THE UNIVERSITY OF NORTH CAROLINA SYSTEM

and

NC COMMUNITY COLLEGES
CREATING SUCCESS

Recommendations on Increasing Nursing Graduates: In Response to SL 2022-74 (HB 103), Section 8.3

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University of North Carolina System Raleigh,
North Carolina

RECOMMENDATIONS ON INCREASING NURSING GRADUATES

EXECUTIVE SUMMARY

This document is a response to SL 2022-74 (HB 103), Section 8.3, Recommendations on Increasing Nursing Graduates[1], which charges the University of North Carolina Board of Governors, in collaboration with the State Board of Community Colleges, to study and provide recommendations on the methods and timeline for increasing the number of public postsecondary nursing graduates by 50 percent.

The focus of this report is pre-licensure nursing program graduates of either the North Carolina Community College System (NCCCS) or University of North Carolina System (collectively, the Systems) who have not previously obtained a license to practice nursing. There are two licenses covered by this designation: new Practical Nurses (PN) and new Registered Nurses (RN). The State Board of Nursing authorizes the NCCCS to teach 1,465 PN students and 7,386 RN students, and the UNC System to teach 3,166 RN students, for a total of 12,017 pre-licensure nursing students annually. In 2021, the NCCCS graduated 2,357 new RNs and 688 new PNs, while the UNC System graduated 1,167 new RNs for a total of 4,212 graduates entering the workforce.[2] To meet the goal of graduating 50 percent more, the Systems will need to graduate 6,318 additional PN and RN students.

Two broad categories of policy solutions would move the Systems towards graduating 50 percent more nursing graduates. The first aim is lowering the attrition rate for already-enrolled nursing students. The second is increasing the number of nursing enrollees. A realistic strategy for meeting the legislature's goal will require resource allocation towards both categories. However, the more the Systems lower attrition for current enrollees, the less new faculty and physical infrastructure are required for new enrollments.

Based on average historical attrition rates, every 100 additional nursing enrollees at a UNC System institution will yield approximately 86 additional nursing graduates. At an NCCCS, every 100 additional enrollees will yield approximately 56 additional graduates.[3] Key limiting factors in producing more enrollees are (1) employing increased numbers of teaching faculty and retaining existing faculty, (2)

[1] SL 2022-74. https://www.ncleg.gov/Sessions/2021/Bills/House/PDF/H103v5.pdf

[2] These numbers do not include RN to BSN, Master of Science in Nursing, and Doctor of Nursing Practice graduates since students in those programs are already licensed. The data is sourced from a survey sent to the NCCCS and UNC System nursing programs from the UNC System Office.

[3] These are conservative estimates in that they are attrition rates for all students rather than attrition rates for only PN and RN students. PN and RN attrition rates are likely to be lower. The estimate for NCCCS students is based on its system-wide "student success" rate of 56 percent, which includes students who transfer out to four-year programs.

providing increased opportunities for clinical placements, and (3) constructing new instructional space or repurposing existing instructional space. Current North Carolina Board of Nursing limits on enrollment size are not a barrier to meeting the goal at a systemic level. The North Carolina's public post-secondary nursing programs are enrolled at 47 percent of Board of Nursing limits. The difference between authorized enrollment and current enrollment is due to the resource constraints discussed herein.

Based on historical trends, we would expect PN and RN graduates from the Systems to increase by 50 percent over 2021 in the late 2030s. Efforts to substantially increase graduates are subject to unpredictable variables not wholly in the control of the state, including the uncertainty and lead time necessary for effective faculty, clinical site, and preceptor recruitment. Nevertheless, with significant resources, the policy interventions proposed in this report could shorten the time required to reach the goal to the late 2020s in the judgment of some nursing leaders.

