national examination.

Licensure Renewal

Licensure renewal is determined by the individual country. Not all countries require renewal of registration; however, when countries do require renewal, it is on an annual or biennial basis.

Scope of Practice

The scope of nursing practice varies by country. In Nigeria, for example, a nurse is a person who has received authorized education, acquired specialized knowledge, skills and attitudes, and is registered and licensed with the Nursing and Midwifery Council to "provide promotive, preventive, supportive and restorative care to individuals, families and communities, independently, and in collaboration with other members of the health team. The nurse must provide care in such a manner as to enhance the integrity of the profession, safeguard the health of the individual client/patient and protect the interest of the society" (NNMC, 2009).

In South Africa, the scope of practice is informed by a competency framework that supports an outcomes-based approach to nursing education and training—rather than a listing of activities that nurses are allowed to perform (South African Nursing Council, 2004). The Acts governing nursing in several African countries, for example Zambia, South Africa, Ghana and Nigeria, allow nurses to enter private practice, with each country setting its own requirements and standards for such practice (Munjana et al., 2005).

Supply and Demand

Sub-Saharan Africa has a smaller number of nurses per population compared to other continents—and these small numbers are inadequate to meet the health needs of the population (see Table J-3). Nursing is predominantly a female profession at the caregiver level but disproportionately male at the administration level. With the epidemic nature of HIV/AIDS in sub-Saharan Africa there has been an increased loss of nurses due to illness and a loss of nurses who, as females, provide care to their own families that have been ravaged by AIDS. The absenteeism caused by the AIDS epidemic, coupled with the nursing shortage caused by migration and the under-funding of the health sector, has led to an overwhelming increase in the workload of those nurses who continue within the profession (Munjana et al., 2005).

Issues and Challenges

- **Shortage of Health Professionals:** The most significant factor affecting the nursing workforce of sub-Saharan Africa is the shortage of health professionals, especially nurses. This is due in part to a number of factors: migration; the limited supply of new graduates; under-funding of the health sector; attrition due to HIV/AIDS; limited career opportunities; and inefficiencies in the recruitment and retention of nurses. The decision

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to eliminate the category of auxiliary/ enrolled /sub-professional nurses also has exacerbated the shortage of nurses in sub-Saharan Africa because there are not enough professional nurses to meet the health needs of the population (Munjana et al., 2005).

Caribbean

Overview

Generally the Caribbean has been both a source and host country for migration. Because most nurses are educated in English and proficient in spoken English, they have been recruited for positions in both the United States and Canada. To remedy this loss of nurses, many Caribbean countries have had to recruit nurses, primarily from Cuba, Nigeria, the United Kingdom and other English speaking countries. Some have resurrected long disbanded diploma programs that subscribed to a traditional diploma curriculum. Using Jamaica as a prototype, CGFNS VisaScreen data, 2005–2009, indicate that nurses educated in that country and seeking an occupational visa to practice in the United States most frequently identified their intended states of practice as Arizona, New York, Florida and Georgia (CGFNS, 2010b).

Education

Nursing education programs are approved/accredited by the government, the Ministry of Education. Accreditation is a two-part process that consists of a self evaluation report and a site visit. There are three types of entry level nursing programs in the Caribbean: diploma, associate degree and baccalaureate. However, not all Caribbean countries have nursing schools nor do all schools have each type of program. Bermuda is one such country without a nursing program on the island; however, the Nursing Council of Bermuda is currently in consultation with various nursing organizations regarding development (Personal communication between Gaylia Landry, Chief Nursing Office Bermuda Nursing Council and Donna Richardson, CGFNS, by conference call on Oct. 23, 2009).

Diploma programs are 3 years in length and hospital based. In some Caribbean countries, such as Trinidad and Tobago, these had been replaced by associate degree programs. However, because of the severe shortage of nurses, they were re-opened and the education funded by the government in an effort to produce more nurses.

Associate degree programs are 2–3 years in length, with the third year being devoted primarily to clinical experiences. Baccalaureate degree programs are 4 years in length. One such baccalaureate program, the International University of Nursing in St. Kitts, includes 6 semesters of education in St. Kitts and 2 semesters at an affiliated school in either the United States or Canada. Graduates of the programs earn a dual degree that allows them to take licensure examinations in two countries, provided that state/provincial/territorial requirements are met.

Regulation

The Nursing Council of the individual country is responsible for conducting site visits at schools of nursing for quality checks and to verify the curriculum, including clinical hours, as well as for the licensure and registration of registered nurses and midwives. It serves as the gate keeper to the Caribbean Regional Licensure Examination. Passing the 2-day regional examination permits nurses to practice in any of the Caribbean Community (CARICOM)

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countries, which include Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago (Reid, 2000).

The examination allows for standardization of nursing education and reciprocity for nurses among the countries in the region. Guyana, although a member of CARICOM, does not require the regional examination for registration. Countries that are not members of CARICOM have their own processes for the registration of nurses and midwives (World Bank, 2009).

Scope of Practice

The Nursing Councils in the individual Caribbean countries set the standards for nursing practice. The Regional Examination for Nurse Registration in the Caribbean is based on mutually agreed upon competencies for the registered nurse to practice in the region. The treatment of test items, assembling and conducting of the examinations, scoring of the examination, and student notification of results is the responsibility of each General Nursing Council. The 13 General Nursing Councils with responsibility for Schools of Nursing meet annually as a regional committee to prepare the examinations (Reid, 2000).

Supply and Demand

Although the countries of the Caribbean have a similar history and culture and share common socio-economic goals, they are highly diverse with respect to health care delivery. The vast majority of nurses work in the public sector (World Bank, 2009).

The Caribbean is in the midst of a critical nursing shortage due primarily to the out-migration of its nurses. On average 42 percent of nursing positions in the Caribbean countries are vacant. Low pay, poor career prospects, and lack of educational opportunities are among the reasons nurses resign (Salmon et al., 2007). Many of these nurses look outside the region for job opportunities in Canada, the United States, the United Kingdom and other countries. Compounding the situation is the lack of resources to prepare nurses to fill the vacancies.

To remedy this situation, nursing and other leaders in the Caribbean created regional strategies for addressing the challenges they face in delivering basic health care within their countries. The region-wide Managed Migration Program, a multilateral, cross-sector, multi-interventional, long-term strategy for developing and maintaining an adequate supply of nurses for the region, is one of the results of that effort (Salmon et al., 2007).

Issues and Challenges

- **Nursing Shortage:** The worldwide AIDS epidemic has taken its toll in the Caribbean, increasing the need for health professionals, especially nurses. This coupled with the loss of nurses to migration has caused a severe shortage of nurses in the Caribbean. While most nurses who have left the country to work in the United States and Canada have traditionally stayed there permanently, some Caribbean countries, such as Trinidad and Tobago, are seeing more circular migration, with nurses returning home after several years abroad. Jamaica has been able to make up for some loss of its nurses by recruiting skilled nurses from inside the region, for example from Cuba and Guyana, as well as outside the Caribbean from such countries as India, Ghana, Burma, Russia, and Nigeria (Salmon et al., 2007).

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The Managed Migration Program discussed previously allows governments and stakeholders to work together to ensure that migration is managed so that costs are minimized and benefits maximized to the countries and to the nursing professionals. There are now several models of migration management in place in the Caribbean:

- **Educating for Export:** Nurses are hired by U.S. partners and the government of the Caribbean country is reimbursed for each nurse. The funds received are to be reinvested in upgrading nursing education (St. Vincent Model).
- **Temporary Migration:** Nurses work for a portion of the time in the host country and the remainder of the time in the Caribbean country. Because nurses pay their own travel costs, the host country is usually close by. For example, Jamaican nurses work for 2 weeks per month in Miami and 2 weeks in Jamaica, gaining additional skills and increasing their earnings while at the same time meeting Jamaican staffing needs.
- **Regional Cooperation:** Countries with the capacity to absorb additional students into their nursing education system have reached agreement with countries that either do not have schools of nursing or the capacity to educate the needed number of nurses. Grenada and Antigua entered into such an agreement through which students from Antigua go through nursing education in Grenada at a minimal cost. The Regional Examination for Nurses Registration and the Common Nursing Education Standards in the Caribbean allow the Grenadian educated nurse to then return and practice in Antigua.
- **International Partnerships:** These partnerships include establishment of an off shore school of nursing to meet the needs of the global market. The International University of Nursing is one such school, originally established to meet the worldwide need for baccalaureate-prepared nurses.
- **Homecoming Programs:** These programs are designed for nurses who have emigrated to give back to their home countries (brain gain) in the Caribbean by working and sharing their nursing expertise. For example, a team from the Guyana Nurses Association in the United Kingdom runs a yearly screening test for hearing in Guyana. The Caribbean Overseas Nurses Association works closely with national nurses associations to explore possibilities for joint programs in developing nursing education and practice.
- **Health and Tourism Model:** In this model, nurses would be recruited from developed countries, such as Canada and the United States, and invited to work in the Caribbean for 6–12 months—with the advertised goal of achieving greater work-life balance.
- **Temporary Movement of Skilled Nursing Professionals:** Bilateral proposals are created to provide incentives for nurses to return to the Caribbean and disincentives to overstay in the host country. These types of proposals would address the nursing shortage through regional and national socioeconomic development agreements and promote nursing as an independent service activity (Salmon et al, 2007).

- **Practical Nurse Programs:** Graduates of Jamaican practical nurse programs are being considered by the Canadian government for a recruitment initiative to address its shortage of Practical Nurses in the face of an aging population. The Canadian proposal requires the Jamaican educated practical nurse to pass its licensing exam.

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The participants would be monitored for success and encouraged to enroll in ladder programs leading to associate or baccalaureate degree (Taylor, 2007).

