

January 2024



**MITIGATING NURSING WORKFORCE CHALLENGES
BY OPTIMIZING LEARNING ENVIRONMENTS**

National Advisory Council on Nurse Education and Practice
19th Report

MITIGATING NURSING WORKFORCE CHALLENGES BY OPTIMIZING LEARNING ENVIRONMENTS

National Advisory Council on Nurse Education and Practice
19th Report to the Secretary of Health and Human Services
and the United States Congress

January 2024

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 Health Resources and Services Administration nor the United States Government.

Table of Contents

The National Advisory Council on Nurse Education and Practice.....	3
Authority	3
Function	3
National Advisory Council on Nurse Education and Practice.....	4
Acknowledgments.....	7
Executive Summary	8
NACNEP Recommendations the Secretary of HHS and Congress.....	9
Introduction.....	10
Nurse Faculty Shortage.....	10
Clinical Preceptor Training.....	11
Nursing Student Internship Opportunities	11
Nursing Education Infrastructure.....	11
NACNEP’s Call for Action	11
Salary Equity and Sustainability for Nurse Faculty.....	12
Professional Development and Compensation of Preceptors	14
Paid Nursing Student Internships.....	17
Educational Infrastructure Advancement	19
Conclusion	21
NACNEP Recommendations and Rationale.....	22
Glossary of Terms.....	23
Abbreviations and Acronyms	25
References.....	26

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.

National Advisory Council on Nurse Education and Practice

NACNEP Membership Contributing to the 19th Report

Mary Ellen Biggerstaff, DNP, MSN, FNP

[Term ended, October 2023]

Family Nurse Practitioner
Summit Pacific Medical Center
Elma, Washington

**Steven Brockman-Weber, DNP, RN, MS,
FACHE, NEA-BC, CENP**

[Term ended, October 2023]

Chief Nursing Officer
Ascension Texas
Austin, Texas

Susan Cannon, MSN, RN, CPN, NE-BC*

Assistant Vice President
Nursing for Women's and Children's
Hospital Operations
Cooper University Health Care
Camden, New Jersey

Christine DeWitt, RN, BSN, PCCN

[Term ended, October 2023]

Staff Registered Nurse
Cardio-Thoracic Surgery Step Down
Ohio State Wexner Medical Center
Ross Heart Hospital
Columbus, Ohio

Patricia Dieter, MPA, RN, PA-C*

Professor of Family Medicine and
Community Health
Chief, Division of Physician Assistant
Studies
Duke University School of Medicine
Durham, North Carolina

**Kristie Hartig, MSN, RN, PHN, CWOCN,
CNE***

On Call Registered Nurse, PACE
Midland Care Connections, Inc.
Post-Surgical RN
The University of Kansas St. Francis
Campus
Topeka, Kansas

**Meredith Kazer, PhD, APRN-BC,
FAAN***

Dean and Professor
Marion Peckham Egan School of Nursing
and Health Studies
Fairfield University
Fairfield, Connecticut

Rose Kearney-Nunnery, PhD, RN

[Term ended, October 2023]
Professor/Chair Retired
University of South Carolina Beaufort
Bluffton, South Carolina

Kae Livsey, PhD, MPH, RN*

Professor
Western Carolina University School of
Nursing
Cullowhee, North Carolina

Nina McLain, PhD, CRNA*

Associate Professor
Nurse Anesthesia Program
University of Southern Mississippi
College of Nursing and Health Professions
Hattiesburg, Mississippi

Luzviminda Miguel, DNP, MSN Ed, RN
[Term ended, October 2023]
Assistant Professor/Nursing Program
Coordinator/Nursing Faculty
The University of Hawai'i at Hawai'i
Community College
Volcano, Hawai'i

Janice Phillips, PhD, RN, CENP, FAAN
[Resigned, July 2023]
Director of Nursing Research and Health
Equity
Nursing Administration
Rush University Medical Center
Associate Professor
Rush University College of Nursing
Chicago, Illinois

**Courtney Pitts, DNP, MPH, FNP-BC,
FAANP***
Director, Family Nurse Practitioner
Specialty
Associate Professor
Vanderbilt University School of Nursing
Nashville, Tennessee

**Carolyn Porta, PhD, MPH, RN, SANE-A,
FAAN, FNAP***
Associate Vice President for Clinical Affairs
Professor
University of Minnesota
Minneapolis, Minnesota

[Note: * indicates current member]

**Constance R. Powers, MSN, RN, CCRN,
CNE***
Department Chair Nursing
Phoenix College
Phoenix, Arizona

LaDonna Selvidge, MSN, MEd, RN
[Resigned, June 2023]
Director of Practical Nursing
Francis Tuttle Technology Center
Oklahoma City, Oklahoma

**Teresa Shellenbarger, PhD, RN, CNE,
CNEcl, ANEF***
Executive Director
National League for Nursing
Commission for Nursing Education
Accreditation
Washington, DC

Christine Smothers, BSN, RN*
Doctoral student (Ph.D. Nursing Science
program)
The Frances Payne Bolton School of
Nursing
Case Western Reserve University
Cleveland, Ohio

Federal Staff

*NACNEP Designated Federal Officer and
Interim Chair*

Justin Bala-Hampton DNP, MPH, MHA,
AGACNP-BC, AOCNP

Senior Advisor

Division of Nursing and Public Health

Bureau of Health Workforce

Health Resources and Services

Administration

Rockville, Maryland

Technical Writer

Raymond J. Bingham, MSN

Technical Writer and Editor

Division of Nursing and Public Health

Bureau of Health Workforce

Health Resources and Services

Administration

Rockville, Maryland

Acknowledgments

The members of NACNEP wish to express their appreciation to all of the presenters who spoke at Council meetings on topics relevant to this report. By sharing their time, experience, knowledge, insights, and expertise, these individuals offered significant contributions to the deliberations of the Council. Special thanks to: Winnifred Quinn, PhD, Director, Advocacy and Consumer Affairs, Center to Champion Nursing in America, AARP; Joan Stanley, PhD, NP, Chief Academic Officer, Susan Corbridge, PhD, APRN, Chief Essentials Program Officer, and Jean Giddens, PhD, RN, Chair-Elect, Board of Directors, American Association of Colleges of Nursing; Brent Gordon, President, Cheryl Wilson, DNP, APRN, ANP-BC, Director of Education, Research, and Design, and Karen Wong, Vice President, Strategy, Elsevier Nursing and Health Education; and Aroona Toor, MPH, Public Health Analyst, and Jocelyn Dillard, MPH, Public Health Analyst, Advanced Nursing Education Branch, Division of Nursing and Public Health, Health Resources and Services Administration.

The preparation of NACNEP's 19th Report involved a collaborative effort with input from all Council members. The following two work groups – the recommendations work group and writing work group – were indispensable in the development of the Council's recommendations and the drafting of the report text.

2022-3 Recommendations Work Group

Dr. Steven Brockman-Webber
Dr. Meredith Kazer
Dr. Courtney Pitts
Dr. Carolyn Porta
Ms. Constance Powers
Dr. Teresa Shellenbarger
Ms. Christine Smothers

2022-3 Writing Work Group

Dr. Meredith Kazer
Dr. Nina McLain
Dr. Carolyn Porta
Ms. Constance Powers
Dr. Teresa Shellenbarger

Additionally, the Council would like to recognize the efforts of the following federal staff from the Health Resources and Services Administration, Bureau of Health Workforce, Division of Nursing and Public Health: NACNEP Interim Chair and Designated Federal Officer Dr. Justin Bala-Hampton, and Technical Writer Mr. Raymond J. Bingham.