INTRODUCTION AND CONTEXT

Nursing is a time-honored and specialized profession that serves as the backbone of the healthcare system in North Carolina. Across the health care setting spectrum, from public health to acute care to hospice, and across the life spectrum, from prenatal care to pediatrics to adults and geriatrics, nurses serve as the largest segment of the healthcare workforce team[4]. Nurses are the nexus between the patient's needs and the resources that are available to meet those needs. Through rigorous training, nurses use critical thinking to interpret both objective data, such as patients' lab values, and subjective data, such as the patients' life experiences, to plan, prioritize, implement, manage, and evaluate whole patient care. Nurses are at the center of the patient care team across all settings.

STUDY BACKGROUND

A working group composed of individuals from the UNC System, NCCCS, North Carolina Area Health Education Centers (NC AHEC), and the North Carolina Institute of Medicine (NCIOM) met frequently between August and December 2022 to develop the content of this report. The work was done in partnership with nursing program directors from both NCCCS and the UNC System, with additional support provided by the North Carolina Board of Nursing and the Cecil G. Sheps Center for Health Services Research.

In September 2022, a survey was prepared and distributed to the 12 UNC System and 56 NCCCS nursing programs. Responses were gathered between September 2022 and November 2022. This survey provided institutions and individual nursing programs with the opportunity to identify the specific factors that influence their enrollment and program graduate levels. The aggregate findings of this survey directly shaped the recommendations included in this report.

[4] National Academies of Sciences, Engineering, and Medicine. (2021). The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity. In The Future of Nursing 2020-2030. https://doi.org/10.17226/25982

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NORTH CAROLINA'S NURSING SHORTAGE

Over 100,000 RNs and almost 18,000 Licensed Practice Nurses PNs work across all settings and regions in North Carolina, with about half of RNs and more than one third of PNs trained from schools outside of North Carolina[5]. Additionally, a significant number of nursing graduates move out of the state, largely due to market demand and competitive salaries. According to NC Nursecast, nursing programs in North Carolina yield a high rate for graduates retained in North Carolina – LPN and ADN programs have a 92 percent retention rate and BSN programs have an 86 percent retention rate, as calculated two years after graduation. Investments in these programs are likely to result in a high workforce return for North Carolina. When COVID-19 arrived in the United States in early 2020, all aspects of health care, both education and practice, were impacted. Even prior to the pandemic, NC Nursecast predicted a prolific nursing shortage across most settings and regions, with an estimated shortage of 12,500 RNs and 5,000 LNs by 2033[6]. The largest shortfall of RNs is projected in hospitals, with an expected undersupply of 10,000 RNs. Nursing homes, extended care, and assisted living facilities are projected to be short by approximately 3,500 LNs, representing a nearly 50 percent shortage. These shortages are demonstrated across all NC Medicaid and NC AHEC regions. For RNs, nearly all regions will face a shortage, and metropolitan areas will face larger shortages than non-metropolitan areas[7].

REDUCING ATTRITION FOR NURSING STUDENTS

WITHIN THE UNC SYSTEM

In the UNC System, student retention in prelicensure nursing programs varies widely across institutions. The lowest average attrition rate reported across the institutions was 1.5 percent, while other institutions reported rates above 40 percent in select years. Some of these elevated attrition rates can be attributed to students who entered programs before or shortly after the start of the COVID-19 pandemic. However, some institutions continue to maintain consistently low attrition rates. This ability may stem from the larger scale of resources available to programs with higher enrollment; typically, larger programs are able to retain more students.

The most common reasons students gave for leaving their nursing programs were personal or financial circumstances, followed by academic issues/nursing course failure, major life changes, and health concerns. Institutions noted that students are offered support through mentorship, tutoring and remediation, and counseling to address these issues. Several institutions stated that more resources, especially direct financial support for students, were needed to improve retention rates.

Two of the institutions with the highest average attrition rates pointed to students' financial issues as a reason for the high attrition. Paired with these financial difficulties, many students are working long hours

[5] McCartha, E. B., & McCartha, E. B. (2022). SIDEBAR: NC nursecast: Understanding the nursing workforce in North Carolina North Carolina Medical Society [etc. doi:10.18043/ncm.83.3.164

[6] McCartha, E. B., & McCartha, E. B. (2022). *SIDEBAR: NC nursecast: Understanding the nursing workforce in North Carolina* North Carolina Medical Society [etc. doi:10.18043/ncm.83.3.164

[7] NC Nursecast. Accessed October 29, 2022: https://ncnursecast.unc.edu

while enrolled in these programs and may have challenges balancing their academic and employment responsibilities.

