

NACNPEP

National Advisory Council on Nurse Education and Practice

Addressing New Challenges Facing Nursing Education:

Solutions for a Transforming Healthcare Environment

Eighth Annual Report

To the Secretary of the U.S. Department of Health and Human Services
and the U.S. Congress

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The National Advisory Council on Nurse Education and Practice (NACNEP) advises the Secretary of the U.S. Department of Health and Human Services and the U.S. Congress on policy issues related to programs authorized by Title VIII of the U.S. Public Health Service Act and administered by the Health Resources and Services Administration (HRSA), Bureau of Health Professions (BHP), Division of Nursing (DN), including nurse workforce supply, education, and practice improvement.

Charter of National Advisory Council on Nurse Education and Practice

Purpose

The Secretary and, by delegation, the Administrator of the Health Resources and Services Administration (HRSA), are charged under Title VIII of the Public Health Service Act, as amended, with responsibility for a wide range of activities in support of nursing education and practice which include: enhancement of the composition of the nursing workforce, improvement of the distribution and utilization of nurses to meet the health needs of the Nation, expansion of the knowledge, skills, and capabilities of nurses to enhance the quality of nursing practice, development and dissemination of improved models of organization, financing and delivery of nursing services, and promotion of interdisciplinary approaches to the delivery of health services particularly in the context of public health and primary care.

Authority

42 United States Code (USC) 297t; Section 845 of the Public Health Service Act, as amended. The Council is governed by provisions of Public Law 92-463, which sets forth standards for the formation and use of advisory committees.

Function

The Advisory Council advises and makes recommendations to the Secretary and Congress on policy matters arising in the administration of Title VIII including the range of issues relating to the nurse workforce, nursing education, and nursing practice improvement. The Advisory Council may make specific recommendations to the Secretary and Congress regarding programs administered by the Division of Nursing particularly within the context of the enabling legislation and the Division's mission and strategic directions, as a means of enhancing the health of the public through the development of the nursing workforce.

Additionally, the Advisory Council provides advice to the Secretary and Congress in preparation of general regulations and with respect to policy matters arising in the administration of this title including the range of issues relating to nurse supply, education, and practice improvement.

Structure

The Advisory Council shall consist of the Secretary or delegate who shall be an ex officio member and shall serve as the Chairperson, and not less than twenty-one (21), nor more than twenty-three (23) members selected by the Secretary. Two of the appointed members shall be selected from full-time students representing various levels of education in schools of nursing; two shall be selected from the general public; two shall be selected from practicing professional nurses; and nine shall be selected from among the leading authorities in the various fields of nursing, higher, secondary education and associate degree schools of nursing, and from

representatives of advanced education nursing groups (such as nurse practitioners, nurse midwives, and nurse anesthetists), hospitals and other institutions and organizations which provide nursing services. The Secretary shall ensure a fair balance between the nursing profession, with a broad geographic representation of members, a balance between urban and rural members, and the adequate representation of minorities. The majority of members shall be nurses.

The Secretary shall appoint members to serve for overlapping 4-year terms. Members will be appointed based on their competence, interest, and knowledge of the mission of the nursing profession. Members appointed to fill vacancies occurring prior to the expiration of the term for which their predecessors were appointed shall be appointed only for the remainder of such terms. A student member may continue to serve the remainder of a 4-year term following completion of a nurse education program.

Subcommittees composed of members of the parent Advisory Council shall be established to perform specific functions within the Advisory Council's jurisdiction. The Department Committee Management Officer will be notified upon establishment of each of the subcommittees and will be provided information on its name, membership, function, and established frequency of meetings.

Management and support services shall be provided by the Division of Nursing, Bureau of Health Professions, Health Resources and Services Administration.

Meetings

Meetings shall be held at least two times a year at the call of the Designated Federal Officer or designee who shall approve the agenda and shall be present at all meetings. Meetings shall be held jointly with related entities established under this title where appropriate including the Council on Graduate Medical Education; Advisory Committee on Interdisciplinary, Community-Based Linkages; and the Advisory Committee on Training in Primary Care Medicine and Dentistry.

Not later than 14 days prior to the convening of a meeting, the Advisory Council shall prepare and make available an agenda of the matters to be considered by the Advisory Council at such meeting. At any such meeting, the Advisory Council shall distribute materials with respect to the issues to be addressed at the meeting. No later than 30 days after the adjournment of this meeting, the Advisory Council shall prepare and make available to the public a summary of the meeting and any actions taken by the Advisory Council based upon the meeting.

Meetings shall be open to the public except as determined otherwise by the Secretary or other official to whom the authority has been delegated in accordance with the Government in the Sunshine Act (5 USC 552b(c)). Notice of meetings shall be given to the public. Meetings shall be conducted, and records of the proceedings kept as required by applicable laws and Departmental regulations.

Compensation

Members who are not full-time Federal employees shall be compensated at a rate equal to the daily equivalent of the annual rate of basic pay prescribed for Level IV of the Executive Schedule under section 5315 of Title 5, United States Code, for each day (including travel time) during which such member is engaged in the performance of the duties of the Advisory Council. Members shall be allowed travel expenses, including per diem in lieu of subsistence, at rates authorized for employees of agencies under subchapter I of chapter 57 of Title 5, USC, while away from their homes or regular places of business in the performance of services for the Advisory Council. Any such travel shall be approved by a Federal Government official in accordance with Standard Government Travel Regulations.

Annual Cost Estimates

Estimated annual costs for operating the Advisory Council, including compensation and travel expenses for members but excluding staff support, is \$232,436. Estimate of staff-years of support required is 2.5 at an estimated annual cost of \$323,368.

Reports

The Advisory Council shall annually prepare and submit to the Secretary, the Committee on Health, Education, Labor, and Pensions of the Senate and the Committee on Energy and Commerce of the House of Representatives, a report describing the activities of the Advisory Council including its findings and recommendations.

In the event a portion of a meeting is closed to the public, a report shall be prepared which shall contain at a minimum a list of members and their business addresses, the Advisory Council's functions, dates and places of meetings, and a summary of Advisory Council activities and recommendations made during the fiscal year. A copy of the report shall be provided to the Department Committee Management Officer.

Termination Date

The duration of the National Advisory Council on Nurse Education and Practice is continuing. Unless renewed by appropriate action prior to its expiration, the National Advisory Council on Nurse Education and Practice will terminate on November 30, 2008.

**Addressing New Challenges
Facing Nursing Education:
Solutions for a Transforming
Healthcare Environment**

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Abstract

Nursing practice in the 21st century faces a number of challenges including a growing population of hospitalized patients who are older and more acutely ill, increasing healthcare costs, and the need to stay current with rapid advances in medical knowledge and technology. These challenges are complicated by an existing shortage of nurses, an aging nurse workforce, a shortage of nursing faculty members, and prospects of a worsening nurse shortage. In addition, new models of overall healthcare delivery are being developed that will impact the workforce and care delivery.

To address these challenges, employers will seek nurses who have knowledge, skills and attitudes that are aligned with the requirements of their practice environments, can work effectively in inter-professional teams across of variety of healthcare settings, and can provide traditional nursing services as well as other needed services such as case and practice leadership, case management, health promotion, and disease prevention.

To keep pace with the rapidly changing healthcare environment, nurse educators must continuously evaluate and revise education curricula, approaches, and programs used to educate new and practicing nurses. The National Advisory Council on Nurse Education and Practice (NACNEP) met in November 2007 and May 2008 to examine these challenges and develop recommendations for nursing education in the 21st century. The Council's review of the challenges and their recommendations are presented in this report.

Executive Summary

Nursing practice in the 21st century faces a number of challenges including a growing population of hospitalized patients who are older and more acutely ill, increasing healthcare costs, and the need to stay current with rapid advances in medical knowledge and technology. These challenges are complicated by an existing shortage of nurses, an aging nurse workforce, and prospects of a worsening nurse shortage. In addition, new models of overall healthcare delivery are being developed to address a range of challenges in healthcare and impact the structure of the workforce and care delivery.

According to the 2004 National Sample Survey of Registered Nurses (Health Resources and Services Administration, 2004), between 2000 and 2004, the number of registered nurses (RNs) in the United States grew by about 200,000, to 2.9 million. Yet the gap between nursing workforce supply and demand has widened dramatically over the past 15 years (National Advisory Council on Nurse Education and Practice, 2006). As medical advances increase longevity, and technological advances in patient care have led to increased demand for more medical procedures and providers who can perform them, the demand for knowledgeable healthcare practitioners continues to grow.