Mexico

Overview

Mexico is seen as a source country for migration, primarily supplying nurses to the United States to meet shortages. They have especially been recruited to Southwestern Border States. However, because many of the nurses had their nursing education at the secondary school level and in Spanish, they have found it challenging to pass both the CGFNS Qualifying Exam® (a prerequisite for licensure in a number of states) and/or the U.S. licensure examination, the NCLEX-RN® examination. Consequently, a number of initiatives were put in place by schools and recruiters that assist the nurses in language development and in the knowledge of nursing as it is practiced in the United States. CGFNS VisaScreen data, 2005–2009, indicate that nurses educated in Mexico and seeking to practice in the United States most frequently identified their intended states of practice as Texas, California and New Mexico (CGFNS, 2010b).

Education

Formal nursing education in Mexico began in the early 1900s with hospital-based programs whose curricula were validated by medical schools. Physicians were in charge of determining the duration of the education, the curriculum, and the admission requirements (CGFNS, 1996). Today, the nursing profession is taking a more active role in self-regulation and standard setting.

As nursing education progressed, two types of programs emerged: diploma and baccalaureate programs. Diploma programs were combined with secondary school, which the individual entered after 9 years of primary and middle school education. Graduates were considered to be first level nurses in Mexico and were given the title of Technical Nurse; however, they were viewed as second level or practical nurses by institutions in the United States and Canada (CGFNS, 1996). The majority of nurses in Mexico were educated in these programs.

Baccalaureate programs emerged at a later date, are post-secondary in nature, and 4 years in length. Graduates also are considered first level nurses in Mexico, and their education is considered comparable to registered nurses in the United States and Canada.

Today there are still two types of nursing programs in Mexico: 3 year diploma programs and 4 year degree programs. However, both are now post-secondary in nature and require 12 years of primary and secondary education for entry. One year of community service must be completed before graduates are eligible to be licensed.

Regulation

Students graduating from 3 and 4 year programs must show evidence of having completed all subjects successfully, of having completed their community service, and of having passed their school-administered, professional examination to be licensed. The examination can be taken in groups or independently upon completion of community service.

Students choosing to take an individual examination must prepare a thesis under the guidance of an advisor. Their examination consists of two sections, one oral and one practical. The oral examination is taken before three examiners appointed by the academic department. The

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practical examination is taken at a hospital, with the department and patient chosen by the examiners. The group examination, prepared by faculty in the nursing schools, consists of a written exam whose content is divided into areas of knowledge. It consists of 1000 questions and students are allotted 8 hours for completion (CGFNS, 1996).

Once candidates are successful on their chosen examination, they are awarded their degree or diploma. They may then apply for a license (cédula) to practice nursing in Mexico, which is issued by the federal government. The General Professions Directorate (DGP), a branch of the Public Education Secretariat (SEP) is in charge of regulating the practice of profession. The profession of nursing in Mexico is not self-regulating (CGFNS, 1996).

License Renewal

A nursing license in Mexico is good for life and does not have to be renewed. Licenses are granted once and can be cancelled only if the licensee breaches any law regulating the profession.

Scope of Practice

Legislation regulating professional nursing practice in Mexico is by means of general professional legislation. The ICN Code of Ethics and the Code adopted by the Pan American Federation of Nursing Professionals are frameworks recognized by nurses in Mexico and other Latin American countries (Malvarez and Agudelo, 2005).

Supply and Demand

Approximately 65.1 percent of the nursing workforce in Mexico consists of registered nurses (graduates of diploma and baccalaureate programs). The remainder are considered Auxiliary Nurses, a title that is comparable to that of a nurse aide in the United States. Mexico does have some maldistribution of nurses, with fewer working in rural than urban areas (Siantz, 2008).

Mexican officials have sought to upgrade nursing education by requiring completion of a full primary and secondary education prior to entering any nursing program, thus making Mexican-educated nurses more competitive in the global market than they had been when the majority of nurses were educated at the secondary school level. The United States, in particular, recruits Mexican nurses to meet the health and communication needs of its large Hispanic patient population.

Issues and Challenges

- **Nursing Autonomy:** For many years, nursing associations and organizations in Mexico have worked internally and through international organizations and processes, for example ICN, the Pan American Health Organization (PAHO) and the Trilateral Initiative for North American Nursing, to establish the autonomy of nursing over its educational and practice standards and regulation.

  Studies show that nursing is a human resource in high demand in developed countries in Latin America, yet, at the same time, suffers from a reduction in collective bargaining power, reduced salaries, cuts in overtime pay, closure of government-level nursing departments, the absence of safety measures in the workplace, loss of professional

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autonomy, and work overload (Malvarez and Agudelo, 2005). Consequently, to improve their working conditions and their salaries, many nurses educated in Mexico leave to obtain positions in the United States. Table J-4 presents a profile of countries that are seen as emerging suppliers to the U.S. workforce.

TABLE J-4 Emerging Suppliers of Registered Nurses to the U.S. Workforce

	China	Sub-Saharan Africa	Caribbean	Mexico
Education for Entry	Secondary school programs (mid-associate) Post secondary school programs (Diploma/AD Program) Baccalaureate	Diploma (3 years) Baccalaureate (4–5 years) Specialty programs in Midwifery and Psychiatric Nursing (3 years)	Diploma Associate Degree Baccalaureate	Diploma Baccalaureate Secondary School Program (selected states)
Educational Requirements for Entry into Nursing Programs	12 years primary and secondary school	11 years primary and secondary school	11 years primary and secondary school	12 years primary and secondary school
Licensure	Yes: Examination	Yes: Examination depending on country	Yes: Regional examination if members of CARICOM If not, individual country licensure	Yes: School exit examination or thesis and hospital clinical examination
Licensure Renewal	Yes, every 2 years	Country specific; if required, 1–2 years	Yes	No
Title	Professional Nurse	Registered Nurse	Registered Nurse General Nurse in Jamaica	Technico Enfermeria (2 year degree) Licientura en Enfermeria (4 year degree)
Types of Nursing Education in Country	Secondary school Associate Degree (diploma) Baccalaureate Masters	Diploma Baccalaureate Specialty Masters	Diploma Baccalaureate	Secondary Diploma Baccalaureate Master's

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	Doctorate			Doctorate
Number of Nurses in the Workforce	1.4 million	Nigeria: 128,918 Kenya: 128,918	Jamaica: 4,374	88,678
Number of Nurses and Midwives per 10,000 population: 2000–2007	10	South Africa: 41 Botswana: 27 Nigeria: 17 Zimbabwe: 7 Ethiopia: 2	Jamaica: 17	9
Nursing Shortage	Yes (due to under-utilization of workforce)	Yes: Botswana, Zimbabwe, South Africa No: Nigeria	Yes	No
Source/Host Country for Migration	Source (beginning)	Source	Source/Host	Source (Limited)
In-Country Nursing Issues	Underinvestment in health workforce Underutilization of nursing workforce	Unemployment of nurses Poor working conditions AIDS Emigration	Lack of nursing schools in certain countries Inadequate funding of nursing programs Accreditation of schools AIDS	Physicians working as nurses and pursuing nursing education Maldistribution of nurses Nursing Autonomy
Official Language	Chinese (Mandarin)	African Languages Colonial languages of English, French, Portuguese and Spanish	Spanish English French	Spanish
Challenges and Issues	Lack of fluency in English	Brain drain	Low pass rates on licensure exam Shortage of tutors High migration rates	Lack of fluency in English

SOURCE: Kaiser Family Foundation, 2009.

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Summary

The emerging suppliers of nurses to the United States—China, sub-Saharan Africa, the Caribbean and Mexico—are moving toward education and regulatory systems comparable, but not equivalent, to that of the United States. Generally, nursing education is in institutions of higher learning, formal licensure and/or registration systems are in place, and scopes of practice focus on health promotion and maintenance in the provision of care.

The overview of both historic and emerging countries supplying nurses to the U.S. workforce provides a kaleidoscope of compelling issues that must be addressed to successfully integrate foreign-educated nurses into the U.S. nursing workforce. The capacity of the United States to deal with issues associated with this migration will have significant impact on nursing education, nursing practice, service delivery and health policy. In particular, the need to recognize the positive contribution of the migrating nurse to patients who share with the nurse a country, language or culture of origin is relevant. The rapid emergence of trade and mutual recognition agreements must be taken into account, as they directly affect nurse migration patterns, possibilities and challenges.

TRADE AND MUTUAL RECOGNITION AGREEMENTS

The migration of nurses in many parts of the world has been influenced by the development of regional and international trade and mutual recognition agreements. The Office of the U.S. Trade Representative (OTR) reports that the international mobility of business professionals providing services has become an important aspect of competitive markets for both suppliers and consumers. Trade agreements that provide for the movement of goods and services across country boundaries have facilitated the migration of nurses for decades. The Agreement that has most affected the nursing profession in the United States is the North American Free Trade Agreement (NAFTA).

North American Free Trade Agreement (Trade NAFTA)

Trade NAFTA provides for the movement of goods and services across the borders of Canada, Mexico and the United States. The health professions listed under NAFTA include nurses, clinical laboratory scientists, physical therapists and occupational therapists.

In 1994, Trade NAFTA eased immigration requirements for nurses educated in Canada and Mexico, allowing them to more easily cross the borders of the United States for purposes of employment. There was no restriction on the number of Canadian nurses who could enter. The number of Mexican nurses, however, was capped at 5500 per year for 10 years. Trade NAFTA was renewed in 2004 and the cap lifted.

