

National Advisory Council on
Nurse Education and Practice
(NACNEP)

Preparing Nurse
Faculty, and
Addressing the
Shortage of Nurse
Faculty and Clinical
Preceptors

17th Report to the Secretary of Health and
Human Services and the U.S. Congress

January 2021

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The views expressed in this document are solely those of the National Advisory Council on Nurse Education and Practice and do not necessarily represent the views of the U.S. Government.

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The National Advisory Council on Nurse Education and Practice

The Secretary of Health and Human Services (HHS) 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 including: 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

Authority is granted through section 851 of the Public Health Service Act, as amended (42 U.S.C. 297t). The Council is governed by provisions of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 1-16), which sets forth standards for the formation and use of advisory committees.

Function

The National Advisory Council on Nurse Education and Practice (NACNEP, or the 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 Council may make specific recommendations to the Secretary and Congress regarding programs administered by the Division of Nursing and Public Health, 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 nurse workforce.

Additionally, the 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.

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Executive Summary

America is in the midst of a crisis threatening the supply, education, and training of registered nurses (RNs) – a severe and long-standing shortage of nurse faculty and clinical preceptors. Efforts to increase the supply of nurse faculty have largely failed, while the number of clinical preceptors to supervise nursing students in patient care is inadequate to meet the current need. In the preparation of students to enter the nursing profession and oversee the health, well-being, and safety of patients under their care, both teaching roles are crucial.

At around 4 million strong, nursing is the largest of the health professions. America needs nurses, as RNs play critical roles across the health care system, and serve as first responders and crucial providers in emergent conditions such as the current COVID-19 pandemic. Nurses support and promote the health, function, and wellness of society. Nursing is consistently ranked as the most trusted profession, and nurses represent the face of the healthcare system.

The National Advisory Council on Nursing Education and Practice (NACNEP) has previously addressed the nurse faculty shortage. Its ninth report, published in 2010, identified several key factors affecting the supply of nurse faculty, including non-competitive salaries, high workloads, poor understanding and respect for the faculty role, and a lack of diversity in the nurse faculty workforce. The report’s recommendations spurred millions of dollars of investments from the Health Resources and Services Administration and other federal agencies, along with state governments and philanthropic organizations. However, the faculty shortage continues.

The 2010 report and recommendations were a necessary response, and they retain the support of the current NACNEP members. However, the past ten years have demonstrated these steps were insufficient to set a course correction to increase and improve the nurse faculty workforce, and they failed to address the shortage of clinical preceptors.

Recent surveys and workforce studies have shown an ongoing high rate of nurse faculty vacancies at schools of nursing. More ominously, they also point to an impending increase in faculty retirements, creating a significant “brain drain” that will exacerbate the current faculty shortage. Studies have also shown that a lack of full-time faculty has an adverse impact on the quality of nursing education.

Most faculty positions at schools of nursing require or prefer applicants with a doctoral degree in nursing, either the research-based PhD, or the practice-based Doctor of Nursing Practice (DNP). PhD-prepared nurses are the predominant human capital required for nursing faculty, however, both PhD and DNP programs often lack essential coursework in the science of nursing education, educational pedagogy, learning theory, or student assessment. Furthermore, the competencies needed for nurse faculty are in flux, as more education is shifting to distance-learning or other on-line formats, and sites of care are changing.

The clinical training of nursing students requires the availability of a clinical preceptor. Most preceptors are not faculty members, but rather are practicing RNs who provide a one-on-one relationship to help the student develop clinical skills and competencies, and acclimate to the

role of a professional RN. Preceptors would benefit from increased training to integrate their clinical and teaching roles.

HRSA has developed several programs that aim to increase the number and improve the training of nurse faculty and preceptors. In addition, a number of philanthropic organizations have invested in programs to improve nursing scholarship and increase the number of faculty. Still, these efforts have proven inadequate.

Another challenge is different guidelines and requirements among different state nursing boards for faculty and preceptors, which may complicate recruitment efforts and inhibit the mobility of nurse faculty. The COVID-19 pandemic has significantly limited the clinical learning opportunities of nursing students nationwide and thus has implications for ensuring an adequate supply of faculty and preceptors to prepare the next generation of nurses.

NACNEP believes that federal efforts alone will not be able to solve the looming crisis of the nurse faculty shortage and improve the development and training of both faculty and preceptors. There is a need to explore new programs and begin a coordinated public-private response to develop, support, and fund a wide range of initiatives to improve the status and nurse faculty and enhance nursing education and training.

Recommendations for the Secretary of HHS and Congress on the Nurse Faculty Shortage

1. The U.S. Congress, through the Department of Health and Human Services and the Department of Education, should allocate specific funding to programs that promote an increase in the number of nurse faculty and clinical preceptors, and that support nurse faculty development by incorporating academic coursework in nursing education theory and pedagogy within graduate nursing curricula to prepare nurses to assume teaching positions as either faculty or preceptors upon completion.
2. The U.S. Congress should provide funding for the Health Resources and Services Administration to develop a nurse faculty residency program that emphasizes strategies to improve faculty recruitment, preparation, development, and retention.
3. The U.S. Congress should allocate specific funding for the creation of a national center devoted to nursing education and the development of nurse faculty and clinical preceptors. NACNEP further recommends that the Health Resources and Services Administration lead the implementation of this center as a federal-private partnership, in coordination with professional nursing and non-federal philanthropic organizations. NACNEP envisions that this center would advance nursing education by:
 - Developing, supporting, and disseminating best practices in the academic preparation and continuing education needs of qualified nurse educators, nurse faculty, and clinical preceptors;
 - Engaging in data collection on nurse faculty, and housing a national repository of information on nurse faculty employment, distribution, and retention;

- Piloting innovative projects to support the development and promote the recruitment and retention a diverse nurse faculty and preceptor workforce;
- Working to improve the image of the nurse faculty role, and raising the visibility of and respect for the nurse faculty role as a rewarding career choice;
- Encouraging and coordinating the development of academic-practice partnerships to support nurse faculty employment and advancement;
- Promoting greater uniformity among state boards of nursing and credentialing bodies in nursing faculty and preceptor requirements, and faculty-to-student and preceptor-to-student ratios;
- Developing distance learning infrastructure for nursing education and advancing faculty competencies in the pedagogy of teaching and the evidence-based use of technology, simulation, and distance learning techniques.

Introduction

America is in the midst of a long-standing crisis threatening the supply, education, and training of registered nurses (RNs) – a severe shortage of nurse faculty and clinical preceptors. Too few nurses are available and willing to serve in these vital but under-appreciated roles, stifling the development of a well-prepared nursing workforce and hindering the preparation of the next generation of the nursing profession. Efforts to increase the supply of advanced degree nurses to serve as faculty have largely failed, while the number of properly prepared clinical preceptors to supervise nursing students in patient care is inadequate to meet the current need. These shortages place nursing education under significant stress.

America needs nurses. At around 4 million strong, nursing is the largest of the health professions. RNs play critical roles across the health care spectrum. They care for the sick and the injured in hospitals; they visit homes to provide care for those in need, from families with newborns to the seriously ill and the elderly under hospice; they teach those with chronic health conditions such as diabetes how to manage their own care. Meanwhile, advanced practice registered nurses (APRNs) provide primary care to patients across the country; assist with hospital and operative care, pain management, and anesthesia; and provide maternal and reproductive health care to women. Nurses are first responders and crucial providers in emergent conditions such as the current COVID-19 pandemic, and other public health crises and natural disasters. Nurses support and promote the health, function, and wellness of society.

America values nurses. The nurse is often the individual that a patient and family interacts with most during hospital or home care. Nurses practice at every level of health care, and in a variety of roles and settings – caregivers, care coordinators, scientists, policy-makers, and faculty to prepare the next generation of nurses. Nursing is consistently ranked as the most trusted profession (Carbajal, 2020; Saad, 2020). Nurses represent the face of the healthcare system.

America must prepare more nurses for the future. Nursing students require both the didactic education provided by *faculty* steeped in nursing science, educational theory, and scholarship, and the real-life experience gained in variety of clinical settings under the close supervision of an experienced and well-prepared *preceptor*. To prepare students to enter a practice profession overseeing the health, well-being, and safety of patients under their care, both teaching roles are crucial, and both are in critically short supply.

The National Advisory Council on Nurse Education and Practice (NACNEP, 2010) recognized this challenge 10 years ago, and the recommendations of its ninth report spurred millions of dollars of investments from the Health Resources and Services Administration (HRSA) and other federal agencies, along with state governments and philanthropic organizations, to address the key challenge to the faculty shortage – the financial burden nurses face when seeking doctoral education for preparation as faculty. However, the faculty shortage continues unabated, and threatens to intensify as current faculty reach retirement age and leave the profession. Furthermore, in its 16th Report, the Advisory Committee on Interdisciplinary, Community-Based Linkages (ACICBL, 2018) identified the problem of shortages of preceptors across several health care professions, including nursing, indicating a broadening interprofessional concern.

NACNEP believes that federal efforts alone will not be sufficient to solve this looming crisis. Thus, there is a need to explore new programs and begin a coordinated public-private response to develop, support, and fund a wide range of initiatives to expand the number and improve the status of nurse faculty and enhance nursing education and training.

The National Nurse Faculty Shortage – Background

Published in 2010, NACNEP’s ninth report focused on a looming challenge to the nation’s nursing workforce – lack of faculty to teach and prepare a sufficient number of nurses to meet the nation’s growing health care needs (NACNEP, 2010). At that time, there was a 6 percent deficit of RNs needed to meet the national demand, with projections of a rapidly intensifying shortage. Despite the need for more nurses, the American Association of Colleges of Nursing (AACN) reported that almost 50,000 qualified applicants were turned away from baccalaureate and graduate nursing programs in 2008 (AACN, 2009c), with nursing schools citing a lack of faculty as a major reason for turning these applicants away (Berlin et al, 2005). In its report, NACNEP identified several key factors underlying the inadequate supply of faculty, including:

- Faculty salaries not competitive with clinical salaries.
- High faculty workloads, leading to stress and burnout.
- Poor understanding of the faculty role and its contribution to the development of the next generation of nurses.
- Lack of diversity among the nurse faculty workforce.