NACNEP appreciates the hard work and dedication of all these individuals who contributed to the development and completion of its 19th Report.

Executive Summary

The multiple challenges facing the current nursing workforce should concern anyone in need of healthcare – in other words, everyone. Nurses play an essential role in helping people live their healthiest lives, addressing the root causes of poor health, and managing teams that bring together clinical care, public health, and social services. They are often the first and most frequent line of contact for patients and families entering the healthcare system. National surveys have revealed nurses as the most trusted professionals. However, as the United States emerges from the prolonged impact of the COVID-19 pandemic [2020-2023], the U.S. healthcare system faces a severe shortage of nurses to meet the health needs of the population, while the stresses of the pandemic have led many nurses to consider changing roles away from patient care or even changing professions.

Many nursing leaders and organizations are calling for renewed investment to strengthen and rebuild the nursing workforce, attract more nursing students, and improve nursing education to mitigate the current workforce challenges. The **National Advisory Council on Nurse Education and Practice (NACNEP)** adds its voice to these calls, noting four specific areas in need of immediate attention and federal investment:

- ***Nurse faculty shortage*** – Nursing schools require a strong nurse faculty workforce dedicated to educating the incoming generation of nursing students. NACNEP proposes steps to close the salary gap between nurse faculty and similarly-credentialed advanced practice nurse clinicians to attract more educators and strengthen nursing education, research, and scholarship.
- ***Clinical preceptor training*** – Clinical preceptors provide individualized guidance to students and model professional behavior to help bridge the theory-practice gap. However, nursing education faces a shortage of expert clinical preceptors, and lacks a consistent structure to prepare experienced nurses for the preceptor role or compensate them for this vital service. NACNEP proposes funding for programs to promote the training and compensation of clinical preceptors.
- ***Nursing student internship opportunities*** – Many undergraduate or pre-licensure nursing students, especially those from rural, minority, or other underrepresented populations in nursing, need a path for financial support that can offer valuable exposure to the clinical work environment, provide a source of income, and enhance academic preparation. NACNEP proposes support for paid internship opportunities for nursing students to improve training and promote workforce diversity.
- ***Nursing education infrastructure*** – Nursing programs strive to incorporate innovative educational strategies and technologies into both undergraduate and graduate nursing curricula, including simulation and virtual reality. However, the costs to initiate and sustain such programs can be prohibitive. NACNEP proposes investments in updating nursing education infrastructure to improve student preparation.

The Council’s recommendations provide some initial steps that promise to substantially improve nursing education and enhance the nursing workforce to mitigate current workforce challenges, toward the goal of higher quality healthcare for all.

NACNEP Recommendations to the Secretary of HHS and Congress

1. The U.S. Congress should fund models that demonstrate a commitment to salary equity and sustainability for nurse faculty commensurate with health care trends and demands.
2. The U.S. Congress should fund the professional development and compensation of preceptors who are supporting preparation of our future nursing workforce through mechanisms including but not limited to stipends and continuing education.
3. The U.S. Congress should fund workforce pathway models that feature paid nursing student internships with an incentivized mentorship program to foster opportunities for nursing students to gain team-based nursing experience in varied healthcare settings.
4. The U.S. Congress should fund educational infrastructure advancement that demonstrates the ability to establish and employ innovative pedagogical strategies (e.g., virtual/augmented reality, robotics, simulation) to enhance undergraduate and graduate nursing education.

Introduction

The multiple challenges facing the current nursing workforce should concern anyone in need of healthcare now, or who may seek healthcare in the future for themselves or their loved ones – in other words, everyone. As the National Academy of Sciences, Engineering, and Medicine (NASEM) recognized in its 2021 report, *The Future of Nursing 2020-2030: Charting a path to achieve health equity*, nurses play an essential role in helping people live their healthiest lives, addressing the root causes of poor health, and managing teams that bring together clinical care, public health, and social services. Nurses provide comprehensive care for patients and families in times of crisis – during sickness, trauma, and loss. They are often the first and most frequent line of contact of the health care system with people of all backgrounds and experiences seeking care (NASEM, 2021). National surveys over the last 20+ years have revealed that the public values nurses as the most trusted professionals (Brenan, 2023).

However, as the United States emerges from the prolonged impact of the COVID-19 pandemic [2020-2023] and enters the post-pandemic phase, the U.S. healthcare system faces a severe shortage of nurses to meet the health needs of the population, with a projected shortfall of 78,610 registered nurses (RNs) in 2025, and 63,720 RNs by 2030 (Health Resources & Services Administration [HRSA], 2022a). A survey by AMN Healthcare (2022) found that 85% of hospital-based RNs were considering changing roles or changing professions in the next year. A study by the National Council of State Boards of Nursing (NCSBN) found that roughly 100,000 RNs left the workforce during the pandemic, and over 600,000 reported an intent to leave within the next four to five years. Dr. Maryann Alexander, NCSBN Chief Officer of Nursing Regulation, stated “The pandemic has stressed nurses to leave the workforce ... which will become a greater crisis and threaten patient populations if solutions are not enacted immediately (NCSBN, 2023).” In a recent letter to the Secretary of Health and Human Services, the American Nurses Association (ANA) noted that “the nation’s health care delivery systems are overwhelmed, and nurses are tired and frustrated,” and called upon the federal government to “take concrete action to address the current crisis-level nurse staffing shortage that puts nurses’ ability to care for patients in jeopardy (ANA, 2021).”

The **National Advisory Council on Nurse Education and Practice (NACNEP)** adds its voice to these calls, noting four specific areas in need of immediate attention and federal investment to rebuild the workforce and mitigate workforce challenges by optimizing learning environments.

Nurse Faculty Shortage

The severe and long-standing *nurse faculty shortage*, described in the NACNEP 17th report, has continued to worsen as a result of the pandemic (NACNEP, 2021). A significant salary gap between nurse faculty, often requiring a doctoral degree, and doctorally prepared advanced practice registered nurses (APRNs) in clinical practice is a major contributor to this shortage. Even prior to the pandemic, nursing schools across the country struggled to expand capacity to meet the rising need to educate and train more RNs. In 2021, over 90,000 qualified applications from baccalaureate and graduate nursing programs were turned away, mostly due to an insufficient number of nurse faculty. Most nursing schools pointed to faculty shortages as a top reason for not accepting all qualified applicants into their programs (American Association of Colleges of Nursing [AACN], 2022).

Clinical Preceptor Training

While didactic teaching in the classroom or through laboratory and simulation exercises can provide nursing students with the foundational concepts of nursing fundamentals and health and behavioral science, nursing students also need practice opportunities within clinical settings under the supervision of an experienced nurse serving as a ***clinical preceptor***. However, nursing education faces a shortage of expert clinical preceptors, and lacks a consistent structure to train or prepare experienced nurses for the preceptor role or compensate them for this vital service. An insufficient number of well-prepared clinical preceptors contributes to the inability of schools of nursing to accept, educate, and train more students.

Nursing Student Internship Opportunities

With a lack of dedicated funding for nursing education in the form of scholarships, loan repayment programs, or other financial incentives, many nursing students need a source of income while in school. ***Nursing student internships***, programs sponsored by hospitals and other healthcare settings that offer valuable exposure to clinical settings while providing a source of income, experience, and academic credit, can allow more students from a broader range of backgrounds to pursue a career in nursing.