To enter the country under Trade NAFTA status the nurse must be a citizen of either Canada or Mexico, have a written job offer from a U.S. employer, and hold a nursing license in Canada or Mexico as well as in the U.S. state of intended practice. Nurses who migrated to either Canada or Mexico from such countries as India, Jamaica, the Philippines and the United Kingdom and became citizens of either country are eligible for TN status if they meet the qualifications (Richardson and Davis, 2009).

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Canadian Nurses

The majority of nurses holding TN status are from Canada and are not required to have a visa to enter the United States. Many TN nurses commute between Canada and the states of Michigan, Maine, and Minnesota on a daily basis. The Canadian nurse only needs to show proof of citizenship, a letter of intended employment, the required licenses, and the CGFNS VisaScreen Certificate at the Canadian port of entry, which can be at a border crossing or an airport.

Mexican Nurses

The TN process for Mexican nurses is more complex. It requires a visa, consular processing, a labor certification filed by the employer, and an I-129 petition for nonimmigrant workers. Mexican nurses also must present a CGFNS VisaScreen Certificate as part of the visa process. The educational comparability requirement of the VisaScreen Program has been difficult to meet for Mexican-educated nurses because nurse educators in the United States and Canada consider the majority of nursing education programs in Mexico to be at the vocational level (Richardson and Davis, 2009).

Since 2005, CGFNS and the International Bilingual Nurses Alliance have worked with the Mexican nursing community, the Mexican consulate, the Mexican Overseas Program, and the Secretaría de Educación Pública (SEP—Public Education Secretariat) to develop consistent nursing education standards and ensure licensure validation processes in an effort to minimize the challenges for Mexican nurses who wish to migrate. Mexican nurses also have the challenge of English language proficiency, which is generally not an issue for Canadians entering under TN status (Richardson and Davis, 2009).

Duration of Trade NAFTA Status

Initially, TN status duration was for a 1-year period and nurses were required to renew it annually. In October 2008, the Department of Homeland Security extended the duration for up to 3 years. The number of renewals that a nurse may apply for is currently unlimited; however, opponents to Trade NAFTA believe that renewal of TN status should be limited and not be used as a permanent form of temporary status. A benefit of TN status is that it is not affected by external factors such as immigration retrogression, which limits the number of visas issued when the number of applicants exceeds the number of available visas (Richardson and Davis, 2009).

Trilateral Initiative for North American Nursing

The 1995–1996 Trilateral Initiative for North American Nursing, funded by a grant from the Kellogg Foundation, was the first effort by the nursing profession to systematically compare and contrast nursing standards across North America. It came as a response to Trade NAFTA, which specifically urged the professions—including nursing—to develop mutually acceptable standards for licensing and certification that would permit greater mobility of professionals across the borders of Canada, Mexico and the United States.

NAFTA offered tremendous opportunity for nurses from the three countries to collaborate on education, research and practice across borders. The hope was that by strengthening the nursing

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profession through cross border collaboration and exchange, nursing and health care also would be strengthened. The goals of the Trilateral were:

- To encourage the development of mutually acceptable standards for education, program approval and accreditation, licensure/registration and specialty certification among Canada, Mexico and the US in order to advance the nursing profession across North America.
- To establish a lasting, viable network of key nursing organizations and professionals across North America.
- To create a methodology that would demonstrate how other professional groups in the three countries could consult, develop goals and programs, and institute policies to increase cross border cooperation (CGFNS, 1996).

An in-depth analysis was considered crucial by the 40 key nursing organizations participating in the project because not only did the educational standards vary among the three countries but also the level of autonomy in standards development. For example, in Canada, nursing has autonomy in the development of education standards and the approval of nursing education programs. In the United States this is a government function that is delegated to the profession. In Mexico, the standards that govern nursing education are general standards, that is, they are not specific to nursing, but rather govern education as a whole. They are developed by the government and the schools.

There also were differences in accreditation systems and pathways into practice among the countries. The accreditation systems in Canada and the United States were considered comparable while nursing in Mexico was in the process of developing an accreditation system. In each of the three countries there were various pathways to entry into nursing practice and different competencies associated with each pathway. Regulatory systems and nursing specialty certification were more comparable in the United States and Canada (CGFNS, 1996).

Because of the variance among the three countries, participants recognized the need for more in-depth understanding of the programs and systems operating in the three countries. While Phase II of the Trilateral did not come to fruition due to lack of funding for the project, a number of nursing organizations and researchers since then have examined the effect of regulation and specialty certification on health outcomes and have attempted to coordinate trilateral research efforts. Mexican nursing organizations have used the preliminary work of the Trilateral to upgrade nursing and to increase participation in standard setting for the profession in Mexico (CGFNS, 1996).

General Agreement in Trade and Services (GATS)

The General Agreement of Trade in Services (GATS), established in January 1995, addresses the areas of service delivery that are considered barriers to trade. GATS is a World Trade Organization (WTO) agreement among 140 countries, the goal of which is to remove restrictions and governmental regulations in agreements covering international trade in services. The GATS has two parts: (1) general rules and disciplines and (2) specific commitments on access to individual countries' domestic markets by foreign suppliers. Each country decides which services are to be included and the degree of operation. There are four methods of service trade:

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- Services supplied as "cross border supply" (international phone calls)
- Consumers use of services in another country (tourism/medical tourism)
- Company subsidiaries or brands
- Individuals traveling from their own country to supply services in another. This "movement of natural persons" would include professionals in specialty occupations, nurses and other health care workers.

Governments that make commitments to allow foreign suppliers to provide education or health services in their markets can enforce the same standards for the protection of the public on foreign suppliers as on nationals, and can indeed impose additional requirements if they so choose. GATS supports utilization of professional standards of licensure. There is no exemption from regulations that are required of a country's citizens. Licensing requirements are not considered burdensome in the provision of quality service or a restriction on the supply of service, if they are based on objective and transparent criteria such as competency and capability (WTO, 2010).

Singapore/Chile Agreement

The Free Trade Accords of the Americas (FTAA), initiated between 2002 and 2005, involve 34 western hemisphere countries. The United States has signed agreements with Singapore and Chile with the goal of lowering perceived trade barriers, such as visas, licensing, testing and intellectual property rights—even though the general philosophy of GATS regarding professional standards and licensure does not support the perceived contention that they are barriers to trade (Bruno et al., 2004).

Mutual Recognition Agreements

Mutual recognition agreements exist within the larger context of globalization to address barriers to mobility, such as the differences between the standards and procedures imposed by national regulatory authorities in different countries. The process of mutual recognition is complex and requires a comparison of frameworks developed in different cultural, social and economic contexts. The greater the degree of differences between the parties to a mutual recognition agreement (e.g. educational systems, standards, approaches to regulation, level of development, etc), the more challenging it is to achieve success in the process (ICN, 2009b).

Mutual recognition requires that the countries in question have in place a system for regulating professionals. It is based on the notion of equivalence or comparability, through which it is understood that the host country's regulatory goals also are addressed by home country regulation. When aspects of the host country's regulation are not met (e.g., differences in nursing knowledge, differences in scope of practice), the host country is permitted to set additional requirements for recognition (ICN, 2009b). There are several mutual recognition agreements in nursing:

- **The European Union (EU):** There has been a reciprocal recognition of nursing qualifications designed to facilitate the mobility of nurses in the European Community for over 30 years. Through the 2007 *Directive on Mutual Recognition of Professional Qualifications (2005/36/EC)*, the EU reformed its system for recognition of professional qualifications in order to make labor markets more flexible, further liberalize the

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provision of services, encourage more automatic recognition of qualifications, and simplify administrative procedures (European Commission, 2009a).

Seven professions were covered by a series of "sectoral" directives: physician, general nurse, midwife, veterinary surgeon, dental surgeon, pharmacist and architect. The resulting directives provide for the harmonization of minimum training requirements and the automatic recognition of professional qualifications for these professions (European Commission, 2009b). The directive for general nurses sets out the minimal competency requirements that nurses must meet before they can practice across the borders of Europe's member states. It also stipulates that programs leading to registration as a nurse should be at least 3 years in length or of 4600 hours duration (Hakesley-Brown, 2009).

These directives on nursing education reflect the ongoing work of the Bologna Process in Europe. The education of nurses in Europe varies by country, ranging from vocational education and training, which is not part of higher education, to baccalaureate education for nurses. Most nurses in Europe are educated at the diploma level (Hakesley-Brown, 2009).

To carry out the policies of the Bologna Process, Europe launched the Tuning Project in 2000. The Nursing Project Group was one of the first health care related groups to be set up, with the task of facilitating the design/redesign, development, implementation and evaluation of nursing education programs for each of the Bologna cycles: undergraduate, graduate and doctoral level work. In an attempt to preserve the uniqueness and diversity of European education, the group examined the comparability of coursework, expressed in terms of learning outcomes and competencies. Today, developing a European model of nursing education remains a work in progress (Hakesley-Brown, 2009).

- **Trans-Tasman Mutual Recognition Agreement (TTMRA):** MRA that applies to New Zealand and all Australian states and territories, except Western Australia. It recognizes equivalent nursing registration and provides a streamlined registration process for nurses migrating between the countries.
- **The Caribbean Community and Common Market (CARICOM):** Created Regional Examination Nurse Registration (RENR), which has enabled the movement of registered nurses among signatory countries of the region.
- **Internal Mutual Recognition Agreements:** In-country agreements between states, provinces and territories that provide for the mobility of the nursing workforce in that country. The Nurse Licensure Compact in the United States and the Mutual Recognition Agreement of the Registration Bodies for Registered Nurses in Canada are two examples (ICN, 2009b).
- **The Eastern, Central and Southern African College of Nursing (ECSACON):** Agreement on scopes of practice, standards for practice, competencies and core content and standards for education among 14 countries in east, central and southern Africa. The focus is on health policy, nursing and midwifery practices, and health care delivery (Ndlovu et al., 2003).