The 2010 report described the average doctoral-prepared nurse faculty member as a female in her 50s, and noted that one in five faculty members had plans to retire within 3 to 5 years. Surveys at that time indicated an 11 percent annual attrition rate for nursing faculty (Fang 2009). NACNEP offered four broad recommendations to address the challenges:

NACNEP 9 th Report Recommendations	Examples of Response Efforts
Provide grants to support the infrastructure of nursing schools to include faculty development, mentorship programs, scholarships, and loan forgiveness	<ul style="list-style-type: none"> ❖ HRSA Faculty Loan Repayment Program ❖ HRSA Nurse Faculty Loan Repayment Program
Provide faculty fellowships for baccalaureate and master’s prepared nurses to fast track their doctoral education and assume faculty positions.	<ul style="list-style-type: none"> ❖ National Institute of Nursing Research pre/post-doctoral awards ❖ Philanthropic Support
Fund demonstration projects that support collaborative partnerships between academic institutions and clinical enterprises.	<ul style="list-style-type: none"> ❖ Not prioritized for funding
Develop a comprehensive national database to reflect faculty supply and demand in collaboration with private and public agencies.	<ul style="list-style-type: none"> ❖ Not prioritized for funding

The 2010 recommendations were a necessary response, and they retain the support of the current NACNEP members. However, the past ten years have demonstrated these recommendations were not sufficient in setting a course correction to increase and improve the nurse faculty workforce. In addition, the 2010 recommendations focused on academic faculty. However, there is now greater recognition of the need for both academic faculty and clinical preceptors to ensure the adequate preparation of student nurses in the clinical arena.

In this new report, NACNEP will review the response to its past recommendations, and examine how they have changed – or not changed – the landscape for nurse faculty. This report will discuss some of the persistent underlying causes of the faculty and preceptor shortage, examine past efforts from both government agencies and private philanthropic organizations to boost the numbers of nurse faculty, explore the differences between states in nurse educational role requirements, and recommend new steps to address the faculty and preceptor shortage, improve the education and training of nurses, and strengthen the nursing profession.

Almost one in three nurse faculty members active in 2015 will be set to retire by 2025.

Faculty Shortage Today

In the decade since the 2010 NACNEP report and recommendations, the nurse faculty shortage has not abated. Following this NACNEP report, the Institute of Medicine’s 2011 Future of Nursing report recommended a doubling of the number of nurses with a doctorate by 2020. In response, federal grant and student loan repayment programs, along with substantive philanthropic investments, provided grants and other funding streams with the intent to prepare more nurses at the doctoral level, who could serve as health care leaders and as nurse faculty. Still, the United States has fallen short in addressing its long-term nurse faculty shortage.

Moreover, one study indicated that 30% of nurse faculty active in 2015 would be set to retire by 2025. With faculty retirements growing at a faster rate than a decade ago (Fang, 2020; Fang and Kesten, 2017), a nurse faculty brain drain looms, further exacerbating the current shortage.

Brief Overview of Registered Nurse Entry Requirements

The profession of registered nurse (RN) has three main entry routes: diploma programs, associate degree programs, and baccalaureate programs. All three routes prepare students to take the NCLEX-RN exam, the entry-level requirement to become an RN. In the 2018 National Sample Survey of Registered Nurses, roughly 49 percent of new RNs earned an associate degree, 40 percent earned a baccalaureate degree, and 11 percent earned a diploma. However, among practicing nurses, roughly 64 percent had earned at least a baccalaureate degree or higher (NCHWA, 2019). A baccalaureate degree is required to pursue graduate education.

As a result, the average faculty vacancy rate of 9.75 percent for schools with budgeted vacancies will likely increase, and as will the number of schools reporting vacant full-time faculty positions, currently around 53 percent (AACN, 2019; Cary & Trautman, 2020). Of nursing schools reporting specific degree requirements for their faculty positions, 58 percent require an earned doctorate, and 32 percent require a master's degree but doctorate preferred. Two of the top barriers to successful recruitment of faculty are a limited pool of doctorally prepared applicants and noncompetitive faculty salaries (AACN, 2019)

Significant challenges to recruit and retain nurse faculty remain much the same as reported in 2010. Faculty salaries continue to be less than 75 percent of practice salaries, producing a significant wage gap between sites of employment. AACN reported the average salaries for academic nurse faculty range from \$57,454 for those with a master's to \$120,377 for those with a doctorate (AACN, 2020b). Meanwhile, the American Organization for Nursing Leadership (AONL) reported that advanced degree nurses employed in practice institutions earned significantly higher salaries: 99 percent with a master's degree earn more than \$100,000 and those with doctorates often earn more than \$200,000 per year (AONL, 2019). Noncompetitive salaries for faculty remain a daunting barrier for faculty employment and retention.

A 2012 survey of nurses pursuing a doctoral degree found that the most important factors affecting their decision to choose a faculty role after graduation were poor financial compensation in academic nursing, family financial responsibility, and negative perceptions of an academic nursing career. The investigators recommended preparing nursing students for doctoral education and academic careers early in their education and encouraging early exposure to nurse faculty careers (Fang and Bednash, 2014).

Preparation for the Faculty Role

From the 2018 National Sample Survey of Registered Nurses (NSSRN), from the National Center for Health Workforce Analysis (NCHWA), 1.9 percent of nurses have earned a doctorate (NCHWA, 2019). There are two main doctoral degrees in nursing: the academic and research-based **Doctor of Philosophy (PhD)**, which prepares students for careers in health administration, clinical research, and education; and the practice-based **Doctor of Nursing Practice (DNP)**, which is designed to prepare experts in specialized advanced nursing practice (AACN, n.d.). Nurses with PhD and DNP degrees are not interchangeable in terms of their research skills or preparation for faculty roles. PhD-prepared nurses and nurse scientists are the predominant human capital necessary to educate new nursing students.

However, most PhD and DNP programs do not include significant academic coursework to prepare graduates for a teaching or faculty role. Knowledge of basic education pedagogy for a faculty member can serve as an indicator of quality education outcomes, recruitment, and retention of faculty. However, in nursing doctoral programs, the inclusion of coursework on nursing education or the science of education and learning is inconsistent. A recent recommendation for preparing PhD nurse scientists for positions in practice includes an investment in academic-practice partnerships to offer adjunct or joint appointments to teach, advise, mentor and serve on dissertation committees (Polomano, Giordano, Miyamoto, Trautman, Kempf, & Nuzzo, 2020). After accepting employment for a faculty role, many

doctorally prepared nurses require additional training in educational pedagogy, teaching methods, evaluation, curriculum design, and clinical supervision of students.

The World Health Organization (WHO, 2016) published *Nurse Educators Core Competencies* to support faculty to facilitate students to acquire knowledge, skills, and attitudes for 21st century practices. The Global Alliance for Nursing Education and Sciences (GANES, 2019) specified the importance of preparation for the faculty role based on a global and

1.	Facilitate Learning
2.	Facilitate Learner Development and Socialization
3.	Use Assessment and Evaluation Strategies
4.	Participate in Curriculum Design and Evaluation of Program Outcomes
5.	Function as an Agent of Change
6.	Pursue Continuous Quality Improvement in the Nurse Educator Role
7.	Engage in Scholarship
8.	Function within the Educational Environment

(Halstead, 2019)

confirmatory methodology. Table 1 lists evidence-based competencies for faculty, as published by the National League for Nursing (NLN). [Note: See Appendix 1 for the full statement of NLN Core Competencies of Nurse Educators.] “The quality of the faculty is at the core of a successful nursing program,” based on published evidence provided by the National Council of State Boards of Nursing (NCSBN) in 2020 (Spector et al, 2020, p.40). As Booth et al (2016) indicate, the absence of integrating the two distinct disciplines of nursing and education results in nurses with clinical expertise who do not naturally develop teaching expertise or competencies specified by the NLN (2012).

With the lack of pedagogical content in graduate nursing curricula, **micro-credentials** are an emerging trend in higher education that can facilitate faculty preparation and development. Micro-credentialing is a non-traditional education path where students receive training or document competency in a specific area and receive a credential, as opposed to course credit. Micro-credentialing allows nursing faculty to document attainment of a new skill set that they can bring to the classroom or to clinical training, and to maintain a culture of life-long learning (AACN, 2016).

Full-Time Nurse Faculty and the Quality of Nursing Education

The presence of full-time faculty influences the quality of nursing education. A 2020 NCSBN mixed methods study of nursing education program performance found statistically significant differences associated with programs that maintained full nursing board approval and programs that lost approval. In schools with 80 percent or higher NCLEX-RN pass rates, having a program director with a PhD, along with minimal leadership turnover, were among the factors contributing to better educational outcomes, such as higher pass rates for students

In 2018, over 80,000 eligible nursing applicants were denied admission in undergraduate and graduate nursing programs, and in 2016 over 69,000 qualified applicants were denied admission into associate degree nursing programs, most often due to a shortage of faculty.

and full approval from the state nursing board. Furthermore, schools with more than 35 percent full-time faculty were more likely to achieve an 80 percent or better NCLEX-RN pass rate.

Qualitative findings illuminated the reasons for programs becoming “at risk” for failing or that failed to achieve state level approval: high faculty turnover; inability to recruit qualified faculty; faculty with little training in basic pedagogies; heavy faculty workloads; and limited professional development. A persistent theme contributing to lower quality in nursing programs was faculty with little training in the basic pedagogy of nursing education (Spector et al, 2020).

Halstead (2019) found that research in nursing education trails the degree of evidence being funded and generated in nursing practice. The role expectations for the nurse scientist do not appreciate the importance of the duality of their role as both teaching faculty and scientists/practitioners to skillfully teach students the emergent new knowledge being discovered and applied to nursing and health. As reflected in the NCSBN study, the persistent failure of faculty knowledge in pedagogy contributes to lower quality NCLEX-RN outcomes for graduates and places programs “at risk” for failing to earn full approval by its state board of nursing.