Nursing Education Infrastructure

Education serves as the foundation for addressing the current challenges in the nursing workforce. Nursing schools require ongoing investment in ***nursing education infrastructure*** to keep up with rapid changes in clinical care, patient populations, and advancing technology. Funds are needed to expand and upgrade classroom and laboratory space, and to incorporate innovative pedagogical methods that enhance instruction and improve student preparation through clinical simulation, virtual reality, and related technologies.

NACNEP's Call for Action

The charge of NACNEP includes making recommendations to the Secretary of Health and Human Services (HHS) and Congress on policy matters arising in the administration of Title VIII of the Public Health Service Act, including the range of issues relating to the nurse workforce, nursing education, and nursing practice improvement. As the nation moves into the post-pandemic phase, it needs solutions with sufficient breadth and depth to allow academic nursing to prepare the nursing workforce of the future. The members of NACNEP call for bold and innovative approaches to bolster federal support for the nursing workforce along four lines:

- Close the salary gap for nursing faculty to attract more educators and strengthen nursing education, research, and scholarship,
- Promote the training and compensation of clinical preceptors to prepare students for practice,
- Provide paid internship opportunities for nursing students to enhance training and advance workforce diversity, and
- Invest in updating and sustaining nursing education infrastructure to improve student preparation.

The Council's recommendations provide some initial steps that promise to substantially enhance the nursing workforce and mitigate current challenges, toward the goal of higher quality healthcare for all.

Salary Equity and Sustainability for Nurse Faculty

One obvious solution to the depletion of the current nursing workforce is to recruit and prepare more nurses. However, nursing schools require a strong nurse faculty workforce dedicated to educating the next generation of nursing students capable of responding to the evolving needs of the healthcare system. Today's nurses must learn not only the health and behavioral sciences and the provision of care, but also clinical leadership, research, evidence-based practice, and quality improvement across the spectrum of care settings. The 2011 Institute of Medicine [now NASEM] report, *Future of Nursing: Leading change, advancing health*, called for a more highly educated nursing workforce to allow “an opportunity for the profession to meet the demand for safe, high-quality, patient-centered, and equitable health care services (p. xii).” To deliver on this call, the numbers of nurse faculty need to expand and current faculty members need greater support.

Noncompetitive salaries for nurse faculty, remains a daunting barrier for faculty employment and retention.



Nurse faculty are engaged in “the integration of practice, education, and research within baccalaureate and graduate schools of nursing ... [they] demonstrate a commitment to inquiry, generate new knowledge for the discipline, connect practice with education, and lead scholarly pursuits that improve health and health care (AACN, 2016, p. 5).” Nurse faculty provide instruction at all levels of education, in the classroom, learning laboratories, simulation settings and across clinical practice settings. In addition, faculty members broaden scholarship and generate research to ensure that nurses are providing healthcare that meets current needs and that can adapt to the future needs and demands of the nation’s population.

The shortage of nursing clinicians and nurse faculty are intertwined. A depleted nursing workforce leaves too few highly-educated and experienced nurses with the desire, drive, and ability to devote their careers to academia. In a national survey of over 1,000 experienced nursing faculty, Berent and Anderko (2011) report that factors contributing to nursing faculty shortages include an aging workforce, an insufficient number of nurses pursuing or obtaining post-graduate education and doctoral degrees, and low faculty salaries compared to those available in clinical practice settings. They also describe positive factors of the faculty role, including satisfaction with the teaching role and ability to shape nursing practice, as well as the sense of mission and community found in teaching.

NACNEP (2021) previously identified several factors contributing to a shortage of nursing faculty, chief among them salaries that are not competitive with those of APRNs with similar credentials working in clinical practice. Faculty salaries continue to be less than 75 percent of practice salaries, creating a significant wage gap between sites of employment. AACN reported that average academic nurse faculty salaries range from \$59,865 for master’s prepared faculty to \$132,335 for those with doctoral degrees (AACN, 2023). 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). The opportunity to shape the future nursing workforce is one of the primary attractions of the faculty role, but it cannot overcome the salary discrepancy between academia and practice. In 2022, the HRSA Division of Nursing and Public Health conducted an informal survey of grantee institutions of its nurse faculty grants, receiving responses from a total of 37 programs, with 27 located in a primarily urban area, and 12 in a rural area (3 identified as having locations in both). The most common reported challenges in recruiting nurse faculty included low salary, along with location, inflexible work schedules or lack of work-life balance, competition with other nursing schools for a limited applicant pool, and the need to hire diverse faculty to mirror the student population. Recruitment strategies included offering remote work and smaller class sizes, promoting mentoring relationships with experienced faculty, allowing the flexibility to teach and to maintain clinical practice, and providing research and scholarship opportunities. Still, respondents identified non-competitive salaries as the primary challenge in recruiting new and retaining existing faculty (Dillard & Toor, 2023).

A recent report by the human resources company Lattice (2021), spanning multiple industries, revealed adequate compensation as the most important factor in employee recruitment and retention. The majority of respondents who left their roles did so for higher pay. Nursing faculty are not immune to these societal and career pressures. While work in academia can be personally rewarding, it is also difficult, demanding, and often under-appreciated and underpaid.

A 2012 survey of nurses pursuing a doctoral degree found that the most important barriers to pursuing 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 to consider doctoral training early in their education and encouraging early exposure to nurse faculty careers (Fang & Bednash, 2014).

Noncompetitive salaries for nurse faculty, in comparison to faculty in other academic areas as well as APRNs in clinical roles, remains a daunting barrier for faculty employment and retention. There are several state-level initiatives to address the nurse faculty shortage. For example, the Maryland Higher Education Commission has provided support to almost one thousand nurse faculty members through a variety of programs, including the New Nurse Faculty Fellowship Program, funded by the Maryland Health Services Cost Review Commission and supported by an annual percentage of Maryland hospitals' patient revenue (AACN, 2022). In 2022, the state of Vermont took some steps to address its nursing crisis, with key points of discussion including the need to build and retain a strong nursing faculty workforce capable of educating a sufficient number of students to meet current healthcare needs. As a result, Vermont is considering legislative efforts to improve nurse educator salaries (Sanders, 2022).

NACNEP believes that nursing faculty must be compensated at least at a level commensurate with faculty in other professions and with their equivalently credentialed APRN clinician counterparts. Given the deep entrenchment of this salary gap, though, incremental changes are unlikely to succeed. Thus, NACNEP is recommending Congressional support for a *short-term* grant program to bolster faculty salaries within institutions that receive federal grant monies for nursing education and that commit to sustain *long-term* faculty salary equity, along with follow-up studies on the outcomes in terms of success and sustainability in attracting and retaining more


faculty. Such a model promises to attract more nurses into the faculty role and to strengthen and diversify the nurse faculty workforce.

The initial funding could create pilot programs to pursue salary equity for nurse faculty. If successful, the projects would serve as national models to be implemented at other institutions not covered by federal grant funding, and could help individual states to integrate higher nurse faculty salaries at state-supported nursing schools. Without sufficient faculty, these schools will not be able to prepare enough students to meet local health care demand, which is of interest to individual states as well as the federal government.

This bold and innovative step would address many of the current challenges facing the nursing profession by developing a strong and flexible nurse faculty workforce, strengthening nursing education, and promoting nursing scholarship and research to improve the health of the nation's populace.