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Trade and Mutual Recognition Agreements are designed to ensure public protection; increase public confidence; make care more accessible; and facilitate the mobility of health professionals. However, the emergence of such agreements also raises such questions as:

- How will the scope of nursing practice in a global marketplace be defined and determined?
- Is global licensure for nurses inevitable?
- How will the cooperation and recognition needed to ensure competency of nurses across borders be gained? Who will bear the cost?
- How will disciplinary actions be addressed?

Educational Agreements

In addition to trade and mutual recognition agreements, agreements also have been negotiated between foreign and U.S. nursing schools to provide clinical experience, internships and language proficiency programs. For example the International University of Nursing in St. Kitts attracts international students for nursing. It uses U.S. faculty in its program and has signed agreements with universities in the United States and Canada to provide part of the student's theory and clinical education, thus giving the graduate a dual degree.

In 2005 more than 40,000 qualified students were turned away from U.S. nursing schools because of capacity limitations. At that time, through an agreement between agencies in the Ukraine and South Carolina, nursing schools in the Ukraine agreed to educate U.S. students in English. The education was to be subsidized by hospitals in South Carolina with the intent that the graduating nurses would return to South Carolina to enter practice. Implementation of the program has stalled.

Schools of nursing in Korea have negotiated internships with U.S. schools of nursing and U.S. hospitals are working with schools of nursing in Mexico to provide clinical and language orientation for nursing students. La Universidad Autonomade in Guadalajara, Mexico provides bilingual nursing programs—programs in Spanish for those staying in Mexico and in English for nurses intending to migrate.

Summary

Nursing in the United States has been a leader in international nursing and thus any initiatives made by nursing leadership to shape the future of nursing in the United States has a disproportionate impact on the global nursing community. This paper has documented several current challenges that globalization has created for nursing internationally. It also has documented the complexity of those challenges. As the Committee moves towards its recommendations, accelerating globalization makes it clear that these recommendations must be framed within an understanding of their international implications and impact. The authors of this paper have identified some key international issues that might influence domestic deliberations and planning.

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IMPLICATIONS FOR THE UNITED STATES NURSE WORK FORCE

The Global Nursing Shortage

"The issues surrounding nursing shortages and global nurse migration are inextricably linked. Global nurse migration has become a major phenomenon impacting health service delivery in both developed and developing countries. The phenomenon has created a global labor market for health professionals and has fueled international recruitment. International migration and recruitment have become dominant features of the international health policy debate" (Nichols, 2007).

The global nurse shortage is supported by the escalating demands from developed countries, such as the United States, to meet patient care needs. International nurse recruits are viewed as options to balance a country's national nursing supply and demand. The dependence of hospitals and health systems in developed countries on nurses educated outside of their borders is substantive and enduring. With the aging of populations in developed countries, the need for health care services is increasing. Moreover, changing technology and rising consumer expectations place further demand on health care systems. Since the domestic source of nurses in many developed countries is not keeping up with the increased demand for nurses, the gap has been, and will continue to be, filled by foreign-educated nurses. In short, for myriad reasons, in both developed and developing countries there is increasing difficulty in attracting and retaining nurses.

The Immigration Policy Center of the American Immigration Council notes that immigrants comprise more than one-quarter of all physicians and surgeons in the United States, and roughly one-fifth of all nursing, psychiatric and home-health aides. In the case of doctors and nurses, recent projections indicate that even if medical school and nursing school rates rise among the native populations, this will not be sufficient to prevent shortages, at least in the near term (Immigration Policy Center, 2009).

The flow of foreign-educated nurses has remained constant, affected only by immigration policies, which are being reconsidered in the United States, Canada, the United Kingdom, France and Italy because of high rates of unemployment, political opposition and the economy. The number of migrating nurses generally increases in response to the demands from health care employers. Other external factors appear to have little or no influence.

Experience has shown that even when natural disasters have occurred, such as in India, Indonesia, and Haiti, nurses from those countries continue to pursue migration. After the events of September 11, 2001, some assumed and worried that the fear of terrorism and conflict in the United States would reduce the interest of foreign-educated nurses in coming to this country. Quite the contrary—CGFNS, which screens foreign-educated nurses for immigration purposes, saw only a handful of nurses cancel their plans. Indeed, what the nurses shared was that they were not strangers to such instances of violence and upheaval. Although the size and impact of 9/11 was horrific, the nurses saw it as a rarity compared to the more frequent conflicts they were exposed to in their home countries. Nursing in the United States remains attractive to foreign-educated nurses personally, professionally and economically because of the opportunities and quality of life it provides.

The United States has the largest professional nurse workforce in the world; yet, according to a study by Buerhaus et al (2009) there will be a projected shortfall of nurses developing around 2018. As a result of these projections, it is likely that the demand for registered nurses educated

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in other countries will increase. In other words, foreign-educated nurses will be a permanent feature of the U.S. nursing workforce for the foreseeable future.

It should be noted that the downturn in the world economy in 2009 has affected the health care workforce internationally. Hospitals have revised plans to expand their facilities, have closed beds and units that were not producing revenue, and have restructured their workforce. Those that have collective bargaining agreements are seeking to revise salaries and benefits. These changes, for example, meant that in 2009 large urban hospitals in Philadelphia, PA reported having no vacancies for new graduate nurses; however, hospitals in smaller cities in the northeastern part of the state did have vacancies and were actively seeking nurses. The demand for experienced, specialty nurses continues to increase. Critical care, emergency care and the operating room are areas for which hospitals are recruiting.

Despite the downturn in the economy, the migration of nurses across international borders is expected to be on-going. Therefore, the successful adjustment of foreign-educated nurses to U.S. practice is critical. The 2004 National Sample Survey of Registered Nurses estimated that, in terms of workforce diversity, 82 percent of U.S. nurses are white (non-Hispanic), and blacks and Hispanics are under-represented in relation to their proportion to the U.S. population. Foreign-educated nurses, however, are more likely to be Asian. Hence, the international migration of nurses to the United States, historically, has not mirrored the under-represented minority populations of black and Hispanic. The cultural lack of fit between patient and provider has been adequately documented and is germane to this issue.

Health Policy Workforce Planning Issues

Good workforce planning should focus on increasing investment in the supply of nurses and other health professionals to meet the demands of all countries. A major challenge for all countries is to establish workforce planning mechanisms that effectively address the demands for health care and provide workforce stability.

In 2004, when examining the policy implications of nurse migration, Aiken and colleagues highlighted that, "*The most promising strategy for achieving international balance and health workforce resources is for each country to have an adequate and sustainable source of health professionals,*" which includes the need for developed countries to be more diligent in exploring actions to stabilize and increase the domestic supply of nurses (Aiken et al., 2004, p. 75). They go on to add that, "*Developed countries growing independence on foreign-trained nurses is largely a system of failed policies and underinvestment in nursing.*"

Similar arguments were noted in the conclusions from a research and policy retreat entitled, *Human Resources for Health: National Needs and Global Concerns*, which identified national self sufficiency as a goal. Attaining self sufficiency also was noted in two key international policy documents: *The Joint Learning Initiative Report* and the ICN report: *The Global Nursing Shortage: Priority Areas for Intervention.* The ICN Report (2006, p. 12) notes that building national self sufficiency to manage domestic issues of supply and demand, in rich and poor countries alike, is critical.

Planning efforts should require that the United States establish a national system that monitors the inflow of foreign nurses, their countries of origin, the states and settings in which they work, and their impact on the nursing shortage. In order to ensure that the nursing care needs of the public are met, a broader workforce policy is needed that balances foreign nurse recruitment and domestic needs.

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Much of the work done on workforce planning has yet to be fully integrated with emergent technologies, in particular, telehealth and tele-education. While countries work to establish, maintain and improve regulatory practices and policies, upgrade educational programs and improve patient care, health care and health care education are systematically transcending national and international boundaries, creating global communities. These technologies have the potential to create new approaches to harmonizing curricula, coordinating international policy, and tracking migrating nurses throughout the world. Experts in these technologies will be essential resources for the future of nursing in the United States.

Ethical and Moral Challenges

Perhaps the most daunting aspect of creating a plan for the future of nursing in the United States, shaped by a deep understanding of globalization, involves the ethics of choice. Many issues surrounding the global nursing shortage, the impact of globalization, the goal of international standards, and the establishment of diverse trade and related agreements have ethical and moral dilemmas imbedded within them. It requires that the Committee examine human rights issues and issues of equity.

Because globalization and migration have dramatically increased the multi-cultural characteristics of the health workforce, in general, and the nursing workforce, in particular, this country will, more and more, consist of people from different ethnic backgrounds who need to be fully integrated into the workplace in a way that respects diversity.

As has been noted by current studies on immigration, our present patterns of immigration in the United States are different from the past. The United States, built largely on immigrants from European countries, now attracts immigrants from the African, Arab and Asian nations—a much more diverse array of cultures and countries. As the United States increasingly becomes a more multi-ethnic, pluralistic and linguistically diverse society, the possibilities for misunderstandings, mixed messages and errors in communication are inevitable.

To address and/or prevent the disruptiveness of these factors while delivering care, cultural competence and cultural sensitivity must be added to the knowledge and skills needed for nursing practice in the future. Continuing health policy should be developed that pro-actively manages a well-prepared, multicultural, multilingual, multiethnic, and multireligious workforce and fosters the development of intercultural workplaces. Such policies will need to address not only the challenges associated with integrating the foreign-educated nurse into the U.S. workforce, but also the challenges faced by co-workers experiencing the introduction of new cultures.

As the population ages, a greater demand for nurses with the skills necessary to provide safe, effective care to the elderly, as well as the ability to apply new technologies, also will be needed. In short, changing U.S. demographics will require that nurses have knowledge and skill in cultural competence, care of the elderly, and use of technology.