To address these challenges, employers will seek out nurses who have skills that are aligned with the requirements of their practice environments, can work effectively in inter-professional teams across a variety of healthcare settings, and can provide traditional nursing services as well as other needed services such as case and practice leadership, case management, health promotion, and disease prevention.

Nursing education must keep pace with practice innovations and other changes in the healthcare delivery system. Education has tended to adopt change incrementally while the practice environment is more nimble and therefore can more easily integrate change.

The medical knowledge base, currently doubling every 5 to 8 years, is reliably predicted to begin doubling every year; medical schools, healthcare institutions, practitioners, and students will all need to develop strategies for coping with the sheer volume of information, concepts, and skills (Distlehorst, Dunnington, & Folse, 2000). Technology will assist nurses in providing safer patient care environments but will also require them to manage greater amounts of information for their patients. The nurse of the future will require an expanded skill set that will include knowledge of the science and medical technology to function in and manage a highly complex patient-care environment.

As a critical component of the healthcare workforce, the nursing profession must keep pace with changes in the healthcare environment to ensure the continued delivery of high quality, safe, and effective patient care. To stay current, new nurses must be trained and equipped with the appropriate skills. In order for educators and policymakers to plan for the future, it is first necessary to assess requirements for the future workforce, based on expectations of the work environment. As a result of this assessment, the goal of nursing educators will be to develop educational approaches and curricula required for nurses to fill those roles. Policymakers can support these efforts by ensuring the needs of the healthcare environment are being met by providing adequate resources to supply the workforce needed to educate and train the nurse of the future.

Recommendations

To keep pace with the rapidly changing healthcare environment, nurse educators must continuously evaluate and revise education curricula, approaches, and programs used to educate new and practicing nurses. The National Advisory Council on Nurse Education and Practice (NACNEP) met in November 2007 and May 2008 to examine these challenges and develop recommendations for nursing education in the 21st century. The Council's review of the challenges and their recommendations are presented in this report.

1. The U.S. Congress, U.S. Department of Health and Human Services and U.S. Department of Education should work with U.S. nursing programs to support the goal of having all registered nurses prepared at the baccalaureate in nursing (BSN) or higher degree level to improve quality and safety in healthcare in the United States.

- Support the development and testing of innovative models to facilitate entry and progression to the BSN degree.
- Foster innovative linkages among universities, community colleges, and practice settings to strengthen bridge and articulation programs.
- Increase funding for graduate nursing education to prepare professionals to function in the faculty role.

2. The U.S. Congress, U.S. Department of Health and Human Services, Nursing Accreditation Bodies and U.S. nursing programs should increase the supply of nursing faculty to address the demands of the current and future nursing workforce.

- Foster academic and practice partnerships to address future workforce issues proactively in order to prevent future shortages. For instance, create joint faculty positions with colleges/schools of nursing and healthcare facilities, where the faculty serve in administrative roles within the facility.
- Support funding to providers for nurse residencies (post-licensure) to promote a seamless transition into practice (similar to physician residency programs) to improve nurse retention, ultimately increasing the nurse supply.
- Create test models with an emphasis on effective feedback loops between academic institutions and healthcare providers to inform curriculum needs and clinical practice advances to close the gap between practice and education for nurses and to improve safety and quality for patients.
- Increase the number of clinical instructors and support innovative joint appointments between schools and healthcare provider systems. Fund the gap costs of clinical instructors through grants and improved funding formulas for clinical instruction educators to address the nursing faculty shortage.

3. The U.S. Congress and U.S. Department of Health and Human Services should fund models and demonstration projects that integrate education of healthcare professionals that are interdisciplinary, inter-professional, and which incorporate the core competencies for nursing and healthcare in the 21st century.

4. The U.S. Congress and U.S. Department of Health and Human Services should increase access to education for faculty and students through the development and testing of innovative models which focus on mentorship to promote a sustained pipeline.

- Expand the use of technologies (e.g., simulation, distance learning, virtual worlds) to prepare faculty to teach effectively and efficiently and to prepare nurses for practice in complex healthcare delivery systems.
- Promote innovative practice models that provide learning opportunities that emphasize safe, coordinated, and affordable healthcare (e.g., publish Pathways to Nursing Practice – establish a baseline of programs and geographic distribution of all programs. Identify the nursing programs that support training or offer education in rural areas with integrated experiences in ambulatory, community, and inpatient environments).
- Advance inter-professional models of education that provide collaborative and consumer-centered care.
- Provide funding to support well-designed and effective, sustainable strategies to promote and retain racial and ethnic diversity in nursing education and practice.

1. Status of Nursing Education Today

1.1. Demand for RNs

1.1.1. Existing Shortage

The United States is faced with a paradox: while the supply of nurses continues to grow, the nursing shortage is worsening. According to the 2004 National Sample Survey of Registered Nurses (Health Resources and Services Administration, Bureau of Health Professions, 2004), between 2000 and 2004, the number of registered nurses (RNs) in the United States grew by about 200,000 to 2.9 million total. However, demand for nurses is growing faster than supply. Projections show the population of the United States will grow 18% between 2000 and 2020, resulting in an additional 50 million people who will require healthcare. In addition, the population of the U.S. is aging, resulting in higher demand for healthcare services per capita. The shortage of nurses is manifested at care delivery sites. Hospitals are being forced to curtail services despite increasing patient demand because of reported difficulties in filling nursing roles in critical care, emergency rooms, and operating rooms (Kendig, 2001). A 2007 survey by the American Hospital Association indicated that approximately 116,000 RNs are needed at U.S. hospitals to fill vacant positions across the nation with a national vacancy rate of 8.1% (American Hospital Association, 2007).

The imminent retirement of a generation of nurses is a major reason for projected declines in the nurse workforce. Even if nurses retire at older ages, there will be increasing shortages of RNs in the country without dramatic increases in the numbers of new RNs or huge reductions in the demand for their services (National Center for Health Workforce Analysis, 2006). Noting that 40% of working RNs will be over the age of 50 by 2010 and nearing retirement, Buerhaus (2008) suggests that if entry into nursing continues at the current rate, the demand for nurses will outstrip supply by 400,000 RNs in 2020; this nursing shortage could spike at 500,000 by 2025 as the demand for RNs is expected to grow by 2% to 3% each year (Buerhaus, Potter, Staiger, & Auerbach, 2008).

Nursing shortages have important effects on the health of the nation. Studies have demonstrated that higher rates of nurse staffing are associated with reductions in adverse patient outcomes (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Buerhaus, et al., 2007; Needleman & Buerhaus, 2003; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002).

The growing shortage of RNs seen in all parts of the country will limit the public's access to healthcare and optimal outcomes. Bednash (n.d.) noted that nursing school leaders, Federal and state legislators, healthcare administrators, and consumer advocacy groups are working together to find solutions to the nursing shortage to ensure that healthcare delivery is not compromised.

1.1.2. Demand Pressures: Changing Models of Care

Financial constraints, healthcare workforce shortages, and the changing needs of an aging population have prompted a national dialogue on the need for new healthcare models to meet the healthcare demands of the 21st century. New models of care have emerged in recent years that could lead to changes in healthcare delivery and the health professions workforce. The Medical

Home model, Health Care Home model, and Chronic Care model are examples. Because systematic changes under discussion could substantially impact the nurse workforce, Vlasses and Smeltzer (2007) suggest that the nurse profession be proactive both in creating these new models and defining their own roles within these systems of care.

The Medical Home is a model of care delivery that emphasizes an ongoing relationship between a provider and patient, promotes prevention, provides care for many health issues and serves as the point of first-contact for that care, coordinates care with other providers and community resources when necessary, integrates care across the health system, and provides care and health education in a culturally competent manner, demonstrating respect for the cultural and religious beliefs of the patient and patient's family (Association of American Medical Colleges, 2008). The Medical Home is composed of a large team of health professionals and would include prominent and potentially expanded roles for nurses. This could have significant impacts on nurse practice staffing arrangements and associated training requirements. For example, the Association of American Medical Colleges (AAMC) policy statement on medical homes (2008) states:

While non-physician providers (such as nurse practitioners and physician assistants) could provide a wide range of services in the medical home model, their numbers are currently insufficient to provide all appropriate preventive care and coordination of services. Many services may be provided by a well trained medical assistant, LVN/LPN, or RN working in conjunction with other health professionals with more advanced training. Health education and training should promote the delivery of health care by professionally diverse teams; this will require innovative models of interdisciplinary education and greater flexibility than current arrangements for financing graduate medical education allow (p. 4).