Professional Development and Compensation of Preceptors

Classroom instruction through didactic lectures, clinical laboratory exercises, and simulation can provide the foundational concepts for nursing roles. However, nursing students also need practice opportunities to develop professional competencies such as clinical judgment, multitasking, prioritization, and problem-solving, as well as psychomotor, interpersonal, and organizational skills. Clinical learning experiences in a variety of acute care and primary care clinical settings are central to both undergraduate and graduate nursing education and professional development, allowing students to integrate theoretical knowledge gained in the classroom into real-life clinical situations.



With clinical preceptors in increasingly short supply, their contributions must be valued and recognized through professional development and preparation as well as through financial compensation for their time, effort, and expertise.

One model of clinical education in nursing involves a nursing faculty member supervising a group of students – typically 6-12 undergraduates or smaller groups of post-graduates – in a healthcare facility or clinical agency. This model presents challenges due to the unpredictable nature of the rapidly changing healthcare environment, and the limited capacity of one faculty member to support, supervise, and guide a group of students. Furthermore, nurse faculty and student groups are often considered guests, which may limit access to patient care areas and experiences (Chicca, 2020; Oermann et al., 2023).

More recently, preceptorships (also referred to as practicums or capstone experiences) have emerged as an alternative or supplement to traditional clinical education. Preceptorships involve a collaborative partnership between educators, students, and a clinical preceptor. The personal and individualized guidance provided by expert preceptors allows students to receive regular and consistent support during clinical learning experiences to facilitate role development, socialization, and acquisition of needed knowledge, skills, and competencies. The preceptor serves as a role model for professional behavior and attitudes, and helps to bridge the theory-

practice gaps. The preceptor must also assess preceptee preparedness, offer feedback and coaching for improvement, and work with educators to evaluate preceptee performance and competence (Chicca & Shellenbarger, 2020).

Preceptorship experiences used with nurses who are transitioning from a student role to a practicing nurse are often referred to as *residencies*, while those focusing on the transition to APRN roles may be referred to as residencies or *fellowships*. Literature suggests that preceptor experiences have been highly effective in helping graduate nursing students transition to their new practice role post-graduation by helping to build competence and confidence (Quek & Shorey, 2018). This guided transition is key to achieving a qualified nursing workforce adequately equipped to address the complex care needs and challenges in healthcare.



Smith, et al (2022) conducted an integrative review of 115 nursing articles from fifteen countries to fully understand the best practices to develop preceptor programs and support preceptors. They reviewed evidence indicated that preceptor training programs need to focus on the development of critical thinking, prioritizing, teaching techniques, conflict management, clinical reasoning, and teamwork, as well as the “soft skills” needed to promote professional socialization and learning. Preceptors need training in effective coaching, modeling, reflection, delivering effective and useful feedback and guidance regarding performance, and building a scaffolding for learning. Some nursing education programs offer informal preceptor support or provide a limited orientation with manuals and guidebooks. However, these strategies lack standardization, and need a more formalized and consistent approach. Furthermore, preceptors take on the added burden of working with and guiding novice nurses but rarely receive any professional recognition or added compensation, which can contribute to role burnout. An older systematic literature review (Irwin et al., 2018) identified key themes related to preceptorships and suggested nationally agreed-upon training for preceptors, including educational theory and skill development on the use of feedback.

Historically, practice-based nurse preceptors have been asked to accept and mentor students, interns, and residents as part of their day-to-day scope of work in contributing to the development of the future nursing workforce. Most have done so readily, recognizing the value to self, their students, and the healthcare system (Regaira-Martínez et al., 2023). Still, many nurses who serve as preceptors have received little or no formal training for the role. They might be excellent clinicians with a broad skill set, but they may not be prepared to adopt the educational and oversight responsibilities. State board of nursing requirements for preceptors vary from state to state, and accrediting agencies may set preceptor requirements as well. Meanwhile, preceptees come to the setting with diverse backgrounds and needs, and the health care environment is fast-paced and exacting, complicating the preceptor experience.

Lack of educational preparation for the preceptor role may ultimately impact a preceptor’s confidence and skill. In addition, most staff RNs and APRNs are already overloaded with clinical care demands and must deal with increased patient complexity. Preceptors may be expected to maintain their usual clinical workload while training a novice preceptee. In some

situations, the preceptor/preceptee dyad may even receive an increased workload as the preceptee may be inappropriately considered as extra nursing staff, with no consideration given to the additional time and effort needed for guiding, supporting, or evaluating the student. Nursing schools typically do not offer incentives to the preceptor for the educational and training responsibilities they assume, while the preceptor role may not be included in the nurse's job description or contribute to job performance reviews.

Providing preceptors with formal structured initial training, ongoing support, and financial incentives for assuming the preceptor role is critical for ensuring they have the necessary skills and motivation to guide preceptees. In addition, providing appropriate and targeted professional development for preceptors helps to enhance their role commitment and broaden their expertise, thus potentially impacting retention rates. Given the rising cost of higher education, schools of nursing, and ultimately nursing students, can no longer assume the full financial burden associated with preceptorship experiences. The graduate medical education model can serve as a framework for the development of a nursing education model that could enhance preceptor training and support, promote academic-practice partnerships, reduce preceptor workload, and offer financial and career ladder incentives. Implementation of a nursing education model along these lines could provide valuable data about the quality and success of preceptor programs.

HRSA had responded to previous calls of support for both faculty and preceptors by creating regional clinical faculty and preceptor academies across the country, one in each of HRSA's 10 regional areas. The academies consist of academic-clinical-community partnerships that develop and implement formal curricula to train both nursing faculty and preceptors (HRSA, 2022b).

Among other approaches, several states offer tax incentives to nurses serving the preceptor roles. (AACN, 2022). In addition, the Washington State legislature supported a grant program to the Washington Nursing Commission Quality Assurance Commission to provide funding for nurses who volunteer to precept nursing students (Washington State Board of Nursing, 2023). Although the program has just been developed, it has the potential to serve as a model to help reduce nursing workforce concerns.

Within nursing education at both the undergraduate and graduate levels, preceptors make critical contributions to nursing and healthcare and hold a vital key to achieving a qualified, well-trained, professional nursing workforce. The significant work of preceptors must be valued and recognized through professional development and preparation as well as through financial compensation for the preceptor's time and effort. However, given the demands of the role and inadequacy of compensation, preceptors are in increasingly short supply, and many experienced clinicians are no longer willing or able to fulfill the role. NACNEP calls for Congress to provide funding for programs and incentives that bolster the professional development of preceptors through stipends and continuing education opportunities, and offer reimbursement for their contributions to educating and training the future nurse workforce.

Paid Nursing Student Internships

Exposure to clinical learning environments (broadly defined to include any real-world nursing role/workplace) during a nursing student’s educational career serves as a critical contributor to competency development and confidence. It also allows students to explore different areas of employment or specialty interest. Nursing student internship programs, providing students with supervised on-the-job experience and financial compensation, offer promise in part because they are uniquely positioned at the intersection in which nursing students have some basic skills useful to the workforce but still need to develop competencies prior to licensure or certification.

However, the U.S. nursing education origin story of hospital based “nurse training” is generally criticized for its predominant apprenticeship approach involving unpaid labor; this history is routinely cited as critical to avoid



By offering paid work/learning opportunities, student nurse internship programs can foster professional commitment, enhance readiness to practice, and promote nursing workforce diversity.

when new clinical placements are negotiated or established (Whelan & Buhler-Wilkerson, 2011). Thus, internship programs have been viewed warily by some in nursing education, wanting to avoid exploitation of students. History need not be repeated, and careful collaboration between academic settings and clinical partners can ensure internship programs serve the needs of the student.