However, lacking sufficient numbers of full-time faculty, nursing schools have been forced to make adjustments to teach their students. There is a growing trend for the use of part-time and adjunct faculty. As the chart in Appendix 2 illustrates, there has been this rapid growth in the use of part-time faculty since 2010. Increased use of part-time faculty has added to the increased workload for full-time faculty, since they are responsible for curriculum development, program evaluation, accreditation status, and mentoring new and part-time faculty. These additional workload challenges add to the salary disparity between faculty and practice positions (AACN, 2020b; AONL, 2019; Aragon and Ellis, 2017; Owens, 2017).

The AACN annual survey conducted in Fall 2019 showed that significant increases in enrollment in academic nursing programs were in entry-level baccalaureate (5.1 percent), master’s (2.4 percent), and DNP (10.3 percent) programs. These degree levels have enjoyed more than 15 years of enrollment growth (AACN, 2020a). Still, over 80,000 eligible nursing applicants were denied admission in undergraduate and graduate nursing programs in 2018, (AACN, 2020a), while in 2016 over 69,000 qualified applicants were denied admission into associate degree nursing programs (NLN, 2018). Denials of qualified applicants to nursing programs are growing rapidly, and faculty shortages continue to be the central factor in the inability of nursing schools to accommodate all eligible applicants (AACN, 2020a; NLN, 2018).

Shortage of PhD Nurse Faculty

AACN reports that while the number of PhD graduates are flat or slightly declining DNP graduates are growing exponentially. There were 804 PhD graduates and 7,944 DNP graduates in 2019. For both terminal degrees the top two barriers for ensuring an adequate number of doctorally prepared faculty are faculty retirements and competition for jobs in other markets. For 2019, PhD nursing program enrollments declined by 2.4 percent. Overall, since 2013 PhD nursing program enrollments declined by 11.2 percent, or around 600 students, a statistically significant decrease (AACN, 2020a). Furthermore, roughly 20 percent of enrolled PhD students fail to graduate (Fang, 2020). When examining the employment intent of these two doctorates, 44.9 percent of PhD doctorates report a commitment to employment as faculty, compared to only 7.6 percent of DNP graduates.

Given regional accreditation requirements that faculty have a degree higher than the degree program in which they are teaching (with exception of terminal degree programs where the terminal degree of the faculty is the highest degree requirement), the supply of eligible faculty by degree to teach currently enrolled associate, baccalaureate, and master’s nursing students is less than 20 percent of the nursing population. As noted earlier, a conundrum exists in that only 1.9 percent of nurses hold a doctorate yet 58 percent of vacant positions for faculty require a doctorate. The inadequacy of current PhD enrollments to replace retiring PhD faculty indicates the need for immediate, specific, intentional, and metric-oriented stimuli to reverse this trend and to supply the next generation workforce of nurse faculty members (AACN, 2020c).

Transitions in Health Care and Education Require New Faculty Expertise

Health care has rapidly transformed into a technology-based industry, and faculty and graduates require applied technology experience. Health care delivery providers and faculty need skills in technology to advance quality and safety and to use data to anticipate and address emergent health care needs. Faculty are challenged to keep abreast of technology in the classroom and in clinical environments while the place of care is rapidly transitioning to HealthCare without Walls outside the hospital or acute care facility. Many faculty have not engaged in this practice with its clinical practice nuances yet are being asked to teach, supervise clinical and simulation, and integrate teaching technology experiences within and outside the traditional course settings. One example of teacher educator technology competencies is illustrated in Table 2 and is supported by the U.S. Department of Education with a list of competencies to be applied to teaching (Foulger, et al, 2017). [See Appendix 3 for full technology competency statements.]

When future faculty are prepared with technology to learn, model, and integrate hardware and software technology in their teaching they are more efficient and effective in engaged student learning and learning styles. The use of technology is optimized through an interprofessional team consisting of instructional designer, information technology personnel, and the faculty member. Consideration for the match of hardware requirements between faculty and students can optimize the design and learning experiences of teacher and learner.

Table 2: Teacher Educator Technology Competencies	
<p>The teacher educator will:</p> <ul style="list-style-type: none"> • Design instruction that utilizes content-specific technologies to enhance teaching and learning. • Incorporate pedagogical approaches that prepare teacher candidates to effectively use technology. • Support the development of the knowledge, skills, and attitudes of teacher candidates as related to teaching with technology in their content area. • Use online tools to enhance teaching and learning. • Use technology to differentiate instruction to meet diverse learning needs. • Use appropriate technology tools for assessment. • Use effective strategies for teaching online and/or blended/hybrid learning environments. • Use technology to connect globally with a variety of regions and cultures. • Address the legal, ethical, and socially responsible use of technology in education. • Engage in ongoing professional development and networking activities to improve the integration of technology in teaching. • Engage in leadership and advocacy for using technology. • Apply basic troubleshooting skills to resolve technology issues. 	
Adapted from Foulger, et al, 2017	

Diversity among Faculty

As seen in Appendix 2, there are areas of progress in nursing faculty and student demographics as seen in the percentage of faculty who report ethnic and racial minority status. Since the U.S. population in general and nursing students specifically represent a growing diversity in higher education this changing demographic of nursing faculty is relevant. Comparing 2010 to 2019 demographics of faculty from AACN data, 11.9 percent of faculty in 2010 and 18.5 percent of faculty in 2019 represented minority status. In data reported by the NLN (2019) on 434 schools and their faculty, Native Americans were employed predominately in Associate Colleges (AC) or Doctoral-Granting Universities (DGU); Asians in DGUs; Hispanics in ACs; and African Americans in DGUs. In 2010, almost 77,265 students reported minority status while 184,050 students reported minority status in 2019. It is important to recognize that diversity in faculty and student demographics offers a rich perspective and meaningful contribution to the academic, clinical, and research enterprise.

The Role of Clinical Preceptors

The training of nursing students at clinical sites requires the availability of a clinical preceptor. Most preceptors are not members of the nursing school faculty, but rather are practicing RNs. The purpose of a preceptor is to provide a one-on-one relationship with the student to help the student develop clinical skills and competencies, gain practical experience working with patients in the work environments, understand the clinical setting and the patient population, and acclimate to the role of a professional RN (ACICBL, 2018; Northeastern University, 2014).

However, clinical preceptors are increasingly required to fill the gap in faculty supervision for the clinical learning of nursing students. As nurses in practice, many preceptors lack academic pedagogical experience in clinical education methods and an understanding of their importance and role as clinical teachers. Like other disciplines requiring preceptor-directed clinical supervision, time pressures and productivity demands as well as competition for traditional clinical experiences and scheduling contribute to the accelerated demands for preceptors. A very small number (9-10 percent) of academic nursing programs are required to pay for preceptors or clinical placements. Enticements for preceptors reported by 46 percent of schools include non-monetary incentives such as library access, free professional development, tuition waivers, recognition ceremonies and certificates, and adjunct/voluntary/courtesy appointments. In addition to these monetary and non-monetary incentives to attract preceptors to fill faculty gaps, some states provide tax credits (AACN-AONL, 2020). Solutions to increase support for clinical preceptors as part of the total faculty resource stimulus plan for nursing programs is warranted.

Addressing the Nurse Faculty Shortage

An examination of strategies to address the faculty shortage based on a systematic review by Allen and Aldebron (2008) resulted in four domains which included: advocacy (mass media, workforce data and policy) for the supply and role of faculty; educational partnerships (school to school and multisector engagement); academic innovation (nontraditional faculty, technology, and new curricula); and, external funding (federal, state, philanthropy, industry).

In the 12 years since this review was published and despite some pockets of success to increase faculty numbers, the state of the faculty supply has not improved and has grown even more perilous today. The production of the U.S. nurse workforce depends on the ability to right-size the faculty workforce given the growth in student interest and nursing school enrollment. Adding to the faculty shortage, the growing attrition of faculty, and looming faculty retirements, there has emerged the unknown impact on faculty and preceptor retirements resulting from the COVID-19 pandemic.

Federal and Philanthropic Efforts on the Nurse Faculty Shortage

After the 2010 NACNEP report on the nurse faculty shortage and the 2011 *Future of Nursing* report from the Institute of Medicine [Note: now the National Academy of Medicine], federal agencies and philanthropic organizations stepped up efforts to increase the number and diversity of nurses who enter and complete advanced nursing education. This broad range of financial support has encouraged thousands of nurses to pursue a doctoral degree and enter a faculty role. Other efforts through professional organizations and employers, such as hospitals/health systems, have also supported nurses with tuition reimbursement and other incentives.

Federal Support

Three HRSA programs, the Faculty Loan Repayment Program (FLRP), the Nurse Corps, and the Nurse Faculty Loan Program (NFLP), help to recruit and retain nurses, as well as other health professionals, by encouraging students and practicing health professionals to pursue faculty roles. Applicants must be U.S. citizens or permanent residents and come from a disadvantaged background based on environmental and/or economic factors. HRSA supports projects that increase nursing education opportunities for individuals from disadvantaged backgrounds, including racial and ethnic minorities that are underrepresented among RNs. In addition, HRSA supports nurse faculty development activities on topics such as precepting, addressing the social determinants of health, and nursing in primary care.

In the **FLRP**, faculty members from disadvantaged backgrounds with a professional health care degree or certificate are eligible to receive loan repayment assistance in exchange for teaching at educational institutions that provide training for health care professionals. The program is open to nurses as well as physicians, dentists, dental hygienists, physician assistants, mental and behavioral health, public health professionals, and others. The health professionals accepted into the program receive up to \$40,000 for loan repayment and a tax abatement, as well as matching funds from employers (unless the institution receives a waiver from HRSA), and they can apply for sequential contracts. From 2010 to 2019, the HRSA made over 20 new awards, totaling over \$1 million, specifically to nurse faculty (Agbo, 2020b).