The Medical Home model has been advocated by the National Association of Pediatric Nurse Practitioners, which defines this model as making certain that each patient has a single provider of accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective healthcare that will improve clinical and functional benefits and provider and patient satisfaction (Kieckhefer, Greek, Joesch, Kim, & Baydar, 2005). These authors contend that it is not having a single physician that ensures high quality care, but having an identifiable and consistent source of care; they assert that there is not enough evidence to determine if the specific-named usual source of care needs to be a physician versus another type of provider (Kieckhefer, et al., 2005).

1.2. Needs of Employers

Employers need RNs who are well prepared to work when they are hired, willing to continue to learn, and ready to adapt their skills to the needs of the working environment. However, the healthcare industry increasingly recognizes that schools cannot fully prepare nurses on their own, and that vehicles are needed for employers to provide feedback to schools of nursing about the competence of their graduates (Janney, 2007). Growing attention is being paid to nurse training and preparation programs that simultaneously take into account and address the needs of new nurses as well as those of their prospective employers. For example, to facilitate working nurses' abilities to participate in continuing education programs, hospitals are increasingly teaming with universities to bring educational opportunities on site and offer online courses (Gottlieb, 2002).

"Many Americans are currently 'medically homeless.' The health care system is difficult for patients to navigate when they need care or advice. The system also financially rewards 'patchwork' care provided by physicians and other health professionals instead of encouraging continuity and care coordination. These problems are compounded by a lack of interoperable health information systems which make the most important information available to both patients and providers. The medical home, while not a cure all for the current fragmentation, offers a powerful potential alternative model which is likely to improve patient care satisfaction and outcomes."

(Association of American Medical Colleges, 2008, p. 2)

To examine potential issues between nurses and their employers, Yurdin (2007) conducted interviews with new nurse graduates, preceptors, managers, and educators; explored skills that the graduates possess and lack; and assessed what employers can do to bridge the gap and decrease turnover rates. Yurdin concluded that education must be synchronous with the needs of employers using strategies such as conducting assessments to determine the knowledge level of new nurses, using an application to deliver data to hospitals and educators, and creating a feedback loop between academia and employers so employers can indicate what specific skills graduates must possess and can provide feedback to schools on the competence of new graduates.

Noting discrepancies between the needs of nurses and employers, Janney (2007) suggested the following strategies for helping transition new nurses into the workforce:

- Undergraduate nursing education should prepare generalists;
- Reset baseline expectations for employers and new nurses (e.g., employers need to invest in new graduates through orientations, mentoring, and additional education while employees must acknowledge that learning will continue throughout their careers);
- Foster collaboration between schools of nursing and employers by partnering with colleges to provide clinical instructors, creating partnerships among faculty and hospitals to prepare specialists, and having nursing school faculty serving as consultants for research;
- Provide collaborative research;
- Provide residency-type orientation experiences for new graduates;
- Employ strategies to foster critical thinking and clinical decision making; and
- Provide interdisciplinary educational experiences, both to students and nurses in the workplace.

1.3. Status and Trends in Nursing Education

There are four different paths that students can pursue to obtain an RN. Students may complete a diploma program, Associate in Science of Nursing degree (ADN), Bachelor of Science in Nursing degree (BSN), or Master’s of Science in Nursing (MSN) degree. All of these programs provide students with the skills and knowledge necessary to pass the NCLEX-RN, the licensing exam all graduates must pass to become registered nurses. An associate program is less expensive, is designed to move students into the field more quickly, and may offer a more flexible schedule than 4-year degree programs. A baccalaureate program is a springboard for an advanced degree (e.g., nurse practitioner, certified nurse midwife), and offers more breadth and depth of study in nursing and liberal arts education. An accelerated program is a 12 – 21 month program for students who have already achieved a bachelor’s degree in another field. As discussed in Section 3.1, RNs with a diploma or associate’s degree often work in the field for a period of time, and then return to school to acquire a baccalaureate nursing degree to enhance their skills. Baccalaureate programs offer more advanced education in areas that support critical thinking, clinical reasoning, and analytical skills; prepare nurses for a broader scope of practice; further professional development; and facilitate understanding of complex issues affecting healthcare delivery. Alternate entry-level programs are outlined below.

Table 1: Entry-level RN Education

Type of Program	How It Is Offered	Description
Hospital Diploma	2- to 3-year program that is hospital-based.	Prepares nurses for direct patient care in numerous environments. Because these programs are often affiliated with community colleges, there are opportunities to take additional courses leading to the ADN.
Associate’s Degree (ADN)	2- to 3-year program offered at junior and community colleges (and sometimes at hospital nursing schools, colleges, and universities).	Prepares nurses for direct patient care in various settings, with opportunities to bridge into a BSN and/or Master’s program.
Bachelor of Nursing Science (BS/BN)	4-year program offered at universities and colleges.	Prepares nurses to practice in all healthcare settings. A BSN is required for entry into a Master’s program.
Accelerated Programs (Accelerated BSN, Accelerated MSN)	Accelerated BSN programs usually take at least 12 months to complete, though some programs may run up to 21 months. Accelerated MSN programs may be completed in 2 - 3 academic years.	Offered by many universities to nurses who already have a Bachelor’s or Master’s degree in a field other than nursing. Accelerated programs give students academic credit for having completed liberal arts or general study requirements, allowing them to complete the nursing portion of their coursework in fewer than 4 academic years.

In recent years, nursing education enrollment has increased in all regions of the nation. In 2007, the American Association of Colleges of Nursing conducted a survey on enrollment and graduations from U.S. baccalaureate and college degree nursing programs; it showed 7 consecutive years of enrollment gains and an increase of 7.4% from 2006 to 2007 in the number of graduates from entry level baccalaureate programs (American Association of Colleges of Nurses, 2007).

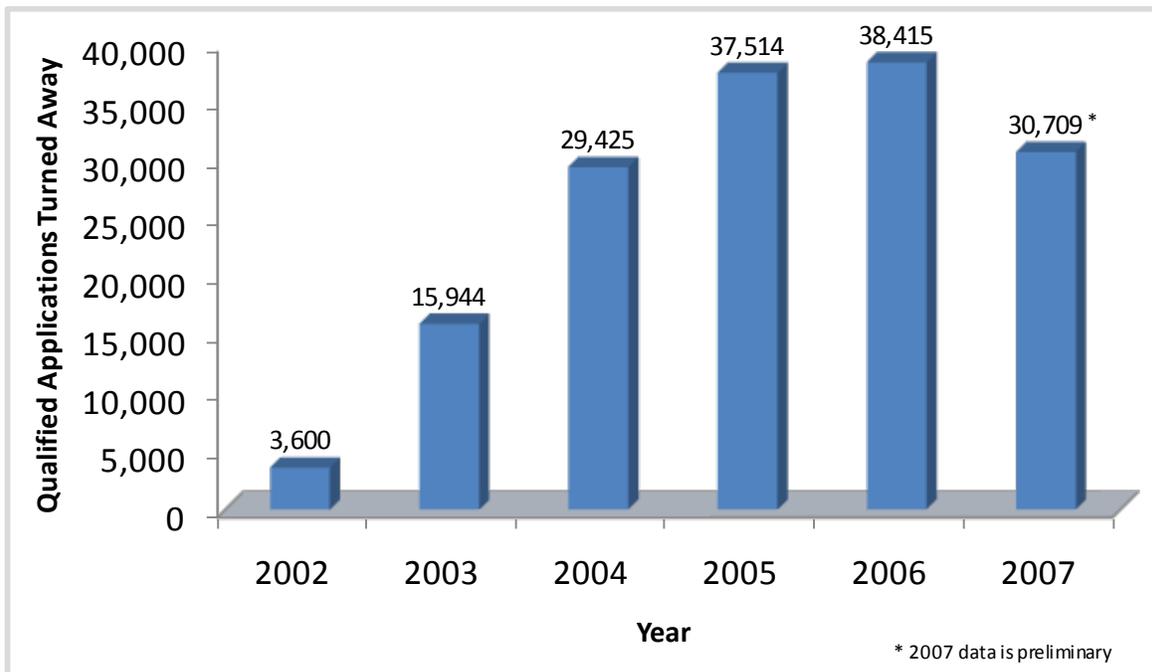
Demand for nurses, however, is growing faster than enrollment in schools of nursing. Replacing the large number of RNs who will soon retire will require a rapid expansion in output from both 2-year programs and baccalaureate programs, yet nurse education programs have been forced to turn away thousands of qualified applicants in recent years (Buerhaus, Staiger, & Auerbach, 2004). The report from the American Association of Colleges of Nursing on 2007-2008 Enrollment and Graduation from Baccalaureate and Graduate Programs in Nursing indicated that in 2007, nursing schools in the United States turned away over 30,000 qualified applications from entry-level baccalaureate programs because of insufficient numbers of faculty, clinical sites, classroom spaces, clinical preceptors, and budget constraints (American Association of Colleges of Nursing, 2007). A 2005 survey of 409 nursing schools reported 817 faculty vacancies because of budget constraints, aging of the faculty and resulting retirements, and job competition from clinical sites and the private sector's ability to pay higher salaries (American Association of Colleges of Nursing, 2006). The figure below sets out the number of qualified applications rejected from nursing schools due to capacity constraints. These capacity constraints result in a smaller number of nursing graduates (Yordy, 2006) at a time when the U.S. nursing workforce clearly needs an influx of additional labor.