A position within a paid student internship program differs from a job that a student may take as a patient care technician or similar role in that the internship program would work with the associated academic institution to provide academic credit and related educational opportunities, strengthening the student’s preparation for practice while providing a means of financial support.

Healthcare organizations have been slow to adopt student nurse internship programs due to numerous factors: administrative burden; confusion in defining the nurse intern role, scope, and differentiation from other roles; and maintaining the program with adequate student supervision from nurse preceptors. Thus, prelicensure/precertification student nurse internship programs have not received the attention or investment that they deserve. With advancement of competency-based education and the revised *AACN Essentials* (2021), student nurse internship programs serving prelicensure nursing students can address both academic and clinical needs. These programs have potential benefits that can significantly outweigh concerns or challenges if established using best practices and in thoughtful collaboration among education and practice entities. Interns become immersed in the healthcare system culture and environment, which can foster professional commitment and intention to stay on when their nursing education program is completed. Experience as an intern can fast-track future onboarding and orientation requirements, and enhance readiness to practice.

Furthermore, there is potential for student nurse internship programs to consolidate some students’ employment and work demands by providing compensation (e.g., income, tuition

reimbursement, stipend) for work that simultaneously achieves academic requirements. This synergy could alleviate some of the burdens experienced by nursing students who must work while in school to meet life demands. Thus, student nurse internship programs would indirectly support diversification of the nursing workforce by offering paid work/learning opportunities that could be particularly appealing to students across the spectrum of diverse lived experiences, environments, and demographics (Raymond et al., 2022).

Finally, intern programs could serve as a highly effective model of transition from school to practice with an appropriate longitudinal program evaluation plan in place, while fostering incorporation within the broader healthcare team, appropriate level of nursing responsibility, and a stepwise income pathway for these new nurses.

Roush et al. (2021) report on one program designed to help the student intern become familiar with the healthcare environment and provide applicable skills that could be used after graduation, including critical thinking and reasoning. The program included hands-on patient care experiences with an RN Advisor (preceptor), nursing observations, interdisciplinary shadowing, classroom learning, debriefing sessions, and completion of an evidence-based practice project. The program allowed students to build relationships with their peers and colleagues that helped to alleviate stress and anxiety. Over the first two years of the program, the students had a high first-time pass rate on their licensure exam, along with higher retention rates in their first RN positions that resulted, among other benefits, in a cost savings for the sponsoring hospital.

The NACNEP recommendation that Congress establish mechanisms to support healthcare systems in creating student nurse internship programs is grounded in overcoming the historic and current barriers that many systems experience. While the incentive structure might vary with clinical entity and setting, a systematic approach to establishing internship programs would ensure that an evidence-grounded, comprehensive strategy is employed by each entity.

Demonstration projects that establish paid student nurse internship programs with funding for student interns and appropriate incentives for mentors/preceptors would inform and illuminate the complex challenges experienced in nursing education and practice by the students, the faculty/academy, and the clinical workplace. Careful attention to evaluation of program outcomes including return on investment in the mid- and long-term would also address existing knowledge gaps (Griffiths et al., 2022) and ensure that true costs, benefits, outcomes, and unintended consequences are documented and disseminated to guide future actions by academia and healthcare systems.

NACNEP notes that to be accepted into and succeed in internship programs, undergraduate nursing students first need a strong didactic grounding in health science and nursing theory provided by competent nurse faculty, along with appropriate clinical guidance and supervision delivered by well-trained preceptors. Thus, the implementation of this recommendation is intertwined with the first two recommendations in this report.

Educational Infrastructure Advancement

Over the past decade, there has been a significant increase in efforts by nursing programs to incorporate innovative education strategies and technologies into both undergraduate and graduate nursing curricula, as a complement to and enhancement of traditional learning methods.



New approaches such as simulation, virtual reality (VR), robotics, and competency-based education models have had substantial impacts on the current and future nursing workforce in helping to prepare students to address the complex needs of patients across care environments and adapt to new care practices, such as telehealth. Early integration and use of educational technologies can support competency development, while offsetting the student burden on agencies where clinical rotations take place. Incorporating these technologies into the classroom also acclimates students to the modalities often used in practice settings for continuing education or enhancement and monitoring of skill proficiency.

The ability to evaluate students' competency to practice, as detailed in the *AACN Essentials* (AACN, 2021), is enhanced when simulation-based experiences (SBE) are designed to provide a safe learning environment and facilitated by faculty and clinical educators who are qualified to support effective technology enhanced experiences. Opportunities to expand the capacity for nursing education through these innovative educational strategies will afford nursing educational institutions nationwide the opportunity to prepare a greater number of qualified nurses.

The landmark multisite longitudinal National Simulation Study conducted by NCSBN provided evidence that high-quality SBE can replace up to half of the required traditional clinical hours of prelicensure nursing programs to achieve similar learning outcomes (Hayden et al., 2014). NCSBN recommended specific guidelines for training nurse educators to implement simulation training programs across nursing education (Alexander et al., 2015).



A growing body of evidence highlights numerous positive outcomes from the use of SBE. For pre-licensure nursing students, high-quality simulation scenarios with structured debriefing have consistently demonstrated gains in clinical competence (Arrogante et al., 2021; Craig et al., 2021; Al Gharibi et al., 2021), development of clinical judgment skills (Klenke-Borgmann, 2020; Fogg et al., 2020; Salameh et al., 2021), clinical reasoning (Hu et al., 2021; Theobald et al., 2021), confidence (Labrague et al., 2019;

Goldsworthy et al., 2022), communication (Choi et al., 2020; Donovan & Mullen, 2019; Li et al., 2019), and cultural competence (Marja & Suvi, 2021). While graduate nursing students cannot replace clinical hours with simulation exercises, the application of these innovative strategies is not limited to clinical augmentation. The integration of simulation into the learning environment has moved beyond replacing hospital-based clinical experiences and is effectively applied to didactic and laboratory settings (Hayden et al., 2014).

Nurse faculty need foundational and ongoing education in the use of simulation exercises through targeted development opportunities that enhance their knowledge and skills (Nehring, Wexler, Hughes, & Greenwell, 2013). The International Nursing Association for Clinical and Simulation and Learning (INACSL) has published the *Healthcare Simulation Standards of Best Practice™* (INACSL Standards Committee, 2021) to set a standard for high-quality simulation for nursing students. In addition, the Society for Simulation in Healthcare (SSH, n.d.) offers advanced training and simulation center accreditation, while qualified faculty may obtain the Certified Healthcare Simulation Educator credential.

While nursing programs have recognized the need improve the infrastructure and utilization of educational technologies, the purchase and upkeep of new equipment, software, and related technology is cost-restrictive. Anticipated costs include staffing and training needs, classroom and laboratory space, and equipment and technology purchases and upgrades. The initial start-up costs depend on the size of a program, while lack of suitable physical space can limit the ability to create a technology enhanced learning environment. Equipment may include VR headsets; patient mannequins; task trainers; laptop computers or tablets; cameras and microphones with recording software; and basic clinical equipment needed to replicate a patient care area. The start-up costs for equipment can range from an estimated \$100,000 to several million dollars, with additional costs of routine maintenance, repair, and customer support. In addition, many technologies require periodic hardware and software updates or replacement.