The **Nurse Corps** offers programs to help address the shortage of nurses through loan repayment to nurses who work in facilities experiencing a critical shortage of nurses; loan repayment to nurse faculty; and scholarships to students enrolled, or accepted for enrollment, in nursing degree programs. Since 2002, the program has provided loan repayment support for already practicing nurse faculty to attain a higher degree as well as new faculty. The program pays up to 85 percent of unpaid nursing education debt for RNs, APRNs, and nurse faculty when they work at least two years in a critical shortage facility or serve as nurse faculty in an accredited school of

nursing. The nurse faculty member must demonstrate qualifying nursing debt, as funding preference depends on financial need. From 2010 to 2019, HRSA awarded over \$55 million in new awards and over \$11 million in continuation awards through the Nurse Corps (Agbo, 2020).

HRSA's **NFLP** is designed to increase the number of qualified nurse faculty. According to data from 2018-2019, most NFLP trainees (83 percent) were pursuing a doctoral degree, with the most common being nursing educator (51 percent). In terms of demographics, over 21 percent reported being from a rural background and 25.3 percent from an underrepresented minority. Trainees also reported having taken an average of five education courses in the pursuit of becoming an educator. Most graduates (94 percent) reported an intent to teach after participating in the program (Agbo, 2020a).

From 2010 to 2019, HRSA awarded \$68 million to support already practicing nurse faculty through the Nurse Corps and the FLRP. In addition, BHW awarded over \$257 million to about 200 nursing programs to support training of new faculty through the NFLP. From 2012 to 2019, the NFLP provided support to over 15,000 trainees committed to becoming nurse faculty. In that time frame, over 4,000 nurses completed their NFLP commitment, with 94 percent of recipients assuming full time faculty positions. The great majority are teaching in undergraduate programs (Agbo, 2020b). In terms of faculty retention, based on the data from academic year 2018-2019, the number of NFLP trainees who continue in a faculty position after their service commitment expires decreases significantly after two years (Russell, 2020).

In 2020, the NFLP program offered a one-year funding opportunity to increase the number of qualified nurse faculty by providing funding to accredited schools of nursing to offer loans to students enrolled in advanced education nursing degree programs who are committed to become nurse faculty, with a focus on doctoral preparation. Additionally, the program is incorporating a service option aimed at academic-practice partnerships to increase the supply of clinical nurse faculty, specifically advanced practice registered nurse (APRN) preceptors. In exchange for full-time post-graduation employment as clinical nurse faculty, the program authorizes cancellation of up to 85% of the loan and interest. HRSA awarded \$26.7 million to schools of nursing in 2020 (Agbo, 2020b).

The National Institute of Nursing Research (NINR), an institute of the National Institutes of Health, offers both individual and institutional (school-based) pre- and post-doctoral awards to support doctoral nursing education and the development of nursing science and scholarship. These awards bolster the research and faculty careers of doctorally prepared nurses. The pre-doctoral awards provide tuition and support to doctoral students. The postdoctoral awards provide financial support and research mentoring, within an established research center, to further the research skills and career of the doctorally prepared nurse. NINR also offers a variety of research funding awards for early career nurse researchers as well as experienced researchers and interprofessional teams, which assist in the support and retention of faculty (NINR, 2020).

Philanthropic Support

Several national philanthropies, including the **Rita and Alex Hillman Foundation**, the **Robert Wood Johnson Foundation**, the **Donald and Barbara Jonas Foundation**, the **Josiah Macy Jr. Foundation**, the **Gordon and Betty Moore Foundation**, and other regional philanthropies,

have provided financial and other supports, such as leadership development, for thousands of nurses to receive their doctoral degree (both PhD and DNP) and assume faculty roles. Intensive mentoring by senior nurse and interprofessional research leaders and leadership development opportunities are critical components of many of these programs.

The **Rita and Alex Hillman Foundation** (rahf.org) cultivates nurse leaders, supports nursing research and innovation, and disseminates new models of care. Launched in 2011, the Hillman Scholars Program in Nursing Innovation program is an accelerated integrated Bachelor of Science in Nursing (BSN)-to-PhD program designed to produce the next generation of nurse innovators dedicated to making health care more effective, patient-centered, and equitable. It is unique as it begins in the junior or senior undergraduate year and ends with PhD completion. The goals of the program are to increase the stream of nursing students to PhD education and help ameliorate the faculty shortage by exposing undergraduate students to funded research faculty early in their education, and to develop PhD-prepared nurses earlier in their career. The program hopes that the scholars will attain their PhD before they are 30 years of age.

The **Robert Wood Johnson Foundation** (RWJF) (rwjf.org) has supported nursing and nursing education since its founding over 45 years ago. Over the past decade, several RWJF programs have focused on increasing diversity in nursing and addressing the nursing and nurse faculty shortages, including: New Careers in Nursing; New Jersey Nursing Initiative; Partners Investing in Nursing's Future; Nurse Faculty Scholars; and the Future of Nursing Scholars. The programs that specifically focused on increasing the number of and support for nurse faculty, such as the New Jersey Nursing Initiative, Nurse Faculty Scholars, and Future of Nursing Scholars, also developed the scholars' skills as a nurse educator, including teaching pedagogies, curriculum development, and student assessment. These programs have also sought to increase diversity in faculty and academic leadership roles (Campbell, et al, 2017).

In 2006, Donald and Barbara Jonas founded **Jonas Nursing and Veterans Healthcare**. A signature initiative, the Jonas Scholars Program, was developed in 2008 to address the shortage of doctorally prepared nurses (both PhD and DNP). The program, a partnership between nonprofit organizations, foundations, private donors, and academic institutions, envisions that Jonas Scholars will become faculty in academic institutions; identify new treatment modalities through research; provide direct patient care; and enter leadership positions to influence systems change. Jonas Scholars receive financial support and leadership training. The Foundation also supports nursing education and leadership programs in veterans health care and psychiatric mental health, and policy fellows at the American Academy of Nursing (Carter et al, 2020).

The mission of the **Josiah Macy Jr. Foundation** (macyfoundation.org) is to improve the education of health professionals for a healthier public. The Macy Foundation supports medical, nursing, and other health professions schools, as well as clinical training sites that prepare hundreds of thousands of health professionals each year to care for patients across the United States, through innovative approaches to improving education so that health professionals are prepared to address the health needs of both communities and individual patients. The Macy Faculty Scholars Program, begun in 2011, was designed to identify and nurture the careers of promising educational innovators in medicine and nursing, with two nurse scholars selected in

each yearly cohort. The Macy Foundation has also worked with other philanthropies to support faculty development programs to improve interprofessional education and collaborative practice.

The **Gordon and Betty Moore Foundation** (moore.org) is an impressive example of a regional philanthropy that has supported nursing and nursing education in California for many years. Their mission is to foster path-breaking scientific discovery, environmental conservation, patient care improvements, and preservation of the special character of the San Francisco Bay Area. In 2004, they funded the University of California San Francisco to establish the Betty Irene Moore Accelerated Doctoral Program in Nursing to address the San Francisco Bay Area's need for nurse educators. They also established a Master of Science Nurse Educators for Tomorrow: A Teacher Scholar Model, for early career nurses, at San Jose State University. Most recently the Moore Foundation initiated a national program, the Betty Irene Moore Fellowships for Nurse Leaders and Innovators. The fellowship program recognizes and advances early-career nurse scholars and innovators with high potential to accelerate leadership in nursing-science research, practice, education, policy, and entrepreneurship.

Public and Private Funding Collaborations

Over the past ten years, funding collaborations between the federal government, national and regional philanthropies, and business and healthcare organizations have supported nursing and nursing education. The collaborations increase the available funding, engage and educate new, nontraditional partners about the importance of nurses to the health of public, and set the stage for future collaborations on nursing and other key health issues. Below are some examples.

RWJF engaged other philanthropies, healthcare insurers, and health systems to join in supporting two nursing education initiatives, Partners Investing in Nursing's Future (PIN) and the Future of Nursing Scholars (FNS) programs. PIN was developed to facilitate implementation of the recommendations of the 2011 Institute of Medicine report. The PIN Nurse Funders Collaborative believed that a key role of philanthropy is not just as a check writer, but as an influencer – to bring nurses and other non-traditional funders to the table. By its conclusion in 2021, FNS will have developed over 200 new PhD prepared nurses and nurse faculty (Campbell et al., 2015)

Independence Blue Cross and the Independence Blue Cross Foundation in Pennsylvania presents an example of a regional investment in nursing and also a philanthropic collaboration. Since 2004, Independence has invested in advancing nursing education and professional development in Pennsylvania through their Nurse Scholars, Nursing Internship, and Nurses for Tomorrow programs. The nurses they support have the advantage of learning within the health insurer to better understand the vital roles that nursing plays in this key healthcare sector. In 2014, they became the inaugural funder in the RWJF FNS philanthropic collaborative.

In 2012, HRSA and three philanthropies, the Macy Foundation, RWJF, and the Moore Foundation, came together in a unique public-private collaboration to develop the **National Center for Interprofessional Practice and Education (NCIPE)** (nexusipe.org). The National Center, housed at the University of Minnesota, provides the leadership, evidence and resources needed to guide the nation on the use of interprofessional education and collaborative practice as a way to enhance the experience of health care, improve population health and reduce the overall

cost of care. It works to align interprofessional education and collaborative practice with transforming health care delivery. The NCIPE provides on-line resources, consultation, and conferences to strengthen interprofessional education and faculty development. This initial collaboration led to the philanthropic partners coming together again to support projects to bring interprofessional education and faculty development into community-based sites (Brandt, 2014).

Given the success of the NCIPE, NACNEP envisions a similar public-private collaborative National Center may function to support and advance nursing education, and lead coordinated and sustained efforts to address the long-standing nurse faculty and preceptor shortages.