“Given the nation’s diminishing supply of nurse faculty, it’s particularly disturbing to see that almost 3,000 qualified applicants were denied entry into graduate nursing programs [in 2004],’ said Dr. Bartels. ‘Efforts to address the faculty shortage will fail unless we can ensure that all qualified nursing students seeking graduate education can be accommodated.’”

(American Association of Colleges of Nursing, 2005)

Figure 1: Qualified Applications Turned Away

Qualified Applications Turned Away From Entry-Level Baccalaureate Nursing Programs: 2002 - 2007



Source: American Association of Colleges of Nursing Research and Data Center, 2002 – 2007
AACN is not responsible for reporting errors by respondent institutions.

Doctoral Programs

The Doctor of Nursing Practice Program (DNP) is the newest nursing educational program and has been the center of much discussion across the healthcare arena. Students in this doctoral program obtain training in research methods (statistics and analysis), history and philosophy of nursing science, and leadership skills. This background is designed to prepare nurse leaders who can implement systems redesign and evidence-based decision making in clinical, organizational, and educational settings. There has been some concern that the existing PhD programs were focused on scholarly research but did not adequately address the shortage of academic positions or prepare students for other scholarly activities, non-academic careers, or advanced professional practice (American Association of Colleges of Nursing, 2001).

“The movement to the DNP is grounded in the belief that patient safety and quality care can be enhanced by preparing APNs at the doctoral level. Nursing practice has changed, and the old requirements for what it takes to prepare expert clinicians are no longer sufficient.”

(Bednash & Rosseter, 2006, p.84)

While the PhD nursing program provides a research-focused degree that typically steers graduates towards positions in important academic leadership and research roles, the DNP emphasizes clinical practice leadership development for positions in direct clinical care delivery, translational and comparative effectiveness patient outcomes research, and facilitation of healthcare systems change and innovation. Bednash and Rosseter (2006) add that the DNP will prepare nurses for an expert level of practice consistent with the needs of the healthcare system and that the movement towards creating this degree is based on the desire to credential nurses at the level of education required to compete with other healthcare professionals.

According to Tucker and Edmondson (2003), there are a number of benefits associated with nurses who graduate with DNP degrees. The DNP provides for development of needed advanced competencies for increasingly complex clinical and leadership roles in global health, genetics, and biomedical advances. The DNP also helps insure a better match between program requirements and credits/time with the credential earned. It provides nurses with enhanced knowledge to improve practice, which leads to improved patient outcomes. The DNP also provides additional leadership skills to strengthen practice and healthcare delivery.

At present, less than 1% of nurses in the United States have a doctoral degree, despite the fact that doctoral nurses are highly desired as faculty members and by practice settings, research institutes, pharmaceutical manufacturers, and healthcare technology manufacturers (Bednash, 2008a). Furthermore, the average age of master’s and doctoral-prepared nurse faculty professors is 59; imminent retirement of these aging faculty members is likely to exacerbate the existing shortage of professors.

1.4. Role of Federal Programs

The states have primary responsibility for funding nursing education programs across the nation and many private education programs are largely supported by students through tuition. However, the Federal government has played a crucial role in expanding health professional education and targeting resources and personnel for communities in need of healthcare services.

Title VII and Title VIII of the Public Health Services Act were designed with objectives such as increasing the number of providers working in the public health sector, improving the diversity of the public health workforce, and improving the distribution of healthcare providers, particularly in medically underserved areas. Title VII of the Public Health Services Act, enacted in 1963, and Title VIII, enacted in 1964, were created in response to a shortage of healthcare providers. Title VIII programs focus on training advanced practice nurses, increasing the number of minority and disadvantaged students enrolling in nursing programs, and improving nurse retention through career development and improved patient care systems. In 1998, Title VIII was amended to authorize student loan repayment and scholarships programs to fund education and training for public health nurses, registered nurses, nurse midwives, and other nurse specialties (American Public Health Association, 2008).

“[Funding for the Nursing Education Loan Repayment and Scholarship Program] will enable hundreds of new nurses to enter the profession, allow practicing nurses to advance their education, and help to replenish the shrinking pool of nurse educators... Significantly more federal funding is needed to develop the nursing workforce and address the projected shortfall of 800,000 registered nurses by the year 2020,’ [said] Dr. Long. ‘Given the dire need for educators to prepare nurses at all levels, legislators must make funding graduate level nursing education a top priority.’”

(American Association of Colleges of Nursing, 2004)

In a presentation to the Senate Committee on Health, Education, Labor, and Pensions, Brand (2008) noted the Federal government’s long history of involvement in health professions education; efforts have been focused on investments in projects that could be self-sustaining in the long-term, including grants for developing clinical training sites where health professionals learn to serve vulnerable populations, grants for developing community-oriented primary care curricula, and grants to schools to make loans to health professions students.

HRSA’s Nursing Workforce Development programs encourage commitments from nurses and nursing students to practice in areas with workforce shortages. These programs facilitate flexibility in meeting local and regional nursing needs by enhancing career ladder programs, supporting internships and residency programs to facilitate the transition from student to graduate, and offering retention initiatives to keep experienced nurses in the workforce. As the largest source of Federal funding for nursing education, the Nursing Workforce Development programs provided loan, scholarship, and programmatic support to more than 61,000 student nurses and nurses in FY 2007.

For example, the Nurse Scholarship Program offers scholarships to individuals attending accredited schools of nursing in exchange for a service commitment payback of at least 2 years in healthcare facilities with a critical shortage of nurses. This program reduces the financial barrier to nursing education and increases the pipeline supply of nurses. The Nursing Education Loan Repayment Program is a financial incentive program under which RNs commit to working full time in a healthcare facility with a critical shortage of nurses in return for repayment of their qualifying nurse educational loans.

Table 2: Nursing Workforce Development

<p>Nurse Education, Practice, and Retention Program</p>	<p>Awards funding and enters into contracts with eligible entities for projects that focus on education, practice, and retention. Goals include expanding enrollment in baccalaureate nursing programs, creating internships and residency programs, establishing or expanding nursing practice arrangements, providing care for underserved populations and other high risk groups, promoting advancement for nursing personnel through career ladder programs, and improving the retention of nurses and enhancing patient care related to nursing activities. This program helps to enhance the educational mix and utilization of the nursing workforce by supporting innovative approaches to shape the nursing workforce. Funding under this program facilitates flexibility in meeting local and regional nursing needs.</p>
<p>Nursing Workforce Diversity Program</p>	<p>Awards grants and enters into contracts with eligible entities to meet costs of projects to increase nursing education opportunities for individuals from disadvantaged backgrounds by providing student scholarships or stipends, pre-entry preparation, and retention activities. This program has enhanced retention and graduation rates of minority and disadvantaged students through counseling, tutoring, and mentoring services that assist students in enrolling and completing nursing education programs.</p>
<p>Nurse Faculty Loan Program</p>	<p>Increases the number of nursing faculty by supporting the development of a student loan fund in schools of nursing to increase the number of qualified nursing faculty members. The Department of Health and Human Services (DHHS) enters into an agreement with schools of nursing to establish and operate revolving student loan funds. Students receive loans up to \$30,000 per year for a maximum of 5 years. This program has a cancellation provision for up to 85% of loans for recipients working full-time as nursing faculty members for 4 years. This encourages nurses to choose an academic career, which is important in an environment with low levels of nurse faculty leading to reduced educational capacity, resulting in students being turned away from nursing schools.</p>
<p>Comprehensive Geriatric Education Program</p>	<p>Prepares nursing personnel to care for the aging population by providing grants to develop and implement initiatives to train and educate individuals providing care for the elderly. Specific uses of the grant funding include curricula development and dissemination, training for faculty members in geriatrics, and continuing education for individuals providing geriatric care. This program helps prepare nurse aides, licensed practical nurses, registered nurses, and faculty with expertise in care of the elderly.</p>

Source: Brand (2008)

Many health professions education programs have other sources of Federal funding such as the Department of Education. For example, the Federal Pell Grant Program provides need-based grants to low-income undergraduate students. The Department of Education also operates the Federal Family Education Loan program and the William D. Ford Federal Direct Loan program for individuals in graduate and undergraduate programs. Students can use these grants and loans for nursing baccalaureate programs and other health professions programs (Brand, 2008).