As competition and demand for skilled nurses increase, ethical recruitment practices must balance the rights of individuals to migrate and at the same time prevent adverse effects on source countries' health systems. The United Nations Declaration of Human Rights (1948) underscores that point. There has been considerable critique of the migration of nurses from less developed to developed countries as irresponsible brain drain. However, numerous factors relate to the migration of health workers from developing countries resulting in insufficient numbers in the source country's workforce. These include in-country weakness in policies and restrictions related to wages, recruitment, deployment, transfer, and promotion (Vujicic et al., 2009).

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Kingma (2006) notes that since most nurses work in the public sector, failure of governments to fill vacant positions may cause in-country unemployment and encourage migration. Governmental policies on remittances and return migration also are factors that encourage nurses to seek employment in other countries. As this paper demonstrates, the brain drain assumption can be an over-simplification of a profoundly complex issue. While developed countries continuing to recruit professional workers from developing countries is a serious ethical issue, the rights of professionals to find a better life in another country is equally compelling as an ethical issue.

Efforts have emerged to address the dilemma of balancing the rights of individuals to migrate with the potential loss of essential health care services in source countries. In 2004 the World Health Organization (WHO) issued a resolution urging member states to develop strategies to mitigate the adverse effects of international migration and develop an international code of practice. The International Council of Nurses, Sigma Theta Tau International, and the Commonwealth Secretariat have issued codes that provide guidelines and methods to improve the ethical recruitment and treatment of health care workers.

The United States, in 2009, issued *The Ethical Code for Recruitment of Foreign-Educated Nurses*, a voluntary code for ethical recruitment practices developed by an Advisory Council of stakeholders that was convened by AcademyHealth, a private sector health policy organization. The stakeholders were composed of representatives of unions, hospitals, nursing organizations, regulatory bodies, credentials evaluators, recruiters, staffing agencies and immigration attorneys. The goal was to reduce the harm and increase the benefits of international nurse recruitment for source countries, host countries, U.S. patients, and migrant nurses.

The task force has evolved into the Alliance for Ethical International Recruitment Practices. Subscribers to the Code will agree to abide by it. Nurses will be able to refer possible violations of the Code to the Alliance, which will then assist in resolution of the infractions or refer to advocacy or government bodies. This work is essential as it focuses on the actual practices of greatest concern—aggressive, predatory recruitment practices that are abusive to nurses seeking a better life for themselves and their families. U.S. nursing leaders will need to pro-actively implement these guidelines and continue to monitor abuses that may emerge.

The WHO Code of Practice on the International Recruitment of Health Personnel will be presented for discussion and/or adoption at the 63rd World Health Assembly in Geneva, Switzerland in May, 2010. The Code is voluntary, global in scope, and directed at health workers, recruiters, employers, health professional organizations and relevant regional and/or global entities. The Code provides principles applicable to the international recruitment of health personnel in a manner that promotes an equitable balance of interests among health workers in source and destination (host) countries (WHO, 2010).

In conclusion, it is the hope of the authors that this paper provides helpful information to guide the Committee's deliberations and decisions. Our effort to synthesize a massive amount of information demonstrates an honest endeavor to place the future of nursing in the United States within an international context, sensitive to the impact of escalating globalization. U.S. nurse leaders will continue to play a central role in the future of nursing internationally. It is our hope that the work of this Committee will encourage their collaborative endeavors with international governments, communities, nursing organizations and nurses to enhance the profession of nursing worldwide.

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The Future of Nursing: Leading Change, Advancing Health
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ABOUT CGFNS INTERNATIONAL

CGFNS International is an immigration neutral, internationally recognized authority on credentials evaluation and verification pertaining to the education, registration and licensure of nurses and health care professionals worldwide. The mission of CGFNS International is to serve the global community through programs and services that verify and promote the knowledge-based practice competency of health care professionals. CGFNS International protects the public by ensuring that nurses and other health care professionals educated in countries other than the United States are eligible and qualified to meet licensure, immigration and other practice requirements in the United States.

CGFNS International and its divisions provide products and services that validate international professional credentials and support international regulatory and educational standards for health care professionals. The organization focuses on four key objectives:

1. To develop and administer a predictive testing and evaluation program for internationally educated nurses
2. To provide a credentials evaluation service for internationally educated and/or internationally born health care professionals
3. To serve as a clearinghouse for information on the international education and licensure of health care professionals
4. To conduct and publish studies relevant to internationally educated health care professionals

The major CGFNS programs used by internationally educated health care professionals are the **VisaScreen Program**®, which is the leading health care worker certification program for immigration and for obtaining occupational visas in the United States; the **Credentials Evaluation Service,** which provides a course-by-course comparison of international education to U.S. standards for licensure, education and employment; and the **Credentials Verification Service for New York State,** which is required of internationally educated registered and practical nurses, occupational therapists and assistants, and physical therapists and assistants seeking licensure in New York State.

CGFNS International celebrated its 30th anniversary in 2007. It has reviewed and/or certified the credentials of over 500,000 internationally educated nurses and other health care professionals for U.S. licensure and immigration.

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The paper is based on published international literature in the field; documents from CGFNS International files; research studies; trends in the nursing labor market, including globalization and demographic changes; increased use of complex technologies; and the authors' personal

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observations and participation in relevant national and international conferences and meetings on the subject.

The authors are responsible for the content of the paper.

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The Florida Senate

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Committee on Health Regulation

AUTHORIZATION FOR ADVANCED REGISTERED NURSE PRACTITIONERS TO PRESCRIBE CONTROLLED SUBSTANCES

Issue Description

Advanced registered nurse practitioners (ARNPs) are registered nurses who, by virtue of advanced educational preparation at the graduate level, are authorized to perform certain functions that historically have been within the practice of medicine. Prescribing drugs is one of the medical functions that ARNPs are authorized to perform. In Florida, ARNPs' authority to prescribe does not include controlled substances. Controlled substances are drugs or substances whose general availability is restricted by federal and state laws because of their potential for abuse or addiction, including narcotics, depressants, stimulants, and hallucinogenic drugs. Advanced practice nurses in 47 states currently have the authority to prescribe controlled substances.

Proponents of giving ARNPs the authority to prescribe controlled substances argue that such authority will increase access to needed health care services in areas of the state where there are underserved populations and shortages of physicians; increase convenience for patients and physicians; and improve the quality of patient care. The proponents argue that ARNPs have the education to safely and effectively prescribe controlled substances and that the evidence from the 47 states where advanced practice nurses currently prescribe controlled substances supports this claim.

Opponents of giving ARNPs the authority to prescribe controlled substances argue that ARNPs do not have adequate training to make the appropriate diagnosis and suggest proper treatment options relative to controlled substances. They argue that increasing the number of persons prescribing controlled substances will lead to further opportunities for abuse of prescription drugs and diversion of prescription drugs from legal distribution systems. Opponents also assert that there is no indication that patients who need controlled substances have problems getting these drugs.

Background

Advanced Practice Nursing

The term "advanced practice nurse" or "APN" refers generically to a group of licensed registered nurses who have advanced clinical training and who serve as primary care providers in a broad range of acute care and outpatient settings. The titles given to APNs vary from state to state. In Florida, the generic licensure title is "advanced registered nurse practitioner." Within the titles of APN, there are four general categories: nurse practitioner, nurse midwife, registered nurse anesthetist, and clinical nurse specialist. Within these categories there may be subspecialties based on the APN's training, the patients to be served, or the conditions to be treated by the APN.

Nursing education and practice have evolved in recent years to meet the needs of the health care delivery system. The profession of advanced practice nursing is a relatively new one which began in the 1960s in response to a nationwide physician shortage. The requirements to be recognized as an APN have been enhanced significantly since that time. States independently regulate the practice of nursing, and there is considerable variation among the states as to APNs' scope of practice and the limitations placed on their practice.

Education for APNs includes advanced studies and intensive clinical experience tailored to the APN's area of practice. In addition to nursing, an APN may perform medical acts of diagnosis, treatment, prescription, and operation under specified circumstances. APNs usually practice in collaboration with physicians and other health care practitioners. The

required level of physician involvement in an APN's practice varies from state to state, although few states require direct supervision.

Florida's Laws and Regulations

Florida initially authorized advanced practice nursing in 1975.[1] Advanced practice nursing is regulated by the Board of Nursing under part I of chapter 464, F.S. Florida certifies ARNPs in the following categories: nurse practitioner, certified registered nurse anesthetist, and certified nurse midwife.[2] Clinical nurse specialists are APNs whose nursing specialty is recognized separately under Florida law.[3]

Florida Registered Nurses and Advanced Registered Nurse Practitioners with Active Licenses as of September 12, 2008*	
Total Active RNs	202,137
RNs with no additional qualification	202,115
RNs with a Clinical Nurse Specialist qualification	22
Total Active RNs with an ARNP rank**	13,206
RN/ARNPs with an Nurse Practitioner qualification	9,112
RN/ARNPs with a Certified Registered Nurse Anesthetist qualification	3,469
RN/ARNPs with a Certified Nurse Midwife qualification	620
RN/ARNPs with a Clinical Nurse Specialist qualification	5

* Strategic Planning Services Unit, Division of Medical Quality Assurance, Florida Department of Health
** Includes RN/ARNPs with active licenses who are not Florida residents

In order to be certified as an ARNP, a nurse must hold a current license to practice professional nursing and submit proof to the Board of Nursing that he or she meets one or more of the following requirements as determined by the board: satisfactory completion of a formal postbasic educational program of specialized or advanced nursing practice; certification by an appropriate specialty board; or completion of a master's degree program in the appropriate clinical nursing specialty. A nurse who holds a current license to practice professional nursing, has a master's degree in a clinical nursing specialty, and holds current certification in a clinical nursing specialty from a nationally recognized certifying body may be certified as a clinical nurse specialist.