UNC System institutions often noted that increased and focused support prior to students entering the nursing program would lead to increased retention. Pre-nursing students must successfully complete a series of prerequisite science courses before gaining admission into a nursing program. Courses are taught in each institution's College of Arts and Sciences. Students must pass these courses in the first attempt to increase their chances of admission to a nursing program and to avoid additional tuition costs because they must retake the course.

Institutions suggest that investments to provide nursing students with better access to counseling and tutoring, additional faculty to provide remediation services and sessions, and academic services to develop math, writing skills, and test taking skills would likely lead to increase retention. Targeted investments in the institution at large would assist students with these strategies and build proficient study habits early on.

WITHIN THE NORTH CAROLINA COMMUNITY COLLEGE SYSTEM

Student retention is a significant challenge for most community college nursing programs. In the last three years, reasons for leaving nursing programs included academic failure, family and financial issues, and mental health wellness. Academic failure stems from students not being prepared for program rigor, demands on time related to work and childcare needs, as well as stress and mental wellness. Improvement of retention in community college nursing programs requires academic support, mentoring and success coaching as well as campus resources dedicated to social supports for nutrition, financial assistance, childcare, and counseling.

Mentorship is a critical component to success in nursing education at the community college level. Six rural nursing programs initiated a pilot program to improve student retention and student outcomes. The program identifies at-risk students early in their program of study and implements strategies to support the student including individual and group tutoring, instruction on study and test taking skills, time management, and work/life balance. A success coach mentors students throughout their program of study, tailoring services to meet the student's needs. The coach collaborates with faculty and acts as the first point of contact for concerns about student performance issues. The success coach serves as a subject matter expert in program curriculum process and tracks metrics relevant to student progression. This coaching process provides a trusting environment where students can share their thoughts, aspirations, concerns, and interests. In preliminary reports, success coaching dedicated to nursing programs increased retention. Similar programs scaled throughout the Systems would also have a likelihood of success.

Increasing the number of nursing graduates also requires consideration of the Systems' STEM faculty and infrastructure. Support levers must include nursing prerequisite courses for science and mathematics, particularly for those that have significant DFW (drop/fail/withdraw) rates. The Systems have already taken steps to address high failure rates by assembling standardized, free, and inclusive content and

resources across these courses and ensuring that the courses transfer easily between institutions and systems. These courses are offered during summer sessions in both Systems.