2. Challenges Facing Nursing Education in the 21st Century

2.1. *Aligning Education with the Practice Environment*

As a critical component of the healthcare industry, the nursing profession must keep pace with changes in the healthcare system to insure the continued delivery of high quality, safe, and effective patient-centered care. To stay current, new nurses must be educated and equipped with relevant and appropriate competencies, knowledge, skills, and attitudes. In order to plan for the future, it is first necessary to assess requirements for the workforce, based on expectations of the work environment, and develop the education required for nurses to fill those roles.

The healthcare system in the United States is becoming increasingly complex; the nurse of the future will face a highly challenging healthcare delivery environment. Research indicates the shortage of professional nurses will continue to grow as the patient population ages and places increasing demands on the healthcare system (American Organization of Nurse Executives, 2008). Financial pressures will drive organizations to increase efficiency (National Advisory Council on Nurse Education and Practice, 2006).

Use of healthcare information technology (IT) is expected to continue to grow significantly. The medical knowledge base is currently doubling every 5 to 8 years and that rate of growth is expected to increase. Medical schools, institutions, practitioners, and students will all need to develop strategies for coping with the sheer volume of new information, concepts, and skills (Distlehorst, Dunnington, & Folse, 2000). Technology will assist nurses in providing safer patient care environments but will also require them to monitor, synthesize, and manage greater amounts of information for the patients entrusted to their care. The demanding role of the nurse of the future will require that an RN possess an expanded knowledge base and mastery of competencies that will allow this individual to manage a highly complex patient care journey in collaboration and partnership with an interdisciplinary team (American Organization of Nurse Executives, 2008).

“Healthcare is facing dramatic changes. An aging population, growing diversity, the global health care system, bio-medical advances, and new areas of knowledge (i.e. genetics, environmental health) will reshape how we provide care in the future. To address these changes, nurses will require more knowledge than ever before. For instance, non-intensive care units of a hospital now require nurses with higher acuity levels than in ICUs 10 years ago.”

(Bednash, 2008b)

In a recent hospital-based case study, research indicated that new graduates felt that they possessed the necessary knowledge to perform well. However, preceptors and management reported that while graduates have knowledge of the essentials of practice, they lack specific skills such as how to insert an intravenous line, chart patient information, use healthcare IT, and perform other tasks and interventions they could have practiced in school or during clinical training (Yurdin, 2007). Additionally, preceptors are expected to facilitate the transition from education into practice while maintaining a full patient assignment and without receiving additional compensation as trainers. This paradoxical role for preceptors can result in two negative outcomes: either the new graduate doesn't receive additional support in important nursing duties, resulting in a continued lack of specific skills the new graduate will need to perform well in the workplace; or the needs of the patients of both the new graduate and their preceptor are inadequately met.

The American Health Care Association (AHCA) represents nursing home and assisted living facilities. In 2004, AHCA conducted surveys to assess nurse workforce challenges and evaluate skills deficiencies, their impact, and factors related to turnover. Based on the surveys' feedback, AHCA identified key skills and abilities required by nurses. These include:

- Care coordination/teamwork between paraprofessionals and other clinicians;
- Patient-centered care orientation;
- Data management and analysis;
- Caring for the chronically ill and disabled (advanced clinical topics); and
- Cultural and religious considerations in providing and coordinating care.

Specific issues that AHCA identified relating to nursing training include:

- Long-term care providers do not believe that undergraduate nursing programs are preparing nurses for successful employment in long-term care;
- Both undergraduate and graduate nurses need skill sets identified and agreed upon by educators and practitioners; and
- More emphasis is needed on community-based nursing and the spectrum of care services available to patients (Fitzler, 2007).

To address gaps in leadership skills, AHCA developed the Radiating Excellence Project. The project focuses on subjects such as supervision, resource management, leadership, quality improvement, staff development, communications, and other topics important for nurses in leadership positions.

Studies such as that by AHCA demonstrate that the current and future requirements of employers and education must be brought closer into alignment. To facilitate reaching this goal, schools must improve communications with employers to identify the skills that their graduates will need. In turn, employers must provide clearer feedback to schools regarding better graduate preparation. Section 3 of this report explores options for addressing this challenge.

Consumers are also concerned about the competence of their healthcare providers. The public may be less concerned about the specifics of nursing education but still wants nurses who are knowledgeable, have strong communication and interpersonal skills, are able to share the decision-making process, and are attentive to patients' needs, delivering patient-centered care (Swanklin, 2008).

"The public has a right to expect registered nurses to demonstrate professional competence throughout their careers. ANA believes... that it is the nursing profession's responsibility to shape and guide any process for assuring nurse competence. Assurance of competence is the shared responsibility of the profession, individual nurses, professional organizations, credentialing and certification entities, regulatory agencies, employers, and other key stakeholders."

(American Nurses Association, 2008)

2.2. Faculty Development Challenges

Quality education depends on well-prepared faculty members. Faculty development and faculty vacancies are critical challenges in nursing education. As discussed in Section 1.1.1, the nursing shortage poses a significant threat to healthcare delivery in the future. Insufficient capacity in nursing schools is a major contributor to the shortage of nurses and the shortage of nursing faculty is a major cause of the capacity constraints (The Maryland Statewide Commission on the

Crisis in Nursing, 2005; Buerhaus, et al., 2004). In addition to increasing the number of faculty members, those educators need the training to enable them to incorporate evidence-based teaching practices more effectively and teach nursing students the skills that will be required in the 21st century's healthcare environment. Nursing schools require faculty who are experts in nursing education and who must possess the knowledge to serve in an advanced practice role. Furthermore, deans of schools of nursing are needed to complement these experts and act to create systems that value and reward expertise in nursing education.

In a study conducted by Smith, Cronenwett, and Sherwood (2007), the researchers found that 23% of schools reported they would like to include more educational content related to evidence-based practice and 38% wanted to provide more on quality improvement and informatics. According to another study, there were gaps in faculty members' knowledge, skills, and attitudes, particularly related to safety, informatics, and quality improvement, and in the teaching of those competencies (Cronenwett, et al., 2007).

Both now and in the future, nursing schools will require faculty who have the expertise to teach the content that students will need for effective patient care in practice environments. These faculty don't necessarily need to be experts in particular clinical areas but must have solid, foundations of understanding and be able to demonstrate good teaching skills. As evidenced by the persistent faculty shortage, this is a difficult issue to address. Among the major underlying causes contributing to the nursing faculty shortage are the aging of faculty, increasing demands to be involved in non-teaching university activities, and comparatively low salaries. Various approaches for addressing these challenges are discussed in Section 3 of this report.

2.3. Nursing as Part of an Integrated Healthcare Workforce

There is increasing evidence that inter-professional healthcare practice approaches can be effective in improving patient outcomes and reducing healthcare costs; however, there are a number of barriers to establishing effective integrated teams, including a lack of mutual understanding of roles and lack of interdisciplinary training among providers (Brashers, et al., 2001). To operate effectively as part of these teams, students need to be trained to provide inter-professional care and to participate as a member of inter-professional teams (Weekes, 2008).

"All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics."

(Institute of Medicine, 2003, p. 122)

3. Options for Addressing Challenges

As discussed in Section 2, there is a growing gap between education and the direction of practice for the 21st century. Education must keep pace with practice innovations and other changes in the healthcare delivery system. Education tends to adopt change incrementally while the practice environment is more nimble and therefore can more easily integrate change. This section discusses a number of options for addressing the growing gaps between these two environments.

3.1. BSN – Quality and Safety

3.1.1. Entry Options for Nursing: New Approaches and Old Quandaries

As outlined in Section 1, there are several different educational paths a student can take to become an RN. There is a lack of consensus, however, as to what educational background is needed for new practitioners entering the field. How, or whether, to appropriately recognize RNs with higher educational levels is an issue that has not been resolved. The same license, an RN, is bestowed to graduates of both baccalaureate and associate degrees (Buerhaus, 2008). Meanwhile, some argue that the master's degree is increasingly seen as the appropriate entry-level credential for a registered professional nurse (Bednash, 2008a).

There has been debate within the profession and among policymakers, educators, and employers as to whether the ADN entry provides an RN with the requisite background for the high-level problem-solving required of nurses, or if the baccalaureate nursing degree is a more appropriate entry point into the practice arena.