Under s. 464.003(3)(d), F.S., the Board of Nursing is required to adopt rules authorizing ARNPs to perform acts of medical diagnosis and treatment, prescription, and operation. Under Rule 64B9-4.009, F.A.C., ARNPs may monitor and alter drug therapies, initiate appropriate therapies for certain conditions, and order diagnostic tests and physical and occupational therapy. The rule further elaborates that the scope of practice of ARNPs includes functions which the ARNP has been educated to perform, according to established protocols and consistent with the practice setting. Although ARNPs may prescribe medications in accordance with a protocol, they are not authorized to prescribe controlled substances. ARNPs may perform medical acts under the general supervision of a medical physician, osteopathic physician, or dentist within the framework of standing protocols that identify the medical acts to be performed and the conditions for their performance. The Board of Nursing and the Board of Medicine have adopted identical administrative rules setting forth the standards for the protocols.[4]

Prescribing and Prescription Drugs

A prescription is an order, usually written in a specified format, by a licensed health care practitioner for the preparation and administration of a drug. Not all drugs require a prescription, such as over-the-counter drugs. Prescription drugs are drugs that are approved by the U.S. Food and Drug Administration that require the signature of a licensed prescribing health care practitioner to dispense. The following health care practitioners are authorized in Florida to prescribe drugs

[1] See section 2, ch. 75-273, Laws of Florida, and s. 5, ch. 76-204, Laws of Florida.
[2] Section 464.012, F.S.
[3] Section 464.0115, F.S.
[4] See Rules 64B-4.010 and 64B-35.002, F.A.C.

within the scope of their practice: medical physicians, osteopathic physicians, podiatric physicians, naturopathic physicians, certified optometrists, physician assistants, ARNPs, and dentists. Veterinarians are also authorized to prescribe drugs for animals. Clinical nurse specialists do not have authority to prescribe in Florida.

Prescription drugs are used by licensed health care practitioners in treating the sickness or injury for which the drugs are prescribed. Advances in pharmaceutical therapies have transformed health care over the last several decades. Many diseases are prevented, cured, or managed effectively with prescription drugs. Prescription drugs often replace other forms of treatment, such as surgery. However, there are also risks associated with prescription drugs and they can be dangerous if used improperly.

Prescribing in the ARNP's practice

ARNPs independently manage common medical problems and may initiate, monitor, alter or order drug therapies as a nursing function, although these acts are medical acts of prescription.[5] Any drug therapy that an ARNP prescribes, initiates, monitors, alters or orders must be within the ARNP's scope of practice, knowledge, and training, and must be authorized by the supervising physician or dentist. The ARNP's prescribing authority must be outlined in a protocol and the protocol must state that it excludes prescribing controlled substances. The protocol must be reviewed annually by the ARNP and supervising physician or dentist. Nurse midwives and nurse anesthetists administer and *order* controlled substances in facilities as a part of their scope of practice.

Studies conducted during the mid-1980s found that APNs prescribe less frequently than physicians and limit their prescribing to well-known and "relatively simple drugs."[6] In Florida, ARNPs are authorized to manage drug therapies that may involve prescription medications that are potentially more dangerous than controlled substances, such as cardiac medications and medications used with cancer treatment. Currently, ARNPs are managing their patient's health care without the authority to prescribe controlled substances. If the ARNP believes her or his patient needs a controlled substance, or if the patient has already been prescribed a controlled substance, the ARNP, within his or her specialized knowledge and training, must still manage the patient's health care. Without authority to prescribe controlled substances, the ARNP must collaborate with or refer the patient for direct evaluation by a physician or dentist, who must then independently determine the need for the drug therapy.

Controlled Substances

Controlled substances are drugs or chemicals, including illegal drugs and prescription medications that are strictly regulated or outlawed because of their potential for abuse or addiction. They include drugs classified as narcotics, stimulants, depressants, hallucinogens, and cannabis. The prescribing of controlled substances is a privilege that is separate from the regulation of the practice of the prescribing practitioner.

The Drug Enforcement Administration (DEA) within the U.S. Department of Justice regulates controlled substances that are classified under the federal Controlled Substances Act.[7] A health care practitioner must register with and obtain a registration number from the DEA to prescribe a controlled substance. The DEA registration provides a tracking system to discourage unauthorized prescribing of controlled substances. A DEA registrant must also comply with applicable state law for prescribing controlled substances. If state law does not authorize a practitioner to prescribe controlled substances, the DEA may not issue a DEA registration number.

Federal regulations provide a classification of "mid-level practitioner" for practitioners other than physicians, dentists, veterinarians, or podiatrists, who are authorized under state law to prescribe controlled substances in the course of professional practice.[8] Examples of mid-level practitioners include, but are not limited to, nurse practitioners, nurse midwives, nurse anesthetists, clinical nurse specialists, physician assistants, optometrists, and psychologists.

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[5] See Section 464.012(3), F.S., and Rule 64B9-4.009, F.A.C.

[6] "Nurse Practitioners, Physician Assistants, and Certified Nurse-Midwives: A Policy Analysis" U.S. Congress Office of Technology Assessment, (December 1986).

[7] See Title 21 CFR, 1300 generally and 21 CFR 1308.11 to 1308.15.

[8] See 21 CFR 1300.01(b)(28).

In Florida, ch. 893, F.S., sets forth the Florida Comprehensive Drug Abuse Prevention and Control Act. The chapter classifies controlled substances into five schedules in order to regulate the manufacture, distribution, preparation, and dispensing of the substances. Substances in Schedule I have a high potential for abuse and have no currently accepted medical use in the United States. Schedule II drugs have a high potential for abuse and severely restricted medical use. Cocaine and morphine are Schedule II drugs. Schedule III controlled substances have less potential for abuse than Schedule I or Schedule II substances and have some accepted medical use. Substances listed in Schedule III include anabolic steroids, codeine, and derivatives of barbituric acid. Schedule IV and Schedule V controlled substances have a low potential for abuse, compared to substances in Schedules I, II, and III, and currently have accepted medical uses. Substances in Schedule IV include phenobarbital, librium, and valium. Substances in Schedule V include certain stimulants and narcotic compounds.

Chapter 893, F.S., defines "practitioner" to mean a licensed medical physician, dentist, veterinarian, osteopathic physician, naturopathic physician, or podiatrist, if the practitioner holds a valid federal controlled substance registry number. The definition does not include any mid-level practitioners, so mid-level practitioners are unable to register with the DEA to prescribe controlled substances.

Prescribing of Controlled Substances Task Force

The 1996 Florida Legislature required the director of the Agency for Health Care Administration to appoint a task force to evaluate the prohibition on the prescription of controlled substances by ARNPs,[9] including the medical necessity of the prohibition and the potential for harm if the prohibition was relaxed or removed in hospital or office settings. The law also required the task force to study the educational and clinical training of ARNPs and the potential liability exposure of physicians, pharmacists, and hospitals if ARNPs were allowed to prescribe controlled substances. The task force issued a report in December 1997 recommending changes to Florida law to allow ARNPs to prescribe controlled substances after completion of certain approved course and experience requirements.[10]

Physician Assistants

Physician assistants, like APNs, are designated by the federal DEA as "mid-level practitioners" for the prescribing of controlled substances. In 46 states, physician assistants have prescribing authority for controlled substances, with some specified restrictions. Physician assistants are trained to work under the supervision and control of medical physicians and osteopathic physicians. In Florida, for purposes of the regulation of physician assistants, "supervision" is defined in ss. 458.347 and 459.022, F.S., to mean responsible supervision and control. Except for cases of emergency, supervision requires the easy availability or physical presence of the licensed physician for consultation and direction of the actions of the physician assistant. "Easy availability" is defined to include the ability to communicate by way of telecommunication.

A Florida-licensed physician may delegate to a physician assistant the authority to prescribe any medication used in the supervisory physician's practice unless the medication is a controlled substance. The physician assistant must meet requirements specified in s. 458.347, F.S., before the physician assistant may prescribe.

Findings

Educational Preparation to Prescribe

The requirements of private advanced practice nursing specialty organizations for certification of individual practitioners and the requirements of private accrediting bodies for approval of nursing educational programs are similar for the various nursing specialties. To gain entry into advanced nursing practice, professional nurses must complete a formal course of education in an accredited nursing program at the graduate level.[11] In addition, most states

[9] Ch. 96-274, Laws of Florida.
[10] "Prescribing of Controlled Substances by Advanced Registered Nurse Practitioners" Prescribing of Controlled Substances Task Force, December 1997.
[11] See "Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education" July 7, 2008, APRN Consensus Work Group and the APRN Advisory Committee of the National Council of State Boards of Nursing.

require APN applicants to be certified by a recognized national organization. These requirements ensure that applicants for licensure as an APN have the necessary knowledge and skills to practice, including prescribing, in a specialty area at the advanced nursing level.