Organizational Collaborations

The **NLN** and its **Foundation for Nursing Education**, through scholarships, grants, research, and faculty development programs, promotes excellence in nursing education to build a strong and diverse nursing workforce to advance the nation's health while addressing faculty and nursing shortages. The Foundation seeks to expand funding to increase the size and diversity of the nurse educator workforce; support NLN faculty development initiatives that empower nurse educators in their professional roles; and provide research funding that advances the science of nursing education. The NLN is a leader in championing nursing education, establishing the Centers of Excellence in Nursing Education, Certification for Nurse Educators, Simulation Education Resource Center, and providing research grants on nursing education as well as professional development for nurse educators (NLN, 2020).

In 2012, **Johnson & Johnson** launched the Campaign for Nursing's Future. The Campaign has promoted nursing through television advertisements raising the visibility of the impact of nurses and worked with U.S. healthcare partners to fund undergraduate scholarships, nurse educator fellowships, and nursing school grants. A collaboration with the NLN has been effective in retaining nurse educators by providing grants to the NLN for new faculty leadership and mentoring programs.

Health systems and many other healthcare employers provide financial support for their nurses to pursue advanced education (including doctoral studies) through their tuition reimbursement programs. The funding amount and the extent of other support, such as released time for classes, varies with the organizations, as do payback work requirements after the degree is received. Large health systems often partner with academic nursing programs in their geographic area to encourage advanced education, provide classes on-site, and serve as clinical learning sites for undergraduate and graduate nursing students. Many health systems have partnered with national and local philanthropy to leverage their funding to expand beyond education to also include leadership development.

NACNEP envisions a public-private collaborative National Center to support and advance nursing education, and lead coordinated and sustained efforts to address the long-standing nurse faculty and preceptor shortages.

State Board Requirements for Nursing Faculty and Preceptors

Nurse Faculty Requirements

Nurse faculty play a critical role in preparing the nursing workforce, and therefore must demonstrate requisite knowledge and skills to support the learning needs of a diverse nursing student population preparing for practice as RNs. Although graduate level preparation in the science of nursing is the gold standard for teaching in nursing programs, there are concerns that many doctoral prepared nurses lack formal training in the science of teaching (AACN, 2006).

The NCSBN provides guidance regarding requirements for faculty to teach in nursing schools. While individual state nursing boards vary in their requirements, in 2008 the NCSBN Nursing Faculty Qualifications Committee performed an extensive review of the literature and secured extensive input from leading nursing education organizations, education consultants, and experts in nursing education and practice. The committee recommended that nursing faculty (both full-time and part-time) should have:

- Either a master's degree or doctoral degree in nursing;
- Graduate preparation in the science of nursing including clinical practice, and;
- Graduate coursework in the science of teaching and learning (NCSBN, 2008).

Findings from an NCSBN survey revealed that several states have provided specific guidelines for additional formal preparation in the science of teaching for individuals seeking faculty positions. These additional course requirements include a focus on graduate preparation in teaching and learning. To cite three examples:

- North Carolina requires that individuals seeking nursing faculty positions must have completed course work or continuing education courses in areas such as adult learning, curricula development, and evaluation.
- In North Dakota, prospective faculty with a graduate degree outside of nursing must complete a baccalaureate in nursing, and must have graduate coursework in nursing to teach in an associate or baccalaureate degree program. Up to twelve hours of graduate nursing education must be devoted to principles of adult education, nursing curriculum development, administration, and evaluation.
- Kentucky requires that faculty complete coursework in the science of teaching. Nurse faculty members who are hired without prior teaching experience are required to have a mentor and to implement an educational development plan (NCSBN, 2008).

Doctoral Preparation

Currently, nursing education at the doctoral level is either research focused (PhD) or practice focused (DNP). Graduates who have completed a PhD in nursing may wish to pursue the role of educator or faculty member. However, most current PhD curricula do not require coursework or preparation to assume a faculty position. Similarly, individuals who have completed a DNP program may wish to teach, but the current DNP curriculum focuses on advanced nursing practice and is not designed to prepare a DNP graduate for a faculty role (AACN, 2006).

McNelis and colleagues (2018) conducted a secondary analysis of 24 interviews with current PhD/DNP students and recent graduates to gather further insights on doctoral education. The researchers concluded that the current PhD/DNP nursing curricula does not prepare graduates for a faculty roles.

In an extensive review of the literature on developing competencies in the novice educator, Summers also noted that many doctoral programs in nursing (both PhD and DNP) do not provide formal preparation for assuming a faculty role, and emphasized the need for formal education to ensure smooth transitions into the academic role. Nurses who pursue educational roles without formal preparation are more likely to leave the profession within five years (Summers, 2017).

Preceptor Requirements

Preceptors enhance learning in the real-life clinical setting.

The NCSBN has outlined requirements for preceptors in nursing. Preceptors play an important role in the clinical preparation of nursing students, as well as new graduates and newly employed nurses. Specific to nursing education, preceptors are instrumental in enhancing the faculty-directed learning experiences of nursing students in the real-life clinical setting. While preceptors have an important educational role, they cannot take the place of faculty.

Similar to nurse faculty, the requirements to serve as a nurse preceptor vary by state. State boards of nursing generally agree that clinical preceptors should be educated at or above the level for which they are preparing students (NCSBN, 2008; Spector, 2009). Preceptors must demonstrate competence in their clinical teaching assignments and must have an active nursing license. In addition, they must practice as a nurse equivalent to or above the educational level of those that they precept (NCSBN, 2012).

In a review of Boards of Nursing's rules and regulations for nurse preceptors across all 50 states and U.S territories, L'Ecuyer and colleagues noted great variability about preceptor eligibility, selection, and role expectations in undergraduate nursing programs. They identified RN licensure, preparation at the baccalaureate level, and 1-2 years of experience as the most agreed-upon eligibility requirements for serving as a preceptor. These authors recommended that all state boards of nursing create or update their rules and regulations to include specific guidelines regarding the licensure, role expectations, and role delineation for preceptors in clinical settings. These requirements are critical to ensuring a pool of preceptors who can assist in the development of nurses during their educational preparation and often during their transition into nursing practice after graduation (L'Ecuyer, von der Lancken, Malloy, Meyer, & Hyde, 2018).

As noted earlier in a previous section of this report, incentives to attract preceptors such as tax credits and other nonmonetary incentives (paid professional dues, access to library and faculty development) are fruitful areas to pursue when seeking solutions to the nursing faculty shortage. Preceptors are an invaluable resource for preparing a well-qualified nursing workforce. Ensuring an adequate supply of preceptors must remain a high priority for the profession.

Faculty-Student Ratio for Clinical Supervision

In addition to education requirements, there is quite a bit of variability in faculty requirements for faculty ratios for clinical students. Each State Board of Nursing determines these ratios. These ratios are neither federally regulated nor evidence-based. In addition, local institutions can set lower ratios to the state requirements. In states where there is a low student to faculty ratio, there is a corresponding higher demand for nursing faculty.

Faculty Mobility

The variability of requirements for faculty and preceptors between states serves as a barrier to faculty mobility. In addition, the issue of a faculty teaching online with licensure in one state being able to teach/supervise students in another state adds to the issue of faculty redistribution and flexibility. Given the tremendous role that preceptors play in supporting clinical education of students and practicing nurses, there is a need for greater uniformity regarding eligibility and other desired preceptor characteristics.

The Impact of the COVID-19 Pandemic

The COVID-19 pandemic has affected the clinical learning opportunities of nursing students nationwide and thus has implications for ensuring an adequate supply of available and qualified preceptors. Of note, physician, doctor of osteopathy, and physician assistant practices are looking to pay preceptors or health care systems for serving as clinical sites. There is significant competition for available clinical sites and qualified preceptors across specialties (AAMC, AAOCM, AACN & PAEA, 2013). These professional organizations also rely on simulation as an option to stretch limited clinical preceptorships. However, at this time it remains too early to tell the impact of the COVID-19 on the nursing workforce as a whole, and on the numbers and preparation of nurse faculty and preceptors.

Continuing Challenges

The ongoing need for formal preparation in the science of teaching remains problematic in nursing primarily because such course work is not traditionally included nor required in either PhD or DNP preparation. There is a need to include the science of teaching into current and graduate nursing education curricula.

While the NCSBN has reached consensus that faculty who teach in nursing programs must be prepared at the graduate level, the profession has not reached consensus regarding requirements for preparation in the science of teaching and learning. The variability of this requirement across the different states makes it difficult to evaluate nursing faculty preparedness on a national scale. Akin to the AACN *Essentials* for nursing curricula, a similar model may prove beneficial in setting standardized educational requirements relative to the science of teaching and learning for all nursing faculty. A set of standardized requirements relative to teaching and learning competencies are needed to:

- Evaluate the expected outcomes of nursing faculty across the country;
- Ensure high quality nursing education that is responsive to the diverse learning needs of nursing students;
- Facilitate faculty mobility, and;
- Foster a greater sense of competency in those seeking their first faculty position.

These additional educational requirements are critical to ensuring a qualified nurse faculty workforce who can prepare students and graduates to work in an ever changing and complex health care environment.

Conclusion

The gap between the supply and demand for nurse faculty to educate new generations of nurses will continue, and likely widen. Bold, creative, collaborative, and targeted approaches are needed now.

The growing chasm between the supply and demand for faculty to educate emergent generations of nurses will continue, and is likely to widen, without intentional, multipronged, coordinated, and accountable initiatives and investments. Over the past decade, federal, philanthropic, and collaborative investments have helped to increase the number of nurses with a doctoral degree. It is unlikely that philanthropic funding will continue in the amounts provided over the past ten years. Bold, creative, collaborative, and targeted approaches are needed now.

The increased visibility of nursing contributions during the coronavirus pandemic, the International Year of the Nurse and Midwife 2020 efforts, the Johnson and Johnson Campaign for Nursing, the Center to Champion Nursing in America Campaign for Action, and the

anticipated release of the RWJF sponsored National of Academy of Medicine report on the Future of Nursing 2030 will expand the public visibility and understanding of nursing and will hopefully inspire more students to apply to nursing schools. Who will teach them?