A growing body of research shows a connection between baccalaureate education and lower mortality rates. Tourangeau and colleagues (2007) studied 46,993 patients and found lower 30-day mortality rates in hospitals with higher proportions of baccalaureate degree-prepared nurses. The researchers found that a 10% increase in the proportion of nurses educated at this level was associated with nine fewer deaths for every 1,000 discharged patients. In a study of 168 Pennsylvania hospitals, Aiken, Clarke, Cheung, Sloane, and Silber (2003) found that increases in the proportion of RNs holding baccalaureate degrees were correlated with a decrease in mortality. In a study released in 2008, Aiken and colleagues confirmed the findings from the 2003 study and found that every 10% increase in the proportion of BSN nurses on the hospital staff was associated with a 4% decrease in the risk of death (Aiken, Clarke, Sloane, Lake, & Cheney, 2008). In a study examining the effect of nursing practice environments on outcomes of hospitalized cancer patients undergoing surgery, Friese and colleagues found that nurse staffing ratios and nursing education levels were significantly

“A significant number of changes [are] affecting health care delivery... namely, a shift from acute to chronic care, the need to integrate a continually expanding evidence base and technological innovations, more clinical practice occurring in teams, complex delivery arrangements, and changing patient clinician relationships. In response to the changes... the health care workforce needs adequate preparation. Responding to the changing needs of populations and making use of new knowledge requires that health professionals develop new skills and assume new roles. This requires educating, in both academic and the practice settings, health professionals differently.”

(Institute of Medicine, 2002)

associated with patient outcomes. Nurses with a baccalaureate-level education were linked with lower mortality and failure-to-rescue rates. The authors conclude that moving to a nurse workforce with a higher proportion of staff nurses prepared at the baccalaureate level or above would result in substantially fewer adverse outcomes for patients (Friese, Lake, Aiken, Silber, & Sochalski, 2008).

The American Organization of Nurse Executives (AONE), in collaboration with state and regional AONE chapter leaders, concluded that a BSN degree in nursing is the educational degree that best prepares nurses for the challenges going forward. NACNEP agrees: to improve quality and safety in U.S. healthcare, NACNEP supports the goal of having all registered nurses prepared at the BSN level or above. To facilitate this goal, policymakers should explore non-traditional approaches that allow students to earn a BSN. As Janney (2007) noted, many students do not pursue a BSN because they cannot afford it. ADNs are educated in the community without incurring the costs of a 4-year degree. We need to explore linkages between 2- and 4-year programs and the use of technology such as online courses that make education more accessible.

3.1.2. Implementation of Articulation Programs

Across the nation, articulation agreements between ADN programs at community colleges and BSN programs at 4-year institutions help students who are seeking baccalaureate-level nursing education. These agreements between the 2- and 4-year institutions establish which course credits transfer across schools and contribute to an integrated education route to the BSN. Accelerated baccalaureate and master's degrees in nursing programs for non-nursing graduates enable individuals with undergraduate degrees in other disciplines to build on prior learning experiences and to transition into the field of nursing.

Various articulation programs can transition ADN nurses into BSN programs. For example, the Oregon Education Consortium has worked to standardize nursing schools' admission requirements and curricula (Robert Wood Johnson Foundation, 2006). The fully articulated statewide agreement allows credits to be transferable across all institutions in the state. Under this new system, students take the same prerequisite courses to apply to all state nursing schools; these new admission standards apply to community college students in 2-year nursing programs, granting them automatic admission into the bachelor's degree programs at Oregon Health Sciences University (OHSU) 4-year nursing schools. The new curricula should better prepare RNs to meet healthcare needs and use emerging medical technologies (National Advisory Council on Nurse Education and Practice, 2006).

The U.S. Department of Education's Office of Vocational and Adult Education (OVAE) supports vocational and community college programs to enhance efforts to provide postsecondary education and support services that help adults become employed in occupational sectors which are important to local economies. The Adult Basic Education Career Connections project promotes a Career Pathway as a framework for assisting adult basic education students to transition successfully to postsecondary programs and begin careers in high-demand fields (U.S. Department of Education, Office of Vocational and Adult Education, 2008). A Career Pathway is an articulated sequence of academic and career courses, commencing in the ninth grade and leading to an associate degree, an industry-recognized certificate or licensure, and/or a baccalaureate degree. For instance, the Bluegrass Community and Technical College (BCTC) Adult Education Program in Lexington, Kentucky is establishing a Pre-Nurse Aide Program in

which valuable, reliable, non-healthcare employees of long term care facilities will be encouraged to become nurse aides. Through the program, current laundry, housekeeping, dietary, and floor technician staff at Loudon Long-Term Health Care facilities will benefit from articulation agreements and dual credit opportunities with the college and representatives from BCTC will offer college advising. Participants will be able to obtain the Nurse Aide certification as a step on the career pathway to becoming a nurse; participants in the project will be guaranteed employment as nurse aides upon passing the Nurse Aide Certificate test (U.S. Department of Education, Office of Vocational and Adult Education, 2008).

The postsecondary component of the Career Pathway provides students opportunities to earn college credit through avenues such as dual/concurrent enrollment or articulation agreements, and alignment and articulation with baccalaureate programs and employment, business, and entrepreneurial opportunities in chosen career clusters at multiple exit points (Stanley, 2007).

As indicated above, to improve quality and safety in U.S. healthcare, NACNEP supports the goal of having all registered nurses prepared at the BSN or higher degree level. To support this objective, policymakers should provide funding for innovative linkages among community colleges, universities, and practice settings to strengthen bridge/articulation programs.

3.2. Academic/Practice Partnerships

3.2.1. Partnerships

Section 2.2 discussed the current nurse faculty shortage. In one approach to address this issue, an employer provides clinical faculty to an educational institution and the school teaches these staff nurses how to be clinical faculty members. This type of academic practice partnership is gaining prominence in nursing education as a vehicle for bridging educational preparation and professional practice (Herrin, et al., 2006). For example, in Florida, a community college partnered with all the hospitals in the area. The school was represented within the hospitals and conversely, the hospitals were represented within the school. Employers underwrote the costs of faculty to run weekend and evening programs, in which 500 students participated. Collaboration between academic institutions of nursing and hospitals or clinical agencies is a means of solving critical problems facing educators and clinicians (Horns, et al., 2007).

"Some of our nurses also work as adjunct faculty at local nursing schools. We pay their salary 2 days a week to offset a college's costs of hiring additional faculty. It's a fabulous opportunity for our experienced nurses to share their clinical knowledge with students."

- Jan Hunter, director of work force planning and development at John Muir Medical Center in Walnut Creek, California.

(Childers, 2008)

Partnerships address complex healthcare issues such as the shortage of nurses and nurse educators, the need to foster employee competencies by building on the values and assets brought by the partners, and efforts made at striving towards mutually beneficial goals and shared accountability. Benefits of partnerships include shared space and clinical resources and a greater research presence in the hospital (Horns, et al., 2007).

Many different kinds of partnerships have been implemented across the nation to achieve the benefits of collaboration among different institutions. One example is a national program funded by the Robert Wood Johnson Foundation, called Partnerships for Training: Regional Education Systems for Nurse Practitioners, Certified Nurse-Midwives, and Physician Assistants. This

program developed eight regional education systems to increase the number of primary care providers in federally designated medically underserved areas. These regional university-community partnerships used distance education (e.g., Web- and interactive video-based courses) to educate nurse practitioners (Brand, 2008). Another example is the AACN/University HealthSystem Consortium Partnership: this collaborative effort provides a formal curriculum in a 1-year, post-baccalaureate experience with carefully defined learning and mentorship experiences built upon the AACN Essentials of Baccalaureate Nursing Education for Professional Nursing Practice (Bednash, 2008b)

The design of a partnership is influenced by factors such as desired outcomes and regional availability, according to Smith and Tonges (2004), suggesting, for example, that a hospital interested in conducting nursing research might benefit more from a partnership with a university than a community college. The authors describe the formation, maintenance, roles, and potential benefits of a research university/academic medical center arrangement between the University of North Carolina and the University of North Carolina Hospitals. A new model of an academic-practice partnership was implemented to facilitate rapid adoption of evidence-based practice in long term care, using steps of the Clinical Practice Improvement Process to link academic and practice settings (Schildwachter McConnell, Lekan, Hebert, & Leatherwood, 2007). An advanced practice geriatric nurse served in a liaison role between the long term care practice setting and a research-intensive school of nursing. The authors conclude that:

“Past Federal investment in the health professions programs has contributed to a foundation that state and local governments, academic institutions, and the private sector can build on to address current workforce issues. To maximize the impact of our past support of these programs, the Federal government must leverage cooperation from the private sector and state and local governments. We must address the health workforce issues with an innovative approach -- partnerships between the private sector, academic institutions, and the communities they serve will be critical to necessary workforce development.”