Current educational funding models are inadequate to establish these technologies. Thus, many programs rely on grants to cover initial startup costs. Finding sustainable funding streams is paramount to the success of educational technology integration across all levels of nursing education (Senvisky & McKenna, 2023). Smaller or rural nursing programs may need help in developing academic partnerships with entities that have clinical simulation centers and certified simulation faculty. Nursing programs can benefit from technology center models that encourage collaborative, interprofessional SBE activities (McCrary et al., 2023). The HRSA Nursing Education, Practice, Quality, and Retention – Simulation Education Training (NEPQR-SET) program provided grant funding to enhance nursing education through the use of simulation-based technology for schools serving rural and other underserved populations (HRSA, 2023). However, modernizing nursing education will require substantial investment.

NACNEP recognizes the need for more comprehensive and long-term funding to develop, enhance, modernize, and sustain nursing educational infrastructure. Its recommendation to provide funds for educational infrastructure works hand-in-hand with the other recommendations in this report. Educational infrastructure provides tools that a well-trained faculty can use to enhance student learning. Well-prepared preceptors can help students integrate didactic learning, SBE, and in-person clinical rotations into real-life clinical practice. Nursing student interns bring fresh knowledge and familiarity with new simulation-based and related training techniques into the current clinical environment.

Conclusion

In every area of the health care system, RNs and APRNs provide essential services. They care for the sick and injured. They promote health at the individual, community, and population levels. They advance scholarship and research in care delivery and health outcomes. They are a trusted source of health information and education. However, the nursing workforce has faced longstanding issues and stresses in the healthcare system concerning professional practice and autonomy, which the COVID-19 pandemic greatly exacerbated.

Nurses are leaving the bedside in record numbers, creating shortages that threaten the functioning of the healthcare system and the health of the nation.



Nursing education requires an adequate number of highly qualified faculty and preceptors, a strong and broad-based student population, and the incorporation and use of emerging technologies.

Preparing more nurses and educating them to practice successfully while maintaining their own well-being is a vital approach to addressing the current nursing shortage. However, nursing schools are facing their own stresses with inadequate numbers of qualified faculty and preceptors, no consistent source of funding to support nurses during their training, and the ongoing need to incorporate new technologies into the curricula.

Nursing education requires an adequate number of highly qualified faculty and preceptors, a strong and broad-based student population, and the incorporation and use of emerging technologies, including telehealth, simulation, virtual reality, and other educational modalities to complement traditional learning methods and prepare students for the evolving healthcare system and workplace. Through steps to mitigate current workforce challenges by enhancing nursing education, NACNEP calls for federal investments to expand the nurse faculty workforce, prepare more preceptors, provide students with internship opportunities, and upgrade the educational infrastructure in terms of both space and technology. Strengthening nursing education is a crucial step in rebuilding the healthcare system in the post-pandemic phase and improving the health and the health care of the nation's populace.

NACNEP Recommendations and Rationale

1. The U.S. Congress should fund models that demonstrate a commitment to salary equity and sustainability for nurse faculty commensurate with health care trends and demands.

Rationale: Nursing schools require a strong nurse faculty workforce dedicated to educating the incoming generation of nursing students. Today's nurses must be highly educated not only in the health sciences and the provision of care, but also to be leaders in health promotion and quality improvement. To address the long-standing shortage of nurse faculty and attract more nurses into the faculty role, innovative measures are needed to improve faculty compensation commensurate with salaries available in practice.

2. The U.S. Congress should fund the professional development and compensation of preceptors who are supporting preparation of our future nursing workforce through mechanisms including but not limited to stipends and continuing education.

Rationale: Clinical preceptors provide individualized guidance to students and serve as a role model for professional behavior that helps to bridge the theory-practice gaps. However, few preceptors receive adequate training and support to optimize their role. Funding is needed to improve the preparation of and compensation for expert clinical preceptors.

3. The U.S. Congress should fund workforce pathway models that feature paid nursing student internships with an incentivized mentorship program to foster opportunities for nursing students to gain team-based nursing experience in varied healthcare settings.

Rationale: Paid nursing internship programs provide a path for financial support of undergraduate nursing students while enhancing their exposure to the healthcare work environment. New internship programs could also serve to promote the preparation and diversity of the future nursing workforce.

4. The U.S. Congress should fund educational infrastructure advancement that demonstrates the ability to establish and employ innovative pedagogical strategies (e.g., virtual/augmented reality, robotics, simulation) to enhance undergraduate and graduate nursing education.

Rationale: Nursing programs strive to incorporate innovative nursing education strategies and technologies into both undergraduate and graduate nursing curricula, but the initial costs can be prohibitive. Funding for the purchase and maintenance of new technologies such as clinical simulation and virtual reality can help nursing schools educate and prepare more students, and acclimate students to the complexities of the healthcare environment.

Glossary of Terms

Nursing student intern (nurse intern)

A *nursing student intern (nurse intern)* is an undergraduate, pre-licensure nursing student in the last year of nursing school, accepted to work within a paid patient care position during a period of time outside of a normal academic session. It is expected that the nurse intern will complete school and obtain licensure as a registered nurse within one year.

Nurse Internship program

A *nurse internship program* is an educational program designed for undergraduate, pre-licensure nursing students who will graduate within one year of the program session. The internship is a paid position, with an emphasis on advancing the student's clinical experience, knowledge, and clinical competence. The *nurse intern* works under the supervision and guidance of an experienced registered nurse serving as a *preceptor*. The nurse intern typically works with the preceptor in managing a full patient assignment to develop skills in clinical care and critical thinking, interact with patients and care team members, and learn time-management and other professional duties and responsibilities.

Nurse Resident

A *nurse resident* is a registered nurse with an active license, accepted into a paid position within a *nurse residency program* designed to support entry into practice or a transition between practice or specialty areas.

Nurse Residency program

A *nurse residency program* is designed to support the entry-level registered nurse (RN) during the transition into practice, or an experienced RN in the transition into a new specialty or area of practice. A nurse residency program uses evidence-based curricula to reinforce leadership, teamwork, patient care, and professional development through both didactic learning and clinical experiences. The requirement for entry into a nurse residency program is the possession of an active RN license.

Nurse Practitioner (NP) Residency/Fellowship Program

A *nurse practitioner residency/fellowship program* is a voluntary post-graduate training program through which a licensed and certified new graduate nurse practitioner (NP) is provided additional didactic and clinical experiences in an active clinical setting alongside other healthcare providers. The residency/fellowship program is designed to enhance the transition from education to practice. NP Residency/Fellowship programs aim to support novice NPs in their professional transition to clinical practice, especially in specialized areas of practice such as primary care, rural health, etc.

A nurse practitioner residency/fellowship program is a form of mentored clinical education that occurs within a structured learning environment, typically lasts 12 months long and diversifies

the NP clinical preparation via varied clinical rotations, supervised hours, and didactic training. NP resident/fellow participants are offered an intensive practicum as well as financial support, and work within an institution or community-based health center.

[Note: For nurse practitioners and other post-graduate advanced practice registered nurses, the terms “residency” and “fellowship” are often used interchangeably.]

Nurse Preceptor

A *nurse preceptor* is an experientially and/or academically qualified clinician with demonstrated competence in a specific area of practice who acts as a teacher, coach, and mentor. The preceptor supervises preceptees during a clinical rotation or any clinical experience, and provides the preceptee with an environment that permits observation, active participation, and management of direct patient care. The preceptor serves as a resource and role model, helping translate theoretical learning into real-world clinical practice. ***Preceptors are needed at all levels of nursing education.***

Preceptorship

A *preceptorship* is a clinical learning experience in which a preceptee is assigned to a designated *preceptor*, with oversight by the educator. The preceptorship provides practice experiences conducive to meeting the defined goals and objectives of the particular clinical course. Before and during this preceptorship, the academic program faculty may visit and assess the clinical learning site, prepare the clinical faculty/preceptors to understand the course objectives and requirements, and assess performance.