Support for nursing education and educators should not end once the faculty member is in place. Nurse faculty need to feel respected and valued by students, peers, administrators, and senior management, and adequately compensated comparable to their significant responsibilities. They also need continued professional development as educators, researchers, and leaders.

In conclusion, NACNEP has identified the following areas for attention to address the shortage of nurse faculty and preceptors, and strengthen nursing education.

Improve Preparation of Advanced-Degree Nurses for Educator Roles

As discussed above, many doctoral programs for nurses lack sufficient content or specific coursework in educational pedagogy or the science of education, to prepare graduates for the role of educator – either as full-time faculty, adjunct faculty, or clinical preceptor. NACNEP believes that nursing education and workforce development programs supported by HRSA and other federal agencies should allocate specific funding to programs that focus not only on increasing the number of nurse faculty and clinical preceptors, but incorporate academic coursework in education theory and pedagogy throughout the curricula, to prepare more graduate-level nurses to assume teaching positions as either faculty or preceptors upon completion.

Pilot Residency Programs for Nurse Faculty

The IOM's *Future of Nursing Report* (IOM, 2011) recommended the development of nurse residency programs to facilitate the transition of RNs into their clinical roles. A follow-up 2016 report (IOM, 2016) further supported the implementation of residencies to enhance the transition to practice, for both RNs and APRNs, and described several programs for nurse practitioners (NPs) implemented by the Veterans Health Administration, as well as by private health systems. In 2019, HRSA initiated the Advanced Nursing Education – Nurse Practitioner Residency (ANE-NPR) program to prepare NPs as primary care providers in community-based health centers through a 12-month clinical and academic residency program.

With the broad interest in and acceptance of these residency programs, NACNEP believes that similarly designed residency programs could help graduate-level nurses in the complex transition to faculty, educator, and preceptor roles. Nursing is a practice profession, and most individuals entering nursing initially focus on patient care. However, education is a vital component not only of preparing the future nurse workforce, but also helping nurses currently in practice to maintain and advance their skills, and engage in lifetime learning to adapt to the rapidly changing health care system. NACNEP envisions that properly designed residency programs for nurse faculty would emphasize strategies to improve faculty recruitment, preparation, development, and retention.

A National Center for Nurse Faculty

Another promising and sustainable solution would be to engage a coordination of effort and leadership through a public-private partnership to promote nursing education and address the shortage of nurse faculty and preceptors. A successful example of this approach, the National

Center for Interprofessional Practice and Education was described above. The aims of the NCIPE include breaking down the silos between the health care professions and facilitating the preparation of a health care workforce able to work in team-based care delivery systems that improve health care quality, safety, and access (NACNEP, 2015; Lutfiyya, Brandt, Delaney, Pechacek, & Cerra, 2015; IOM, 2015).

NACNEP sees the value in a similar approach to create a National Center devoted to nursing education and the development of nurse faculty and clinical preceptors. This Center would engage multiple stakeholders for coordinated efforts to address the critical and long-standing shortage of nurse faculty and preceptors, develop programs and initiatives to grow the nurse faculty workforce, promote the role of education in nursing, and assess the impact of these initiatives. Such a Center should be nimble and flexible in targeting new initiatives and best practices to close the shortage gap and strengthen the educational preparation of all RNs.

NACNEP Recommendations with Rationale on the Nurse Faculty Shortage

1. The U.S. Congress, through the Department of Health and Human Services and the Department of Education, should allocate specific funding to programs that promote an increase in the number of nurse faculty and clinical preceptors, and that support nurse faculty development by incorporating academic coursework in nursing education theory and pedagogy within graduate nursing curricula to prepare nurses to assume teaching positions as either faculty or preceptors upon completion.

Rationale: The current efforts of HRSA through the Nurse Faculty Loan Program (NFLP), the Nurse Corps, and the Advanced Nursing Education Workforce program remain vital to the recruitment of nursing students pursuing advanced degrees into faculty and preceptor roles. However, they have proven insufficient to address the full scope of nurse faculty shortage. New investments are needed to promote advanced education among nurses and incorporate academic coursework on education and pedagogy to inform more nursing graduate students on the importance and the requirements of the different teaching roles.

2. The U.S. Congress should provide funding for the Health Resources and Services Administration to develop a nurse faculty residency program that emphasizes strategies to improve faculty recruitment, preparation, development, and retention.

Rationale: With the current shortage of nursing faculty, new faculty may become overwhelmed with the requirements and responsibilities of a faculty position and often experience burnout, creating challenges in faculty retention. Modeled on HRSA's current Advanced Nursing Education – Nurse Practitioner Residency Program, a faculty residency program would help to transition new doctoral graduates and junior faculty into the teaching role and promote nursing scholarship, leadership, service, and research within schools of nursing.

3. The U.S. Congress should allocate specific funding for the creation of a national center devoted to nursing education and the development of nurse faculty and clinical preceptors. NACNEP further recommends that the Health Resources and Services Administration lead the implementation of this center as a federal-private partnership, in coordination with professional nursing and non-federal philanthropic organizations. NACNEP envisions that this center would advance nursing education by:

- Developing, supporting, and disseminating best practices in the academic preparation and continuing education needs of qualified nurse educators, nurse faculty, and clinical preceptors;
- Engaging in data collection on nurse faculty, and housing a national repository of information on nurse faculty employment, distribution, and retention;
- Piloting innovative projects to support the development and promote the recruitment and retention a diverse nurse faculty and preceptor workforce;
- Working to improve the image of the nurse faculty role, and raising the visibility of and respect for the nurse faculty role as a rewarding career choice;

- Encouraging and coordinating the development of academic-practice partnerships to support nurse faculty employment and advancement;
- Promoting greater uniformity among state boards of nursing and credentialing bodies in nursing faculty and preceptor requirements, and faculty-to-student and preceptor-to-student ratios;
- Developing distance learning infrastructure for nursing education and advancing faculty competencies in the pedagogy of teaching and the evidence-based use of technology, simulation, and distance learning techniques.

Rationale: Given the long-standing issue of the national nurse faculty shortage, a national center is needed to facilitate and coordinate a range of efforts to increase the size and promote the preparation and continuing development of the nurse faculty workforce, and to evaluate the outcomes of these efforts. Nurse faculty not only serve to teach and prepare the next generation of clinical nurses, they advance the health of the nation by promoting nursing scholarship, advancing nursing research, and providing leadership in forming health policy. The proposed national center would be modeled on the efforts of HRSA in developing the National Center for Interprofessional Practice and Education. A federal-private partnership can encourage the engagement of multiple stakeholders and leverage HRSA funding to support the sustainability of the center.

References

- Advisory Committee on Interdisciplinary, Community-Based Linkages. (2018). *Enhancing community-based clinical training sites: Challenges and opportunities*. Retrieved from <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/community-based-linkages/reports/sixteenth-2018.pdf>
- Agbo, A. I. (2020a, February). *The HRSA Nurse Faculty Loan Program*. Presentation to the National Advisory Council on Nurse Education and Practice. Retrieved from <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/nursing/meetings/2020/nacnep-minutes-february-2020.pdf>
- Agbo, A. I. (2020b, August). *HRSA and BHW's Investments to Address Nurse Faculty Shortages*. Presentation to the National Advisory Council on Nurse Education and Practice. Retrieved from <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/nursing/meetings/2020/agbo-bhw.pdf>
- American Association of Colleges of Nurses (AACN). (n.d.). *The Essentials*. Retrieved from <https://www.aacnnursing.org/Education-Resources/AACN-Essentials>
- American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. Retrieved from https://www.duq.edu/assets/Documents/nursing/dnp/_PDF/DNPEssentials.pdf
- American Association of Colleges of Nursing (2009, March). *Fact sheet: Nursing faculty shortage*. Washington, D.C.: Author.
- American Association of Colleges of Nursing. (2016). *AACN thought leaders assembly summary: Emerging trends in health care and technology influencing higher education*. Retrieved from <https://www.aacnnursing.org/Portals/42/Publications/AACN-2016-Thought-Leaders-Assembly-Summary-Report.pdf>
- American Association of Colleges of Nursing. (2019). *Special survey on vacant faculty positions for academic year 2019-2020*. Retrieved from <https://www.aacnnursing.org/Portals/42/News/Surveys-Data/Vacancy19.pdf>
- American Association of Colleges of Nursing. (2020a). *Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*. Washington, DC: Author.
- American Association of Colleges of Nursing. (2020b). *Salaries of instructional and administrative nursing faculty in baccalaureate and graduate programs in nursing*. Washington, DC: Author.
- American Association of Colleges of Nursing. (2020c). *The PhD pathway in nursing: sustaining the science discussion questions*. Retrieved from <https://www.aacnnursing.org/Portals/42/news/surveys-data/PhD-Pathway.pdf>