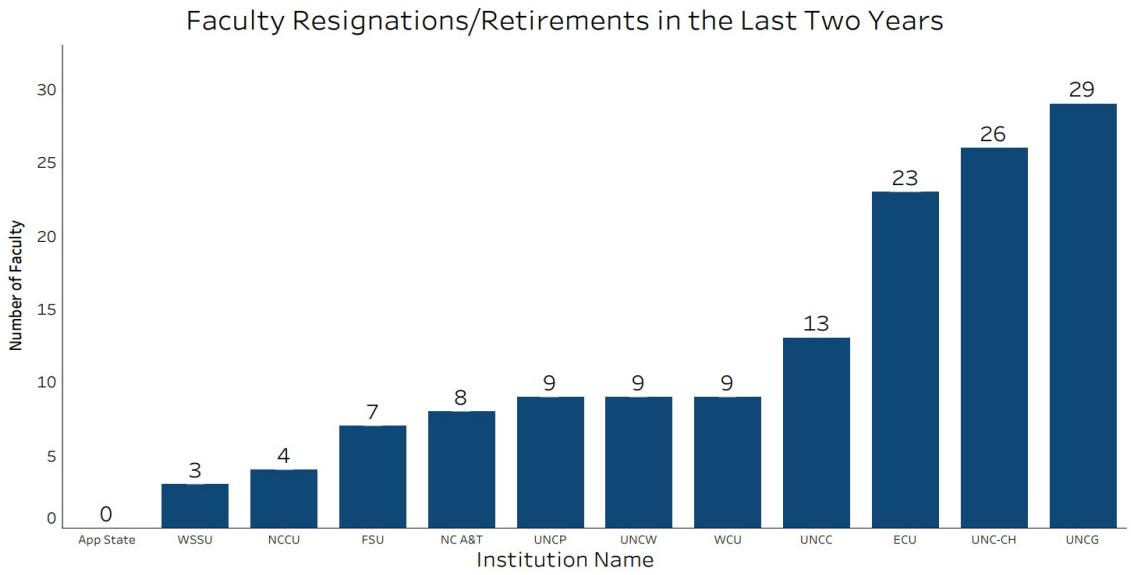
INCREASING NURSING ENROLLMENT

Because of the resource limitations discussed in this report, there is significant unmet demand from qualified applicants for the Systems' nursing programs. Increasing nursing enrollment would not require major student recruiting efforts. Rather, the Systems must address three supply-side challenges: (1) recruiting and retaining increased numbers of teaching faculty, (2) providing increased opportunities for clinical placements, including qualified preceptors, and (3) constructing new instructional space or repurposing existing instructional space.

ADDRESSING A NURSING FACULTY SHORTAGE

Budget constraints restrict institutions' ability to offer faculty salaries that are competitive with the salaries of nurses in practice. The issue is particularly acute for experienced nurses, who can earn significantly more as practicing nurses than as faculty. For example, one community college that serves one Tier 1 and one Tier 2 county is within a one-hour drive of multiple hospitals within two major North Carolina health systems. Faculty at the community college earn between $31.88 and $35.76 per hour depending on educational level. Without taking longevity pay into account, clinical nurses (levels CN-II through CN-IV) in one of the health systems earn between $37.80 and $40.29 per hour. This represents a loss of about $4,000 to over $17,500 *annually* for a clinical nurse who leaves practice to become nursing faculty.

Turnover among faculty is also a significant concern. UNC System institutions report losses of up to 29 faculty over the last two years (see figure below). The retirement of nursing faculty and the lure of private sector salaries both contribute to difficulties with faculty retention. Replacement costs associated with high faculty turnover is detrimental to nursing programs. Faculty turnover also has a negative impact on student success, persistence to degree, graduation, and licensure exam scores. Difficulties with recruiting qualified faculty stem from a lack of master's and doctoral level educators. Therefore, efforts to increase the number of pre-licensure nursing graduates will also require an investment in graduate nursing education.



Faculty recruitment and retention problems are just as acute within the North Carolina Community College System. Reasons cited for faculty vacancies include salary and flexibility. First, faculty who hold the BSN consistently earn less money than their clinical counterparts who also hold the BSN. Second, faculty are required to have education in adult teaching and learning, and some are required to have graduate degrees. Many potential faculty do not see the benefit of paying for additional education for a job that pays less than a clinical position. Finally, faculty are required to work a five-day work week, while many clinical faculty work three 12-hour shifts. As in the UNC System, faculty turnover has been significant over the past two years. Most programs have lost between one and four full-time faculty, in addition to retirements, each year. Adjunct and part-time faculty turnover has also been extensive and pervasive Systemwide.

Providing Increased Opportunities for Clinical Placements

Limits to the number of clinical sites and preceptors[8] is a primary constraint to the proposed enrollment growth. The Systems rely on community partners, often health systems, to provide clinical sites and preceptors. COVID-19 and other factors have exacerbated the challenges those partners faced in making sites available to nursing students. The overall nursing shortage has led to fewer experienced nurses available to precept. Most institutions share access to clinical sites with other nursing programs in the area, non-profit and national for-profit schools, and the Systems must compete for clinical placements, often without being able to offer compensation for preceptors or match the compensation rates of those private institutions. For example, East Carolina University is one of the few public institutions that pays

[8] Preceptors are RNs with a minimum of a bachelor's degree who hold expertise in a specific clinical environment. The preceptor supervises the nursing student in the clinical setting and assists with the learning process as guided by the faculty member. Because the preceptor in the clinical setting must have a bachelor's degree, increasing the number of nurses with bachelor's degrees expands opportunities for clinical placements for all nursing programs.

preceptors. ECU's rate of $450 per semester is still well below the amount paid by private institutions, which can range from $600-$1,200 per semester.