Precepting

Precepting is an organized, evidence-based, outcome-driven approach in which a preceptee works directly with an experientially and/or academically qualified individual serving as a *preceptor*. The preceptorship serves to develop competent practice. Precepting is used for many purposes:

- Pre-licensure or graduate students who are rotating into clinical areas,
- New graduates entering practice,
- New hire onboarding,
- When an experienced staff member transitions to a new specialty or desires to learn new skills, and
- When an experienced clinician moves into a new role, such as a nurse manager or clinical educator.

Abbreviations and Acronyms

AACN	American Association of Colleges of Nursing
ANA	American Nurses Association
AONL	American Organization for Nursing Leadership
APRN	Advance Practice Registered Nurse
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
INACSL	International Nursing Association for Clinical and Simulation Learning
NACNEP	National Advisory Council on Nurse Education and Practice
NASEM	National Academy of Sciences, Engineering and Medicine
NCSBN	National Council of State Boards of Nursing
NEPQR-SET	Nursing Education, Practice, Quality, and Retention – Simulation Education Training
RN	Registered Nurse
SBE	Simulation-Based Experiences
SSH	Society for Simulation in Healthcare
VR	Virtual Reality

References

- Al Gharibi, K. A., Schmidt, N., & Arulappan, J. (2021). Effect of repeated simulation experience on perceived self-efficacy among undergraduate nursing students. *Nurse Education Today*, 106, 105057. <https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nedt.2021.105057>
- Alexander, M., Durham, C. F., Hooper, J. I., Jeffries, P. R., Goldman, N., Kesten, K. S., Spector, N., Tagliareni, E., Radtke, B., & Tillman, C. (2015). NCSBN simulation guidelines for prelicensure nursing programs. *Journal of Nursing Regulation*, 6(3), 39-42. [https://doi.org/10.1016/S2155-8256\(15\)30783-3](https://doi.org/10.1016/S2155-8256(15)30783-3)
- American Association of Colleges of Nursing. (2016). Advancing healthcare transformation: A new era for academic nursing. Retrieved from www.aacnnursing.org/Portals/42/Publications/AACN-New-Era-Report.pdf
- American Association of Colleges of Nursing. (2021). The essentials: core competencies for professional nursing education. Retrieved from <https://www.aacnnursing.org/essentials>
- American Association of Colleges of Nursing. (2022). Nursing Faculty Shortage Fact Sheet. Retrieved from <https://www.aacnnursing.org/Portals/0/PDFs/Fact-Sheets/Faculty-Shortage-Factsheet.pdf>
- American Association of Colleges of Nursing (May 31, 2023). Rounds with Leadership: A closer look at the AACN data. Retrieved from <https://www.aacnnursing.org/news-data/all-news/rounds-with-leadership-a-closer-look-at-the-aacn-data>
- American Nurses Association (2021). ANA urges US Department of Health and Human Services to declare nurse staffing shortage a national crisis. Retrieved from <https://www.nursingworld.org/archive/news-releases/ana-urges-us-department-of-health-and-human-services-to-declare-nurse-staffing-shortage-a-national-crisis/>
- American Organization for Nursing Leadership. (2019). AONL Salary and Compensation Study for Nurse Leaders — Executive Summary (3rd ed.). Chicago, IL: American Organization for Nursing Leadership.
- AMN Healthcare. (2022). Survey of Allied Healthcare Professional New Graduate Hiring Patterns. Retrieved from <https://www.amnhealthcare.com/amn-insights/nursing/surveys/2023/>
- Arrogante, O., González-Romero, G. M., López-Torre, E. M., Carrión-García, L., & Polo, A. (2021). Comparing formative and summative simulation-based assessment in undergraduate nursing students: nursing competency acquisition and clinical simulation satisfaction. *BMC Nursing*, 20(1), 1-11. <https://doi:10.1186/s12912-021-00614-2>
- Berent, G. R., & Anderko, L. (2011). Solving the nurse faculty shortage: exploring retention issues. *Nurse Educator*, 36(5), 203–207. <https://doi:10.1097/NNE.0b013e3182297c4a>

- Brenan, M. (January 10, 2023). Nurses retain top ethics rating in U.S., but below 2020 high. *Gallup News*. Retrieved from <https://news.gallup.com/poll/467804/nurses-retain-top-ethics-rating-below-2020-high.aspx>
- Chicca, J. (2020). Should we use preceptorships in undergraduate nursing education? *Nursing Forum*, 55, 480-484. <https://doi.org/10.1111/nuf.12452>
- Chicca, J., & Shellenbarger, T. (2020). Implementing successful clinical nursing preceptorships. *Nurse Educator*, 45(4), E41-E42. doi: 10.1097/NNE.0000000000000750
- Choi, H., Lee, U., Jeon, Y. S., & Kim, C. (2020). Efficacy of the computer simulation-based, interactive communication education program for nursing students. *Nurse Education Today*, 91, 104467. Advance online publication. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nedt.2020.104467>
- Craig, S. J., Castello, J. C., Cieslowski, B. J., & Rovnyak, V. (2021). Simulation strategies to increase nursing student clinical competence in safe medication administration practices: A quasi-experimental study. *Nurse Education Today*, 96, 104605. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nedt.2020.104605>
- Dillard, J., & Toor, A. (2023). Nursing faculty shortage focus areas inquiry. Presentation to the National Advisory Council on Nurse Education and Practice, December 7, 2023. Retrieved from <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/community-based-linkages/meetings/toor-dillard-dnph-bhw-nursing-faculty-shortage-focus-areas-inquiry.pdf>
- Donovan, L. M., & Mullen, L. K. (2019). Expanding nursing simulation programs with a standardized patient protocol on therapeutic communication. *Nurse Education in Practice*, 38, 126-131. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nepr.2019.05.015>
- 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. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.outlook.2013.12.002>
- Fogg, N., Wilson, C., Trinka, M., Campbell, R., Thomson, A., Merritt, L., Tietze, M., & Prior, M. (2020). Transitioning from direct care to virtual clinical experiences during the COVID-19 pandemic. *Journal of Professional Nursing*, 36(6), 685-691. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.profnurs.2020.09.012>
- Goldsworthy, S., Muir, N., Baron, S., Button, D., Goodhand, K., Hunter, S., McNeil, L, Perez, G., McParland, T., Fasken, L & Peachey, L. (2022). The impact of virtual simulation on the recognition and response to the rapidly deteriorating patient among undergraduate nursing students. *Nurse Education Today*, 110, 105264. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nedt.2021.105264>