Accredited Nursing Programs

Accreditation is a private, nongovernmental review of the quality of educational programs. Advanced practice nursing programs are accredited by the National League of Nursing Accreditation Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE). Both are nationally-recognized accrediting organizations that accredit a broad array of nursing programs.[12] As a condition of accreditation by these organizations, graduate degree nursing programs must include in each degree program and specialty area curricula that incorporate separate graduate level courses in health/physical assessment, physiology/pathophysiology, and pharmacology. Subject matter from these courses may also be integrated into specialty or subspecialty courses. Accreditation also requires advanced nursing programs to provide a minimum of 500 hours of supervised clinical experience. A minimum of 500 hours of supervised clinical experience is also required for APNs to receive national certification.[13]

Accreditation by the NLNAC or the CCNE ensures that the graduates of these accredited nursing degree programs have obtained the core curricula needed to enable them to sit for their nursing specialty examinations. The accreditation requirements for nurse anesthesia and nurse midwife education programs have comparable standards which prepare graduates to sit for national certification examinations.[14]

The Florida Board of Nursing has adopted Rule 64B9-4.003, F.A.C., to establish guidelines for advanced nursing programs. The guidelines require the curriculum of an advanced nursing program to be at least 1 academic year in length and include theory in the biological, behavioral, nursing, and medical sciences relevant to the area of advanced practice, in addition to clinical experience with a qualified preceptor. The program must include: theory and directed clinical experience in comprehensive physical and biopsychosocial assessment; interpretation of laboratory findings; pharmacotherapeutics, to include the initiation, selection, and modification of selected medications; initiation and modification of selected therapies; management of selected diseases and illnesses; and differential diagnosis related to specialty problems. The program must provide a minimum of 500 hours of supervised clinical experience in the performance of the specialized diagnostic procedures that are essential to practice in that specialty area.

Certification

Certification is a method of documenting that a professional has the knowledge, skills, and experience required to practice a profession. The evolution of advanced nursing practice has led to certification of nursing specialties by national organizations. The majority of certification organizations require nurses to obtain, at a minimum, a master's degree in professional nursing from an accredited program in order to be eligible to sit for their advanced nursing certification examinations. Only those individuals who meet the qualifications may use certain designated titles awarded by national certification programs. Certification in advanced nursing practice is also mandated by Medicare[15] and many insurers for purposes of third-party billing.

The Florida Board of Nursing has adopted Rule 64B9-4.002, F.A.C., to establish requirements for state certification as an ARNP. Applicants for ARNP certification are required to submit proof of national certification from an approved nursing specialty board. The rule specifies which specialty boards are approved. As of October 1, 2008, there were 13,410 Florida-licensed ARNPs and about 9,012 of this number held nursing specialty board certification.[16] Since

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[12] In addition to the NLNAC and the CCNE, various advanced nursing specialty entities accredit advanced nursing programs.
[13] See "The Essentials of Master's Education for Advanced Practice Nursing," 1994, American Association of Colleges of Nursing at < http://www.aacn.nche.edu/Education/mastessn.htm> (Last visited on October 10, 2008).
[14] See "Standards for Accreditation of Nurse Anesthesia Educational Programs (Jan. 2006)," by the Council on Accreditation of Nurse Anesthesia Educational Programs; and "Core Competencies for Nurse Midwifery Practice (including 2007 Revision)," and "Standards for Nurse Midwifery Practice" by the American College of Nurse Midwifery.
[15] See 42 CFR 410.75.
[16] Source: Florida Department of Health.

national certification is now required for ARNP applicants in Florida, the percentage of Florida ARNPs with national certification will increase in the future.

Access to Needed Health Care/Controlled Substances

Nationally, there is a shortage of health professionals who provide primary care. As of June 30, 2008, there were 5,987 areas within the U.S. designated as health professional shortage areas (HPSAs) for primary care with 63 million people living in these areas.[17] According to the federal government, it would take 16,261 health professionals to meet the need for primary care providers in these designated areas (a population to health professional ratio of 2,000:1).[18]

A number of rural counties in Florida have been designated by the federal government as HPSAs for primary care.[19] An HPSA is defined as a geographic area with less than 2.86 primary care physicians per 10,000 population. HPSAs are redesignated every 4 years. Shortages of physicians in a geographic area can prevent the delivery of timely and appropriate health care services for routine medical conditions.

Advanced Registered Nurse Practitioners (ARNPs) with Active Licenses as of October 13, 2008, and Primary Care Physician FTEs in Health Professional Shortage Areas*

County	Number of ARNPs	Primary Care Physician FTE	County	Number of ARNPs	Primary Care Physician FTE
Dixie	1	7.94	**Lafayette**	2	2.0
Franklin	5	2.0	**Liberty**	1	0.6
Gadsden	31	10.0	**Madison**	10	6.0
Gilchrist	4	5.65	**Okeechobee**	11	9.0
Glades	0	7.0	**Sumter**	25	9.3
Hamilton	3	0.8	**Suwannee**	16	7.8
Hardee	2	3.0	**Wakulla**	18	4.0
Hendry	17	7.0	**Washington**	15	4.8
Jefferson	2	4.2			

*Source: Florida Department of Health

A total of 163 ARNPs who hold active Florida licenses have primary addresses in Florida rural counties that have been designated as HPSAs for primary care.[20]

Recent nursing workforce studies present demographic trends that suggest a need for new strategies to increase the number of APNs in Florida.[21] Statewide, the potential ARNP workforce (ARNPs with an active license, eligibility to practice, and a Florida address) is showing a slight increase of 566 ARNPs in 2008 for a total of 11,094.[22] The number of ARNPs in the workforce grew more slowly in rural panhandle counties and rural and urban southeastern counties relative to the central and northern counties.

A recent survey of medical school graduates showed that only 2 percent were choosing to work in primary care, in part, due to high educational debt and low salaries relative to more lucrative medical specialties.[23] The decline in the salary of family medicine physicians is also well-documented.

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[17] Source: U.S. Bureau of Health Professions, Health Resources, and Services Administration at <http://www.bhpr.hrsa.gov/shortage/> (Last visited on October 13, 2008).
[18] Id.
[19] Source: Florida Department of Health (May 7, 2008).
[20] Source: Florida Department of Health, Health Professional Shortage Areas - Primary Care (May 2008).
[21] See Workforce Data at the Florida Center for Nursing at <http://www.flcenterfornursing.org/workforce/data.cfm> (Last visited on October 10, 2008).
[22] Source: Florida Center for Nursing.
[23] See Hauer, K. et al. "Factors Associated With Medical Students' Career Choices Regarding Internal Medicine," *JAMA*. 2008;300(10):1154-1164.

Prescription Drug Abuse/Diversion

In 2006 and 2007 over 3.5 billion prescriptions were dispensed each year in the U.S.[24] About 13 percent of all prescriptions dispensed in the U.S. during 2006 and 2007 were for controlled substances.[25] An estimated 6.3 percent of all refilled prescriptions in 2007 were for controlled substances.[26]

Prescription drug abuse is a significant problem in the U.S. and has been increasing recently.[27] By definition, controlled substances have a high potential for abuse. Prescribing health care practitioners who have access to controlled substances may abuse those drugs themselves or may prescribe to patients who abuse controlled substances. The diversion of controlled substances from legitimate sources into illicit street drug traffic is a major problem. Patients may obtain legitimate prescriptions and then fraudulently sell the drugs for a profit.

The federal government and state governments have adopted laws aimed at preventing drug diversion, drug abuse, and inappropriate prescribing. Over 30 states have implemented prescription monitoring programs to track the prescribing and dispensing of controlled substances, which could potentially address the issue of prescription drug diversion. There is significant variability in the information tracked in state prescription monitoring systems.[28] Florida has not implemented a prescription monitoring program.

Florida has imposed significant restraints on the prescribing of controlled substances by: limiting to 30 days any prescription for a Schedule III drug; requiring a patient to present identification to a dispensing pharmacist to obtain Schedules II-IV drugs; and requiring a prescription for a Schedule II drug to be in writing, with an exception for emergencies. Florida also does not permit mid-level practitioners to prescribe controlled substances.

National data on discipline, or other disposition, for chemical impairment of APNs and other prescribing health care professionals is difficult to analyze due to the variability of state regulation of APNs and other health care professionals. A recent survey of state boards of nursing found that APNs experience a low incidence of discipline related to chemical impairment, exceeding scope of practice, unprofessional conduct, and safety or abuse of patients.[29]

In Florida, a prescribing practitioner who engages in inappropriate prescribing may be subject to discipline by the appropriate regulatory board. As an alternative to discipline a prescribing practitioner involved with drug diversion/abuse may be referred to a program for impaired professionals. In such cases, the Florida Department of Health currently contracts with the Intervention Project for Nurses (IPN) for licensed nurses and the Professional Resource Network (PRN) for all other licensed professions. According to the department, there are approximately 2,700 participants enrolled in the programs for all types of impairment: 1,600 in the IPN and 1,100 in the PRN. As of September 2008, according to the department, approximately 0.4 percent of ARNPs are being actively monitored for all types of impairment, including chemical impairment, in the IPN.

Malpractice Liability/Financial Responsibility

Under s. 456.048, F.S., the Florida Board of Nursing requires all ARNPs to document at initial state certification and biennial renewal that the practitioner carries malpractice insurance of at least $100,000 per claim with a minimum annual aggregate of at least $300,000 from an insurer or holds an unexpired irrevocable letter of credit in the amount of

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[24] Source: Wolters Kluwer Health Source® Pharmaceutical Audit and PriceCheckPC. Also see, "Top 100 Prescription Drugs of 2006," by Ed Lamb, Pharmacy Times, May 2007 (Reported Data Source: IMS Health).
[25] Id.
[26] Id.
[27] See the testimony of the Director of the National Institute on Drug Abuse in the National Institutes of Health, U.S. Dep't H HS before a subcommittee of the U.S. House of Representatives at: <http://www.hhs.gov/asl/testify/t060726a.html > (Last visited on October 17, 2008).
[28] United States Department of Jrustice, Drug Enforcement Administration, Office of Diversion Control. See "Prescription Drug Monitoring Programs," at <http://www.deadiversion.usdoj.gov/faq/rx_monitor.htm> (Last visited on October 10, 2008).
[29] See Hudspeth, R. (April 2, 2007). "Survey of Advanced Practice Registered Nurses Disciplinary Action". *Online Journal of Issues in Nursing*. Vol. 12, No. 2.