(Brand, 2008)

...academic-practice partnerships such as the one described in this case study provide the needed leadership, mentorship, and support in a collaborative process to translate and incorporate the best new evidence into practice and fosters a high level of professional engagement by nurses. Clinical rotations founded on such partnerships should provide a more effective environment for learning than settings of care where gaps between the evidence-base for practice and its implementation are not addressed systematically (p. 103).

NACNEP believes that academic-practice partnerships can be an effective means for helping to address workforce shortages and that policymakers should foster such partnerships.

3.2.2. Residencies / Internships

As discussed in Section 2.1, the transition from student to nurse is a difficult one. Newly graduated nurses must hit the ground running, and without the appropriate support, the stress of this transition can lead to a high turnover rate for new nurses within their first 2 years of employment (Smith, 2008). Since it has been noted that it takes at least 1 year to master the transition into practice for nurses (Tradewell, 1996), many new nurses leave their first employers

before they have had a chance to become comfortable in their new environment. Although healthcare organizations spend significant time and resources on nurse recruitment, orientation, and training, new nurse graduates account for more than half of the turnover rate in some hospitals, according to a study published in 2007 by Johns Hopkins University School of Nursing researchers. This turnover is attributed to the challenges that many graduates face in their first year of employment. Furthermore, many discover that disparities between the student and staff nurse roles create unexpected professional and personal struggles that are difficult to manage (Study finds intern program could reduce job turnover for new nurses, 2007).

With the national shortage of RNs, new graduates have increasingly been assigned to care for acutely ill patients with complex needs, yet specialty preparation has not been emphasized at the baccalaureate level (Goode & Williams, 2004). Hospitals must meet accreditation standards set by Joint Commission on the Accreditation of Healthcare Organizations, including making certain that healthcare providers possess the appropriate knowledge, skills, attitudes, and competencies needed in their critical areas. As noted in Section 2.1, a recent hospital study showed that while new graduates felt that they possessed the necessary knowledge to perform well, preceptors and management reported that those new graduates lacked specific skills such as how to insert an intravenous line, chart patient information, use clinical information systems, and perform other tasks and interventions they could have practiced in school or during clinical training (Yurdin, 2007).

An approach to addressing these issues is the use of nurse residency/intern programs, which prepare nursing students for practice in the working environment prior to their graduation from nursing programs. Butlin (2008) noted that the Commission on Collegiate Nursing Education (CCNE) has worked since 2004 to develop an accreditation process for post-baccalaureate nurse residency programs. In 2008, there were 40 University HealthSystem Consortium (UHC) residencies following the curriculum established by the UHC and AACN. CCNE established a task force to develop accreditation standards; these were approved in 2008 by the CCNE Board.

Organizations such as the American Hospital Association and the Joint Commission on Accreditation of Healthcare Organizations have called for the creation of residency programs in nursing, similar to those for physicians. In 2002, the AACN and the UHC sponsored a 1-year nurse residency program at six sites, with 15 additional sites established by 2004. Goode and Williams (2004) describe the residency pilot demonstration program as consisting of a series of learning and work experiences designed to provide the knowledge and skills needed by new graduates working in acute care settings. The purposes of the program were to transition advanced beginner nurses to competent professional nurses, develop the skills of new graduates in areas such as effective decision-making related to clinical judgments and performance, create supportive work environments, provide clinical leadership at the point of patient care, decrease patient care errors, strengthen the individual's commitment to nursing as a career choice,

“Marquette University College of Nursing runs a 1-year residency program for first-year nurses at 40 Wisconsin hospitals. Known as the Wisconsin Nurse Residency Program (WNRP), the initiative is intended to help first-year nurses better adjust to their new careers. The junior nurses are paired with veteran nurses who provide clinical coaching on the job; they also attend monthly 6-hour classes on critical issues and follow a professional development plan tailored to their needs. After 3 years, 87% of the nurses who completed the program continue to work at the same hospital, a figure that is well above national average retention rates for first-year nurses.”

(Agency for Healthcare Research and Quality, 2008)

formulate an individual development plan related to the nurse's new clinical role, incorporate research-based evidence into practice, and lower nursing staff turnover (Goode & Williams, 2004). The UHC and AACN have worked to have this program accredited (Goode & Williams, 2004).

Such programs help transition new graduates to becoming professional RNs, support them in providing competent and safe care, and increase job retention. Program components include guided clinical experience with a preceptor, orientation for new nurses working in specialty areas, and residencies in academic health centers. Goode and Williams (2004) state that "the research indicates that to address the needs of new graduate nurses, more attention needs to be paid to the development and implementation of a post-baccalaureate nurse residency program that is standardized across acute care institutions".

Because these programs are costly, employers providing financial, staffing, and physical resources are interested in seeing evidence of their cost and personnel benefits. To study the effectiveness of residency programs, the Robert Wood Johnson Foundation conducted an evaluation in 2005. Over the course of the nurse residency program, graduates expressed greater confidence, competence and job mastery, and an increase in their perceived ability to organize and prioritize. Graduates of the program remained in their jobs for 1 year at significantly higher rates than rates shown nationally for new nurses. In 2007, 93.5% of residents were still in their first employment position 1 year after graduation, as opposed to the 40 – 50% average turnover rate for new graduates (Bednash, 2008b). Residents had positive evaluations of the program in the areas of recruitment, welcome to the workplace, program goals, views of the program, and program faculty and curriculum. However, residents were less satisfied with their job by program's end than at the beginning, although this lessened at 6 months following their graduation (American Association of Colleges of Nursing and the University HealthSystem Consortium, 2005).

NACNEP believes that policymakers should support nurse residencies to help ensure an improved transition into practice. This will help to improve patient outcomes among nurses and improve nurse retention.

3.3. Inter-professional Education

As discussed in Section 2.3, there is increasing evidence that interdisciplinary and inter-professional healthcare practice approaches can be effective in improving patient outcomes and reducing healthcare costs. However, there are a number of barriers to establishing effective integrated teams, including a lack of mutual understanding of roles and a lack of interdisciplinary training among providers (Brashers, et al., 2001). Interdisciplinary education in healthcare and opportunities for nurses to learn alongside healthcare professionals from other disciplines offer students benefits from their shared learning; it also enhances inter-professional interaction leading to better understanding and collaboration in the workplace (Fealy, 2005). Fealy points to the effective and efficient utilization of human and material resources in shared learning environments. Models of interdisciplinary learning include didactic experiences with sharing of courses and modules, clinical practice involving learning experiences in interdisciplinary care delivery, and project-based student experiences incorporating these two elements. Challenges to collaboration in interdisciplinary education that must be addressed include traditional power differentials and hierarchical relationships (Fealy, 2005).

Case Study: Implementing a Nursing Residency

The RN residency program is proving to be a viable, long-term solution to bolster clinical confidence and competence among new RN professionals.

As part of its ongoing strategic planning, John Muir Medical Center in Walnut Creek, Calif., a 325-bed facility, examined its workforce, patient demographics, and anticipated growth. The result was a workforce development plan spanning a 7-year horizon.

John Muir determined that it had issues with nurse staffing—for first-year nurses, turnover was 24%; by 2 years it reached 35%—and was likely to see those workforce problems continue. The medical center called for a comprehensive strategy. As a first step, the hospital forged numerous partnerships with local nursing schools: it allocated funds for the schools to hire extra instructors and it shared lab space with students. In addition, some John Muir nurses held adjunct-faculty positions and worked collaboratively at the schools to keep the academic programs well-targeted and relevant for today's new nurses.

John Muir then adopted a comprehensive residency, starting with a cohort of 44 nurses. The hospital outsourced the residency program, customizing the residency as an 18-week combination of classroom instruction and hands-on clinical learning with a preceptor at the bedside.

The formal, structured nursing residency replaced the hospital's 8-week orientation program. John Muir found that the structure of the residency not only helped train its newly graduated nurses, it also led mentors and preceptors to adopt standardized, uniform practices that further improved patient outcomes.

After 3 years of training its graduate nurses through the residency, John Muir has achieved notable results, estimating that it is saving at least \$1 million annually. Turnover has shrunk to 6.6%, an achievement that has reduced the hospital's need for new nurses. At current rates, the hospital expects to need only six new nurses in 2012—even as it expands its facility by 100 beds.