- American Association of Colleges of Nursing – American Organization for Nurse Leadership. (2020). *AACN-AONL Clinical Preceptor Survey Summary Report*. Retrieved from <https://www.aacnnursing.org/Portals/42/Data/AACN-AONL-Clinical-Preceptor-Survey-May-2020.pdf>.
- American Organization for Nurse Leadership. (2019). *AONL salary and compensation study for nurse leaders (3rd ed.)*. Chicago, Illinois: Author.
- Aragon, S., & Ellis, J. (2017). *Survey of Nurse Educators in the State of Washington*. Seattle, Washington: Washington Center for Nursing. Retrieved from https://www.wcnursing.org/site/wp-content/uploads/2018/06/WCN-Nursing-Faculty-Survey-Report-2017-1-18-18_final.pdf
- Association of American Medical Colleges, American Association of Colleges of Osteopathic Medicine, American Association of Colleges of Nursing, & Physician Assistant Education Association. (2013). *Recruiting and maintaining U.S. clinical training sites*. Retrieved from <https://www.aamc.org/system/files/2019-07/recruitingandmaintainingclinicaltrainingsites.pdf>
- Berlin, L. E., Wilsey S. J., & Bednash, G. D. (2005). *2004-2005 enrollments and graduations in baccalaureate and graduate programs in nursing*. Washington, D.C.: American Association of Colleges of Nursing.
- Booth, T. L., Emerson, C. J., Hackney, M. G., & Souter, S. (2016). Preparation of academic nurse educators. *Nursing Education in Practice*, 19, 54-57.
- Brandt, B. F. (2014). Update on the US National Center for Interprofessional Practice and Education. *Journal of Interprofessional Care*, 28, 1, 5-7. doi: 10.3109/13561820.2013.852365.
- Campbell, J., Ladden, M. D., McBride, A. B., Cimino, A., Kostas-Polston, E., & Deming, K. (2017). Overview of the Robert Wood Johnson Foundation Nurse Faculty Scholars Program. *Nursing Outlook*, 65, 254-264.
- Carbajal, E. (December 2020). Nurses: the most trusted professionals in America. Becker's Hospital Review. Retrieved from <https://www.beckershospitalreview.com/nursing/nurses-the-most-trusted-professionals-in-america.html>
- Carter, E., Montalvo, W., Hicks, A. et al. (2020). The Jonas Scholars Program – Evaluation of a decade long program to advance doctoral-prepared nurses. *Nursing Outlook*, 68, 365-370.
- Cary, A. H., & Trautman, D. (2020). *Rounds with Leadership-2020: The Year of the Nurse Educator*. Washington, DC: American Association of Colleges of Nursing.
- Fang, D. (2009). *Faculty Shortage in Baccalaureate and Graduate Programs in Nursing*. Presentation at the 120th meeting of the National Advisory Council on Nurse Education and Practice (NACNEP). Bethesda, MD.

- Fang, D. (2020, February). *Nursing faculty shortage in baccalaureate and graduate programs, 2009-2019*. Presentation at the meeting of the National Advisory Council for Nursing Education and Practice, Washington, D.C.
- Fang, D., & Bednash, G. (2014). Attrition of full-time faculty from schools with baccalaureate and graduate programs: 2010-2011. *Nursing Outlook* 62, 3, 164-173.
- Fang, D., & Kesten, K. (2017). Retirements and succession of nursing faculty in 2016-2025. *Nursing Outlook*, 5, 633-642. Doi.org/10.1016/j.outlook.2017.03.003
- Foulger, T.S., Graziano, K.J., Schmidt-Crawford, D., & Slykhuis, D.A. (2017). Teacher educator technology competencies. *Journal of Technology and Teacher Education*, 25, 413-448.
- Global Alliance for Leadership in Nursing Education and Science (GANES) (2019, June). *Global Pillars for Nursing Education*. Retrieved from <https://ganes.info/>
- Halstead, J. ed. (2019). *NLN core competencies for nurse educators: a decade of influence*. Washington, DC: National League for Nursing.
- Institute of Medicine. (2011). *The Future of Nursing: Leading Change, Advancing Health*. Washington, D.C.: National Academies Press.
- Jellinek, P. S., Reinhardt, R. J., Ladden, M. D., Salmon, M. E. (2015). Round Six of Partners Investing in Nursing's Future: Implications for the health sector, policy makers, and foundations. *Health Affairs*, 34, 1245-1249.
- L'Ecuyer, K.M., von der Lancken, S., Malloy, D., Meyer, G., & Hyde, M. J. (2018). *Journal of Nursing Education*, 57, 134-141.
- McNelis, A.M., Thomas Dreifuerst, K., & Schwindt, R. (2018). Doctoral education and preparation for faculty roles. *Nurse Educator*, 44, 202-206.
- National Advisory Council on Nurse Education and Practice. (2010). *Impact of the nursing faculty shortage on nursing education and practice*. Retrieved from <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/nursing/reports/2010-ninthreport.pdf>
- National Council of State Boards of Nursing. (2008). *Nursing faculty qualifications and roles*. Retrieved from https://ncsbn.org/Final_08_Faculty_Qual_Report.pdf
- National Council of State Boards of Nursing. (2012). *Model Rules*. Retrieved from https://www.ncsbn.org/17_Model_Rules_0917.pdf
- National Institute of Nursing Research. (2020). *Grant opportunities supported by NINR*. Retrieved from <https://www.ninr.nih.gov/sites/files/docs/summary-of-grant-mechanisms-march-2020-508c.pdf>

- National League for Nursing. (2012). *The scope of practice for academic educators (3rd ed.)*. Washington, D.C.: Author.
- National League for Nursing. (2018). *Biennial survey of schools of nursing, 2018*. Washington, D.C.: Author.
- National League for Nursing. (2019). *Faculty Census Survey 2019*. Washington, DC: Author.
- National League for Nursing, Foundation for Nursing Education. (2020). *Overview: NLN Foundation for Nursing Education*. Retrieved from <http://www.nln.org/foundation>
- Northeastern University, Bouvé College of Health Sciences. (2014). *School of Nursing Preceptor Manual*. Boston, MA: Northeastern University.
- Owens, J. M. (2017). Secondary stress in nurse educators. *Teaching and Learning in Nursing, 12*, 214-215.
- Polomano, R. C., Giordano, N. A., Miyamoto, S., Trautman, D., Kempf, S., & Nuzzo, P. M. (2020). Emerging roles for research intensive PhD prepared nurses: Beyond faculty positions. *Journal of Professional Nursing, (in press)*.
<https://doi.org/10.1016/j.profnurs.2020.09.002>
- Russell, S. (Email correspondence, September 2020). National Advisory Council on Nurse Education and Practice, Bureau of Health Workforce, Health Resources and Services Administration.
- Saad, L. (December 2020). *U.S. ethics ratings rise for medical workers and teachers*. Gallup news brief. Retrieved from <https://news.gallup.com/poll/328136/ethics-ratings-rise-medical-workers-teachers.aspx>
- Spector, N. (2009). Regulatory recommendations for nursing faculty qualifications. *JONA's Healthcare Law, Ethics, and Regulation, 11*, 54-56.
- Spector, N., Silvesta, J., Alexander, M., Martin, B., Hooper, J. I., Squires, A., et al. (2020). NCSBN regulatory guidelines and evidence-based quality indicators for nursing education programs. *Journal of Nursing Regulation, 11*, (2) supplement.
- Summers, J. A. (2017). Developing competencies in the novice nurse educator: An Integrative Review. *Teaching and Learning in Nursing, 2*, 263-276.
- U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2019). *Brief Summary Results from the 2018 National Sample Survey of Registered Nurses*. Retrieved from <https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-summary-report.pdf>
- World Health Organization. (2016). *Nurse educator competencies*. Geneva, Switzerland: WHO Press.

List of Abbreviations

AACN	American Association of Colleges of Nursing
AC	Associate Colleges
ACICBL	Advisory Committee on Interdisciplinary, Community-Based Linkages
ANE-NPR	Advanced Nursing Education – Nurse Practitioner Residency
AONL	American Organization for Nursing Leadership
APRN	Advance Practice Registered Nurse
BSN	Baccalaureate of Science in Nursing
DGU	Doctoral-Granting Universities
DNP	Doctor of Nursing Practice
FLRP	Faculty Loan Repayment Program
FNS	Future of Nursing Scholars
GANES	Global Alliance for Nursing Education and Sciences
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
IOM	Institute of Medicine (now the National Academy of Medicine (NAM))
NACNEP	National Advisory Council on Nurse Education and Practice
NCHWA	National Center for Health Workforce Analysis
NCIPE	National Center for Interprofessional Practice and Education
NCSBN	National Council of State Boards of Nursing
NFLP	Nurse Faculty Loan Repayment Program
NINR	National Institute of Nursing Research
NLN	National League for Nursing
NP	Nurse Practitioner
PhD	Doctor of Philosophy
PIN	Partners Investing in Nursing’s Future
RN	Registered Nurse
RWJF	Robert Wood Johnson Foundation
WHO	World Health Organization

Appendix 1: National League for Nursing Core Competencies for Nurse Educators with Tasks

Competency I: Facilitate Learning

Nurse educators are responsible for creating an environment in classroom, laboratory, and clinical settings that facilitates student learning and the achievement of desired cognitive, affective, and psychomotor outcomes. To facilitate learning effectively, the nurse educator:

- Implements a variety of teaching strategies appropriate to learner needs, desired learner outcomes, content, and context
- Grounds teaching strategies in educational theory and evidence-based teaching practices
- Recognizes multicultural, gender, and experiential influences on teaching and learning
- Engages in self-reflection and continued learning to improve teaching practices that facilitate learning
- Uses information technologies skillfully to support the teaching-learning process
- Practices skilled oral, written, and electronic communication that reflects an awareness of self and others, along with an ability to convey ideas in a variety of contexts
- Models critical and reflective thinking
- Creates opportunities for learners to develop their critical thinking and critical reasoning skills
- Shows enthusiasm for teaching, learning, and nursing that inspires and motivates students
- Demonstrates interest in and respect for learners
- Uses personal attributes (e.g., caring, confidence, patience, integrity, and flexibility) that facilitate learning
- Develops collegial working relationships with students, faculty colleagues, and clinical agency personnel to promote positive learning environments
- Maintains the professional practice knowledge base needed to help learners prepare for contemporary nursing practice
- Serves as a role model of professional nursing

Competency II: Facilitate Learner Development and Socialization

Nurse educators recognize the responsibility for helping students develop as nurses and integrate the values and behaviors expected of those who fulfill that role. To facilitate learner development and formation effectively, the nurse educator:

- Identifies individual learning styles and unique learning needs of international, adult, multicultural, educationally disadvantaged, physically challenged, at-risk, and second-degree learners
- Provides resources to diverse learners that help meet their individual learning needs
- Engages in effective advisement and counseling strategies that help learners meet their professional goals
- Creates learning environments that are focused on socialization to the role of the nurse and facilitate learners' self-reflection and personal goal setting
- Fosters the cognitive, psychomotor, and affective development of learners

- Recognizes the influence of teaching styles and interpersonal interactions on learner outcomes
- Assists learners to develop the ability to engage in thoughtful and constructive self and peer evaluation
- Models professional behaviors for learners including, but not limited to, involvement in professional organizations, engagement in lifelong learning activities, dissemination of information through publications and presentations, and advocacy