$100,000 per claim with a minimum of $300,000 in the aggregate, with some exceptions. As a condition of hospital privileges, ARNPs may be required by facilities to carry more coverage.

Medical and osteopathic physicians must also maintain malpractice insurance/financial responsibility in the same amounts as ARNPs. However, physicians also have the option to go "bare" (uninsured) for medical malpractice liability on the condition that the physician gives notice of this fact to his or her patients by posting a sign prominently displayed in the reception area and clearly noticeable to all patients or by providing a written statement to any person to whom medical services are being provided.

Malpractice results when a health professional fails to exercise the appropriate degree of knowledge, training, and skill when treating a patient when compared to reasonably prudent health care professionals with the same level of knowledge, training, and skill. If ARNPs are granted authority to prescribe controlled substances, their exposure to malpractice claims may increase. To establish a malpractice claim against an ARNP or other provider, a plaintiff must establish duty (the presumption that a provider-patient relationship exists), breach (provider failed to meet a standard of care owed to patient), causation (facts that show that the actions of the ARNP or provider caused the plaintiff's injuries), and injury.

Currently, a supervising physician who consults or who actively provides care may be liable for writing a controlled substance prescription for an ARNP's patient. If ARNPs are authorized to prescribe controlled substances they would be independently responsible for any negligence that arises from their prescribing activities unless the supervising physician actively conducts an evaluation, treats the patient, or consults with the ARNP over the patient's care.[30]

National Overview of Prescribing of Controlled Substances by APNs

As of September 2008, all fifty states authorized APNs to prescribe drugs. Forty-seven states authorized APNs to prescribe controlled substances. The states that did not authorize APNs to prescribe controlled substances were Alabama, Florida, and Hawaii. However, rules are being adopted in Hawaii to give APNs the authority to prescribe controlled substances. It is anticipated that those rules will become effective by the end of 2008 or early in 2009. Although almost all states authorize APNs to prescribe controlled substances, there are wide variations among the states with regard to the conditions that are placed on the granting of authority to prescribe and the limitations placed on the prescribing of controlled substances by APNs.

Limitations on Which Drugs May Be Prescribed

Of the 47 states that authorize APNs to prescribe controlled substances, 39 authorize the prescribing of controlled substances in Schedules II – V, and 8 states authorize the prescribing of controlled substances in Schedules III – V only. However, many states place further limitations on the drugs that APNs may prescribe. These limitations may be set in one or more of the following ways: establishing the limitations within the terms of agreements between APNs and their supervising/collaborating physicians or dentists; requiring the APN to prescribe within established formularies; requiring the drugs prescribed to be within the APN's and collaborating physician's scope of practice; or prohibiting the prescribing of specific drugs by law.

At least half of the states, including Florida, require APNs to prescribe under protocols, standardized procedures, or written agreements with physicians or dentists. These protocols, procedures, or agreements are developed between the APN and the physician or dentist, and specify the drugs that may be prescribed and the conditions under which they may be prescribed.

Ten states restrict the drugs that may be prescribed by APNs through the use of a state-developed formulary. The formulary may specify the drugs that an APN may *not* prescribe (exclusionary formulary) or may specify the drugs that an APN may prescribe (inclusionary formulary). In six of the states with formularies, the formulary is developed by an interdisciplinary team. Practice protocols may impose restrictions beyond those contained in the formulary.

[30] See *Siegel v. Husak*, 943 So.2d 209 (3rd DCA) 2006.

At least 21 states require APN prescribing to be within the APN's scope of practice and/or within the scope of practice of the collaborating physician. If an APN's scope of practice is narrow, the range of drugs that could be prescribed would be narrow. A few states prohibit APNs from prescribing specified drugs, such as drugs intended to cause either a miscarriage or fetal death, controlled substances for the purpose of weight reduction or to control obesity, controlled substances for the treatment of chronic or intractable pain, or anabolic steroids for the purpose of human muscle building or enhancing human athletic performance.

Limitations on Which APNs May Prescribe Controlled Substances

Every state does not authorize every category of APN (nurse practitioner, nurse midwife, nurse anesthetist, and clinical nurse specialist) to prescribe controlled substances. Twenty-one of the 47 states that authorize APNs to prescribe controlled substances authorize all four APN categories to prescribe controlled substances. All 47 states that authorize APNs to prescribe controlled substances authorize nurse practitioners to prescribe controlled substances. Forty-six states authorize nurse midwives to prescribe controlled substances. Thirty-four states authorize one or more clinical nurse specialist categories to prescribe controlled substances. Twenty-eight states authorize nurse anesthetists to prescribe controlled substances, but often limit prescribing by nurse anesthetists to their scope of practice.

Limitations on the Settings in Which or Patients for Whom APNs May Prescribe Controlled Substances

A few states authorize APNs to prescribe within certain sites or to certain patient groups. In Arizona, certified registered nurse anesthetists may prescribe drugs to be administered by a licensed, certified, or registered health care provider pre-operatively, post-operatively, or as part of a procedure performed in a health care facility, the office of a health care provider, or in an ambulance. Certified registered nurse anesthetists in Washington may select, order, or administer controlled substances that are to be directly administered to patients who require anesthesia for diagnostic, operative, obstetrical, or therapeutic procedures in a hospital, clinic, ambulatory surgical facility, or the office of certain practitioners. In California, a Certified Nurse Midwife may prescribe Schedule II drugs only in the hospital setting and Schedules III – V controlled substances in hospitals, birth centers, home health agencies, physician's offices, clinics, or public or community health services. To use prescriptive authority in Texas, an APN must practice in a qualifying site. Qualifying sites include: sites that serve medically underserved populations; physician primary practice sites; physician alternate practice sites; and facility-based practices in hospitals or long-term-care facilities.

Ohio authorizes an APN to prescribe Schedule II controlled substances only for a patient with a terminal condition, if the nurse's collaborating physician initially prescribed the substance, and only in an amount that does not exceed the amount necessary for the patient's use in a single, 24-hour period. Texas prohibits APNs from prescribing controlled substances to a child less than 2 years of age without physician consultation.

Educational Requirements for Prescriptive Authority

Forty states, including Florida, require national certification for initial licensure of all APNs. Two additional states require national certification for some categories of APNs. Forty-four states have specific statutory/regulatory requirements for education in pharmacology. In some states the educational requirements are linked to the authorization to prescribe controlled substances, but in other states the pharmacology education requirements are linked to the practice of advanced nursing generally. In some states the educational requirements for national certification would meet the statutory/regulatory requirements for education in pharmacology, but in other states the statutory/regulatory requirements are in addition to what is required for national certification. Twenty-eight states have specific pharmacology continuing education requirements for licensure renewal or renewal of prescriptive authority.

Collaboration/Supervision Requirements

The degree of oversight by a physician or dentist that is required for an APN to obtain and exercise authority to prescribe controlled substances varies considerably among the states. Ten states do not require a formal collaborative or supervisory relationship between a physician/dentist and an APN for purposes of the APN prescribing controlled substances. In some of these states, however, the APN is required to have a plan for consultation and referral.

Thirty-seven states require a collaborative or supervisory relationship between a physician/dentist and an APN for purposes of the APN prescribing controlled substances. These states require written collaborative practice agreements,

standardized procedures, protocols, or guidelines that define the scope of the prescriptive authority for controlled substances. The level of involvement of the physician/dentist in the APN's prescribing varies among the states.

In California, prescriptive authority for certified nurse midwives and nurse practitioners is contingent upon completion of at least 520 hours of physician supervised experience in the furnishing or ordering of drugs. In Maine, a certified nurse practitioner who qualifies as an advanced practice registered nurse must practice for at least 24 months under the supervision of a licensed physician or be employed by a facility that has a medical director who is a licensed physician before being able to practice independently.

Washington State's Experience

A 2007 study of APNs' response to Washington State's changes in APN authority to prescribe controlled substances indicates that not all APNs will take advantage of expanded authority to prescribe controlled substances.[31] Some APNs in Washington did not want to prescribe controlled substances, while others were comfortable with their existing approaches to providing controlled substances to their patients through physician colleagues.

Conclusions

ARNPs are skilled nursing professionals with advanced clinical training that prepares them to provide primary care services. Giving ARNPs the authority to prescribe controlled substances will enhance the ability of ARNPs to manage their patients' care and reduce delays and costs for patients in obtaining needed medications.

Advanced practice nurses do not appear to be any more susceptible to diversion or inappropriate prescribing than any other prescribing practitioners. If ARNPs may independently prescribe controlled substances for their patients rather than rely on a consultation with a prescribing physician or dentist, any malpractice exposure will be the responsibility of the ARNP.

Although, there are still ARNPs currently in practice who were educated through programs that granted a certificate, today the minimum requirement to practice requires the attainment of a masters degree or higher to obtain certification in the specialty area of practice. The current certification requirements appear to sufficiently protect the public to give qualified ARNPs the authority to prescribe controlled substances.

Options and Recommendations

Senate professional staff recommends that the Legislature consider extending authority to Florida-licensed ARNPs who have attained certification in a nursing specialty from a nationally recognized certifying entity to prescribe controlled substances under protocols and within the scope of practice for their specialty.

This project was limited to ARNPs, but if authority to prescribe controlled substances is extended to ARNPs, the Legislature may be asked to extend this authority to other "mid-level practitioners" who have prescriptive authority, such as physician assistants.

[31] See Kaplan, Louise and Brown, Marie-Annette "The Transition of Nurse Practitioners to Changes in Prescriptive Authority," Journal of Nursing Scholarship, 2007; 39:2, 184-190.