- Griffiths, M., Creedy, D., Carter, A., & Donnellan-Fernandez, R. (2022). Systematic review of interventions to enhance preceptors' role in undergraduate health student clinical learning. *Nurse Education in Practice*, 62, 103349. [https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nepr.2022.103349](https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nepr.2022.103349)
- Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation*, 5(2), S3-S40. [https://doi.org/10.1016/S2155-8256\(15\)30062-4](https://doi.org/10.1016/S2155-8256(15)30062-4)
- Hu, F., Yang, J., Yang, B. X., Zhang, F. J., Yu, S. H., Liu, Q., Wang, A. L., Luo, D., Zhu, X. P., & Chen, J. (2021). The impact of simulation-based triage education on nursing students' self-reported clinical reasoning ability: A quasi-experimental study. *Nurse Education in Practice*, 50, 102949. <https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nepr.2020.102949>
- INACSL Standards Committee, Hallmark, B., Brown, M., Peterson, D.T., Fey, M., & Morse, C. (2021, September). Healthcare simulation standards of best practice™ professional development. *Clinical Simulation in Nursing*, 58, 5-8. <https://doi.org/10.1016/j.ecns.2021.08.007>
- Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health*. Washington (DC): The National Academies Press. doi: 10.17226/12956
- Irwin, C. Bliss, J., & Poole, K. (2018) Does preceptorship improve confidence and competence in new qualified nurses: A systematic literature view. *Nurse Education Today*, 60(2018), 35-46. <http://dx.doi.org/10.1016/j.nedt.2017.09.011>
- Klenke-Borgmann, L. (2020). High-fidelity simulation in the classroom for clinical judgment development in third-year baccalaureate nursing students. *Nursing Education Perspectives*, 41(3), 185-186. doi: 10.1097/01.NEP.0000000000000457
- Labrague, L. J., McEnroe-Petitte, D. M., Bowling, A. M., Nwafor, C. E., & Tsaras, K. (2019). High-fidelity simulation and nursing students' anxiety and self-confidence: A systematic review. *Nursing Forum*, 54(3), 358–368. <https://doi.org/10.1111/nuf.12337>
- Lattice. (2021). State of People Strategy: The resiliency of people-first leadership. Retrieved from <https://people.lattice.com/rs/372-AAD-485/images/State%20of%20People%20Strategy%202021.pdf>
- Li, J., Li, X., Gu, L., Zhang, R., Zhao, R., Cai, Q., Lu, Y, Wang, H, Meng, Q. & Wei, H. (2019). Effects of simulation-based deliberate practice on nursing students' communication, empathy, and self-efficacy. *Journal of Nursing Education*, 58(12), 681-689. <https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.3928/01484834-20191120-02>
- Marja, S. L., & Suvi, A. (2021). Cultural competence learning of the health care students using simulation pedagogy: An integrative review. *Nurse Education in Practice*, 52, 103044. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nepr.2021.103044>

- McCrorry, K., Jowsey, T., & Chen, Y. (2023). Essential Elements of Preregistration Nursing Interprofessional Simulation Training. *The Journal of Nursing Education*, 62(1), 28–35. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.3928/01484834-20221109-02>
- National Academies of Sciences, Engineering, and Medicine. (2021). The future of nursing 2020-2030: charting a path to achieve health equity. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25982>.
- National Advisory Council on Nurse Education and Practice. (2021). 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*. Retrieved from <https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/nursing/reports/nacnep-17report-2021-508.pdf>
- National Council of State Boards of Nursing. (April 4, 2023). *NCSBN Research Projects Significant Nursing Workforce Shortages and Crisis*. Retrieved from <https://ncsbn.org/news/ncsbn-research-projects-significant-nursing-workforce-shortages-and-crisis>
- Nehring, W. M., Wexler, T., Hughes, F., & Greenwell, A. (2013). Faculty development for the use of high-fidelity patient simulation: A systematic review. *International Journal of Health Sciences Education*, 1(1), Article 4. Retrieved from <https://dc.etsu.edu/ijhse/vol1/iss1/4>
- Oermann, M. H., Shellenbarger, T., & Gaberson, K. B. (2023). *Clinical teaching strategies in nursing*. (6th ed.). Danvers, MA: Springer Publishing.
- Quek, G. J. H., & Shorey, S. (2018). Perceptions, experiences and needs of nursing preceptors and their preceptees on preceptorship: An integrative review. *Journal of Professional Nursing*, 34(2018), 417-428. <https://doi.org/10.1016/j.profnurs.2018.05.003>
- Raymond, C., Miller, K., Shelast, Y., Paananen, T., & McIntyre, S. (2022, October 21-22). To pay or not to pay: perceptions of students' preceptorship experience [Poster presentation with mini-oral session]. NETNEP 2022: 8th International Nursing Education Conference, Sitges, Barcelona, Spain.
- Regaira-Martínez, E., Ferraz-Torres, M., Mateo-Cervera, A. M., & Vázquez-Calatayud, M. (2023). Nurses' perceptions of preceptorship of undergraduate students in clinical context. *Journal of Professional Nursing*, 48, 15–21. <https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.profnurs.2023.05.008>
- Roush, K., Opsahl, A., & Ferren, M. (2021). Developing an internship program to support nursing student transition to clinical setting. *Journal of Professional Nursing*, 37(4), 696–701. <https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.profnurs.2021.04.001>

- Salameh, B., Ayed, A., Kassabry, M., & Lasater, K. (2021). Effects of a complex case study and high-fidelity simulation on mechanical ventilation on knowledge and clinical judgment of undergraduate nursing students. *Nurse Educator*, 46(4), E64–E69. [https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1097/NNE.0000000000000938](https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1097/NNE.0000000000000938)
- Sanders, B. (January 3, 2022). *Press Release: Sanders statement on the nursing workforce crisis*. Retrieved from https://www.sanders.senate.gov/wp-content/uploads/Sanders-Remarks-Nursing-Workforce-Final_1.3.22.pdf
- Senvisky, J. M., & McKenna, R. T. (March 6, 2023). Financing and funding a simulation center. *StatPearls. 2021: Treasure Island (FL)*. Retrieved from <https://www.statpearls.com/point-of-care/111084>
- Smith, L. C., Watson, H., Fair, L., Carter, G., Mackay, P., Lykens, K., Bradstock, J., Arnold, K., & Whalen, M. (2022). Evidence-based practices in developing and maintaining clinical nurse preceptors: An integrative review. *Nurse Education Today*, 117(2022), 105468. <https://doi.org/10.1016/j.nedt.2022.105468>
- Society for Simulation in Healthcare. (n.d.). *SSH accreditation of healthcare simulation programs*. Retrieved from <https://www.ssih.org/Credentialing/Accreditation>
- Theobald, K. A., Tutticci, N., Ramsbotham, J., & Johnston, S. (2021). Effectiveness of using simulation in the development of clinical reasoning in undergraduate nursing students: A systematic review. *Nurse Education in Practice*, 57, 103220. <https://doi.org.ezproxyhhs.nihlibrary.nih.gov/10.1016/j.nepr.2021.103220>
- U.S. Department of Health and Human Services, Health Resources and Services Administration. (2022a). Nurse Workforce Projections, 2020-2035. Retrieved from <https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/Nursing-Workforce-Projections-Factsheet.pdf>
- U.S. Department of Health and Human Services, Health Resources and Services Administration. (2022b). Nurse Education, Practice, Quality and Retention-Clinical Faculty and Preceptor Academies (NEPQR-CFPA) Program. Retrieved from <https://www.hrsa.gov/grants/find-funding/HRSA-22-170>
- U.S. Department of Health and Human Services, Health Resources and Services Administration. (2023). Nurse Education, Practice, Quality and Retention (NEPQR) Simulation Education Training (SET) Program. Retrieved from <https://www.hrsa.gov/grants/find-funding/HRSA-23-129>
- Washington State Board of Nursing. (2023, April 11). *Become a nurse preceptor for student nurses*. Retrieved from <https://nursing.wa.gov/education/student-nurse-preceptor>
- Whelan, J. C., & Buhler-Wilkerson K. (Dirs.) (2011). American nursing: an introduction to the past. *University of Pennsylvania School of Nursing*. Retrieved from <https://www.nursing.upenn.edu/nhnc/american-nursing-an-introduction-to-the-past/>