(Krozek, 2008)

Another approach to interdisciplinary education is to include trainers from different healthcare professions on teaching teams. Team-taught classes integrating faculty and students from different disciplines are increasingly used to prepare healthcare professionals for the team-based work environment that characterizes many healthcare delivery systems (Dyer, 2003).

In an attempt to improve patient safety and reduce errors, Brigham and Women's Hospital has established an interdisciplinary committee of senior pharmacy and nursing leadership, nursing staff educators, and pharmacists to create a joint orientation program with nurses and pharmacists (Cina, et al., 2004). In addition to improving safety and efficacy in the medication use process, the authors noted that the program enhanced communication among the participating providers and increased awareness of the various roles played by the two disciplines in this process.

In the 2002 Health Professions Education summit, the Institute of Medicine planning group advocated that all healthcare professionals be educated to practice as members of interdisciplinary teams emphasizing evidence-based practice, quality improvement, and informatics (Institute of Medicine, 2003). Some benefits of this concept identified in the research literature include demonstration of competencies, good patient outcomes from effective nurse/physician communication, greater patient satisfaction and safety, and cost effectiveness of collaborative practice (Shaver, 2005; Sievers & Wolf, 2006). Shaver concludes that there is little visibility for sustainable collaborative practice models, stressing the need for adoption of interdisciplinary education and collaborative practice as a cultural value along with reconciling different worldviews and addressing power differentials.

Barriers to interdisciplinary team development that have been identified include the historical legacy of the different professions, differences across health professions in educational and socialization processes, gender inequality and role disparities, and changing and overlapping practice domains (Tillet, 2007). Pringle (2005) points to frustrated attempts to sustain interdisciplinary educational programs and the challenges to the nursing professional in particular, since most nursing schools are not located in universities where other healthcare professionals are trained, or are housed in universities that do not have a medical school or other health sciences. As nursing programs shift to university settings, the potential for shared learning increases.

NACNEP believes that policy makers should support interdisciplinary and inter-professional education. This can be achieved through development of interdisciplinary and inter-professional models and demonstration projects that integrate education of healthcare professionals to provide collaborative and consumer-centered care.

3.4. Develop and Test Innovative Program Models/Technology Models

3.4.1. Technology in Education

Information technology can facilitate the delivery of course materials, streamline course management, improve access by students and faculty, reduce costs, and improve learning outcomes (Bradley, 2003). A wide range of information technologies have applications in nursing education, including e-learning, simulations, blogs, and online scholarly and research

journals. Technologies such as clinical simulation and e-learning can help institutions leverage limited resources and thereby expand teaching capacity.

Clinical simulation is an IT tool that is growing in acceptance and adoption. A study in Virginia found that if 25% of clinical training was replaced with simulations, an additional 250 clinical training slots would be made available (Drenkard, 2008). E-learning and virtual technologies offer adjuncts to live clinical education, reducing barriers associated with limited experiences, limited clinical sites, and limited clinical faculty resources (Krautscheid & Burton, 2003). These technologies can help effectively leverage limited teaching resources like classroom space.

Use of these technologies is increasing but more research and information is needed to facilitate wider implementation. While there is limited research on best practices, an example of such research is the Quality and Safety Education for Nurses (QSEN) project. The goal of QSEN is to reshape professional identity formation in nursing so that it includes the commitment to the development and assessment of quality and safety competencies. The QSEN project is supported by expert faculty across the United States and an Advisory Board composed of leaders in organizations that set standards for nursing regulation, certification, and accreditation of nursing programs. The project is being implemented in two phases, the first of which concluded in March 2007 and focused on identifying the desired competencies; describing the knowledge, skills, and attitudes expected to be developed in the pre-licensure curricula; obtaining feedback and building consensus for inclusion of the competencies in pre-licensure curricula; developing teaching strategies for classroom, group work, simulation, clinical site teaching, and inter-professional learning; and creating a Web site with resources for faculty (Cronenwett, 2008). In the second phase, QSEN will partner with representatives of organizations that represent advanced practice nurses to draft proposed knowledge, skill, and attitude targets for graduate education. This phase also includes work with 15 pilot schools who commit to active engagement in curricular change to incorporate quality and safety competencies (Quality and Safety Education for Nurses, 2007).

Careful planning is required to ensure that technologies are implemented in a way that optimizes usability, access, and cost. To increase access to education for faculty and students, policy-makers should facilitate the development and testing of innovative technology for education such as simulation, distance learning, and virtual worlds. NACNEP believes policymakers should support increased use of healthcare technologies both to prepare faculty to teach effectively and efficiently and also to prepare nurses for practice in complex healthcare delivery systems.

3.4.2. Nursing Practice Models

Challenges in the healthcare environment are forcing healthcare organizations to examine new practice models to reduce costs while maintaining quality of care. To respond to the changes in the practice environment, organizations can alter their practice arrangements. Nursing practice models are innovative practice arrangements that differ from traditional models on one or more of the following structural dimensions:

- The degree to which the practice of individual nurses is differentiated according to education level or performance competencies;
- The degree to which nursing practice at the unit level is self-managed, rather than managed by traditional supervisors;

- The degree to which case management is employed; and
- The degree to which teams (either nursing or multidisciplinary) are employed. Many practice models contain more than one of these elements and also include elements of primary nursing (Weisman, 2007).

Other structural dimensions may be used, but overall, some practice models are intended to optimize costs, while others are intended to deal with staffing constraints. Policy makers should support evaluation and adoption of innovative models that are intended to address challenges facing the nurse practice environment. Such models should provide learning opportunities that emphasize safe, coordinated, and affordable healthcare.

4. Recommendations

To address the challenges, nursing practice will face in the 21st century will face, employers will need nurses who can deliver the highly complex care required across a variety of acute-care, primary-care, tertiary-care, and community health settings and who can provide other needed services such as case management, health promotion, and disease prevention.

To keep pace with the rapidly changing healthcare environment, nurse educators must continuously evaluate and revise education curricula, approaches, and programs used to educate new and practicing nurses. NACNEP's recommendations are presented below.

1. The U.S. Congress, U.S. Department of Health and Human Services and U.S. Department of Education should work with U.S. nursing programs to support the goal of having all registered nurses prepared at the baccalaureate in nursing (BSN) or higher degree level to improve quality and safety in healthcare in the United States.

- Support the development and testing of innovative models to facilitate entry and progression to the BSN degree.
- Foster innovative linkages among universities, community colleges, and practice settings to strengthen bridge and articulation programs.
- Increase funding for graduate nursing education to prepare professionals to function in the faculty role.

2. The U.S. Congress, U.S. Department of Health and Human Services, Nursing Accreditation Bodies and U.S. nursing programs should increase the supply of nursing faculty to address the demands of the current and future nursing workforce.

- Foster academic and practice partnerships to address future workforce issues proactively in order to prevent future shortages. For instance, create joint faculty positions with colleges/schools of nursing and healthcare facilities, where the faculty serve in administrative roles within the facility.
- Support funding to providers for nurse residencies (post-licensure) to promote a seamless transition into practice (similar to physician residency programs) to improve nurse retention, ultimately increasing the nurse supply.
- Create test models with an emphasis on effective feedback loops between academic institutions and healthcare providers to inform curriculum needs and clinical practice advances to close the gap between practice and education for nurses and to improve safety and quality for patients.
- Increase the number of clinical instructors and support innovative joint appointments between schools and healthcare provider systems. Fund the gap costs of clinical instructors through grants and improved funding formulas for clinical instruction educators to address the nursing faculty shortage.

3. The U.S. Congress and U.S. Department of Health and Human Services should fund models and demonstration projects that integrate education of healthcare professionals that are interdisciplinary, inter-professional, and which incorporate the core competencies for nursing and healthcare in the 21st century.

4. The U.S. Congress and U.S. Department of Health and Human Services should increase access to education for faculty and students through the development and testing of innovative models which focus on mentorship to promote a sustained pipeline.

- Expand the use of technologies (e.g., simulation, distance learning, virtual worlds) to prepare faculty to teach effectively and efficiently and to prepare nurses for practice in complex healthcare delivery systems.
- Promote innovative practice models that provide learning opportunities that emphasize safe, coordinated, and affordable healthcare (e.g., publish Pathways to Nursing Practice – establish a baseline of programs and geographic distribution of all programs. Identify the nursing programs that support training or offer education in rural areas with integrated experiences in ambulatory, community, and inpatient environments).
- Advance inter-professional models of education that provide collaborative and consumer-centered care.
- Provide funding to support well-designed and effective, sustainable strategies to promote and retain racial and ethnic diversity in nursing education and practice.

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