Competency III: Use Assessment and Evaluation Strategies

Nurse educators use a variety of strategies to assess and evaluate student learning in classroom, laboratory, and clinical settings, as well as in all domains of learning. To use assessment and evaluation strategies effectively, the nurse educator:

- Uses extant literature to develop evidence-based assessment and evaluation practices
- Uses a variety of strategies to assess and evaluate learning in the cognitive, psychomotor, and affective domains
- Implements evidence-based assessment and evaluation strategies that are appropriate to the learner and to learning goals
- Uses assessment and evaluation data to enhance the teaching-learning process
- Provides timely, constructive, and thoughtful feedback to learners
- Demonstrates skill in the design and use of tools for assessing clinical practice

Competency IV: Participate in Curriculum Design and Evaluation of Program Outcomes

Nurse educators are responsible for formulating program outcomes and designing curricula that reflect contemporary health care trends and prepare graduates to function effectively in the health care environment. To participate effectively in curriculum design and systematic evaluation of program outcomes, the nurse educator:

- Ensures that the curriculum reflects institutional philosophy and mission, current nursing and health care trends, and community and societal needs to prepare graduates for practice in a complex, dynamic, multicultural health care environment
- Demonstrates knowledge of curriculum development including identifying program outcomes, developing competency statements, writing learning objectives, and selecting appropriate learning activities and evaluation strategies
- Bases curriculum design and implementation decisions on sound educational principles, theory, and research
- Revises the curriculum based on assessment of program outcomes, learner needs, and societal and health care trends
- Implements curricular revisions using appropriate change theories and strategies
- Creates and maintains community and clinical partnerships that support educational goals
- Collaborates with external constituencies throughout the process of curriculum revision
- Designs and implements program assessment models that promote continuous quality improvement of all aspects of the program

Competency V: Function as a Change Agent and Leader

Nurse educators function as change agents and leaders to create a preferred future for nursing education and nursing practice. To function effectively as a change agent and leader, the nurse educator:

- Models cultural sensitivity when advocating for change
- Integrates a long-term, innovative, and creative perspective into the nurse educator role
- Participates in interdisciplinary efforts to address health care and educational needs locally, regionally, nationally, or internationally
- Evaluates organizational effectiveness in nursing education
- Implements strategies for organizational change
- Provides leadership in the parent institution as well as in the nursing program to enhance the visibility of nursing and its contributions to the academic community
- Promotes innovative practices in educational environments
- Develops leadership skills to shape and implement change

Competency VI: Pursue Continuous Quality Improvement in the Nurse Educator Role

Nurse educators recognize that their role is multidimensional and that an ongoing commitment to develop and maintain competence in the role is essential. To pursue continuous quality improvement in the nurse educator role, the individual:

- Demonstrates a commitment to lifelong learning
- Recognizes that career enhancement needs and activities change as experience is gained in the role
- Participates in professional development opportunities that increase one's effectiveness in the role
- Balances the teaching, scholarship, and service demands inherent in the role of educator and member of an academic institution
- Uses feedback gained from self, peer, student, and administrative evaluation to improve role effectiveness
- Engages in activities that promote one's socialization to the role
- Uses knowledge of legal and ethical issues relevant to higher education and nursing education as a basis for influencing, designing, and implementing policies and procedures related to students, faculty, and the educational environment
- Mentors and supports faculty colleagues

Competency VII: Engage in Scholarship

Nurse educators acknowledge that scholarship is an integral component of the faculty role, and that teaching itself is a scholarly activity. To engage effectively in scholarship, the nurse educator:

- Draws on extant literature to design evidence-based teaching and evaluation practices
- Exhibits a spirit of inquiry about teaching and learning, student development, evaluation methods, and other aspects of the role
- Designs and implements scholarly activities in an established area of expertise
- Disseminates nursing and teaching knowledge to a variety of audiences through various means
- Demonstrates skill in proposal writing for initiatives that include, but are not limited to, research, resource acquisition, program development, and policy development
- Demonstrates qualities of a scholar: integrity, courage, perseverance, vitality, and creativity

Competency VIII: Function Within the Educational Environment

Nurse educators are knowledgeable about the educational environment within which they practice and recognize how political, institutional, social, and economic forces impact their role. To function as a good “citizen of the academy,” the nurse educator:

- Uses knowledge of history and current trends and issues in higher education as a basis for making recommendations and decisions on educational issues
- Identifies how social, economic, political, and institutional forces influence higher education in general and nursing education in particular
- Develops networks, collaborations, and partnerships to enhance nursing’s influence within the academic community
- Determines own professional goals within the context of academic nursing and the mission of the parent institution and nursing program
- Integrates the values of respect, collegiality, professionalism, and caring to build an organizational climate that fosters the development of students and teachers
- Incorporates the goals of the nursing program and the mission of the parent institution when proposing change or managing issues
- Assumes a leadership role in various levels of institutional governance
- Advocates for nursing and nursing education in the political arena

[From:

Christensen, L. S., & Simons, L. E. (2020). *The scope of practice for academic nurse educators and academic clinical nurse educators* (3rd ed.). National League for Nursing.

Halstead, J. A. (Ed.). (2018). *NLN core competencies for nurse educators: A decade of influence*. National League for Nursing.]

Appendix 2: Comparative Demographics of Faculty and Student Enrollments, 2010-2019

Comparative Demographics of Faculty and Student Enrollments, 2010-2019		
	2010	2019
Vacancy rates for full-time faculty	6.90%	7.20%
Attrition Rate of full-time faculty	11.80%	13.20%
Numbers of eligible applicants turned away from:		
All baccalaureate or higher programs;	67,563	80,407
Associate Degree Programs (NLN, 2018)	No data	69,000
Graduates for:		
BSN	73,570	144,659
Master's	21,730	49,895
DNP	1,282	7,944
PhD	533	804
Enrollment of minority students	77,265	184,050
Fulltime Minority Faculty %	11.90%	18.50%
Male Faculty %	6.1%	7.1%
Number of Full-time Faculty	15,687	22,513
Number of Part-time Faculty	15,711	31,370
Data Sources:		
American Association of Colleges of Nursing. (2019).		
National League for Nursing (2018)		

Appendix 3: Teacher Educator Technology Competencies

Teacher educators will design instruction that utilizes content-specific technologies to enhance teaching and learning.

- Evaluate content-specific technology for teaching and learning.

- Align content with pedagogical approaches and appropriate technology.

- Model approaches for aligning the content being taught with appropriate pedagogy and technology.

Teacher educators will incorporate pedagogical approaches that prepare teacher candidates to effectively use technology.

- Model using technology for accessing, analyzing, creating, and evaluating information.

- Assist teacher candidates with evaluating the affordances of content-specific technologies to support student learning.

- Assist teacher candidates with the selection and use of content-specific technologies to support student learning.

- Facilitate opportunities for teacher candidates to practice teaching with technology.

Teacher educators will support the development of the knowledge, skills, and attitudes of teacher candidates as related to teaching with technology in their content area.

- Support teacher candidates' alignment of content with pedagogy and appropriate technology.

- Provide opportunities for teacher candidates to reflect on their attitudes about using technology for teaching and for their own learning.

- Provide opportunities to develop teacher candidates' efficacy about using technology in teaching.

Teacher educators will use online tools to enhance teaching and learning.

- Communicate using online tools.

- Collaborate using online tools.

- Design instruction using online tools.

- Assess teacher candidates using online tools.

Teacher educators will use technology to differentiate instruction to meet diverse learning needs.

- Design instruction using technology to meet the needs of diverse learners.

- Demonstrate using assistive technologies to maximize learning for individual student needs.

- Model using technology to differentiate learning in teaching and learning.

- Provide opportunities for teacher candidates to create learning activities using technology to differentiate instruction.

Teacher educators will use appropriate technology tools for assessment.

- Use technology to assess teacher candidates' competence and knowledge.

- Model a variety of assessment practices that use technology.

- Provide opportunities for teacher candidates to use appropriate technology for assessment.

Teacher educators will use effective strategies for teaching online and/or blended/hybrid learning environments.

- Model online and blended learning methods and strategies.

- Provide opportunities for teacher candidates to practice teaching online and/or in blended/hybrid learning environments.

Teacher educators will use technology to connect globally with a variety of regions and cultures.
Model global engagement using technologies to connect teacher candidates with other cultures and locations.

Design instruction in which teacher candidates use technology to collaborate with learners from a variety of backgrounds and cultures.

Address strategies needed for cultures and regions having different levels of technological connectivity.

Teacher educators will address the legal, ethical, and socially responsible use of technology in education.

Model the legal, ethical, and socially responsible use of technology for teaching and learning.

Guide teacher candidates' use of technology in legal, ethical, and socially responsible ways.

Provide opportunities for teacher candidates to design curriculum following legal, ethical, and socially responsible uses of technology.

Teacher educators will engage in ongoing professional development and networking activities to improve the integration of technology in teaching.

Define goals for personal growth in using technology.

Engage in continuous professional development and networking activities promoting technology knowledge and skills.

Support teacher candidates' continuous participation in networking activities to increase their knowledge of technology.

Teacher educators will engage in leadership and advocacy for using technology.

Share a vision for teaching and learning with technology.

Engage with professional organizations that advocate technology use in education.

Seek to influence the opinions and decisions of others regarding technology integration.

Assist teacher candidates in becoming advocates for using technology to enhance teaching and learning.

Support teacher candidates in understanding local, state, and national technology policies in education.

Teacher educators will apply basic troubleshooting skills to resolve technology issues.

Configure digital devices for teaching.

Operate digital devices during teaching.

Model basic troubleshooting skills during teaching.

Find solutions to problems related to technology using a variety of resources.

Adapted from:

Foulger, T. S., Graziano, K. J., Schmidt-Crawford, D., & Slykhuis, D. A. (2017). Teacher educator technology competencies. *Journal of Technology and Teacher Education*, 25, 413-448.