Shortages in clinical placements are keenly felt for placements in specialty areas such as women's health, behavioral health, and pediatrics. Retaining clinical nurses is essential both to address the current and future shortages and to ensure a positive and supportive environment for nursing students to experience during their clinical training.

The Board of Nursing allows a portion of clinical training to be replaced by evidence-based simulation. All institutions have access to simulation spaces of various levels of fidelity. Only limited numbers of students can be accommodated in these spaces. Enrollment growth or attempting to move more clinical training to the simulation labs would require expansion of the simulation and skills lab, more equipment, and additional simulation facilitators and technicians. Dedicated funding to maximize the ability of nursing programs to leverage evidence-based simulation and to provide competitive stipends for preceptors would mitigate this issue.

Ensuring Adequate Instructional Space

Of the 17 UNC System institutions, 12 offer nursing programs. Each institution's program is housed in either a building occupied solely by the school of nursing or a building shared with other health sciences. Four of these facilities have been constructed or undergone extensive renovations in the last four years, and one is currently under construction. Several of the buildings are environmentally sustainable and/or LEED certified. The facilities typically include a large lecture hall, classroom space, simulation space, faculty offices, and computer labs. Many of the classrooms are permanently equipped with smart technology or have smart technology available upon request. Although most institutions noted that existing class space is adequate for current enrollment, among infrastructure considerations, classrooms were consistently cited as the limiting factor to meeting the expansion target. Institutions stated they would need additional classrooms, larger classrooms, or expanded scheduling access to other, larger classrooms on campus to accommodate increased enrollment.

Each NCCCS institution has dedicated space in the form of classrooms and laboratories to support nursing education. Ten nursing programs reported new dedicated simulation centers to provide high fidelity simulation experiences for nursing students. Most other nursing programs offer mid- and low-fidelity simulation. In some colleges, building space is shared with other health sciences programs. Thirty-eight programs reported having adequate space for current enrollment but lack classroom, lab, and simulation space to add more students in existing programs. Several colleges have completed major expansions in the last five years to provide small increases in student enrollment. Further expansion would be needed to meet large growth needs.

Prerequisite requirements to nursing degrees also require dedicated lab space. Effective and wellequipped lab space remains inconsistent in both Systems.

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TIMELINE

In 2021, the Systems graduated 4,212 pre-licensure students. An increase of 50 percent from the number of 2021 graduates requires graduating 6,318 not-yet-licensed students. Based on the estimated rate of growth in absolute numbers between 2011 and 2021, reaching approximately 6,300 graduates would be expected in the late 2030s.

The extent to which that growth is accelerated or constrained is contingent upon the underlying factors identified in this report. Importantly, there are not demand-side constraints at present. In academic years 2018-2022, UNC System nursing programs were only able to admit approximately two-thirds of qualified applicants because of faculty, clinical, and physical space limitations. Across NCCCS, from 2019-2021, only 58 percent of qualified applicants were admitted because of those limitations.

Robust resource allocation aimed at both reducing attrition of enrolled nursing students and increasing the ability of the Systems to admit qualified applicants into nursing programs would reduce the timeline to reach 6,300 unlicensed graduates significantly, to perhaps 2028 or 2029 in the judgment of some nursing leaders.

APPENDIX A: GLOSSARY OF TERMS

Nursing education and workforce features a number of terms and acronyms that can be confusing without context. Below is a list of common terms that are used throughout this report:

Educational and Regulatory Entities

- North Carolina Community College System (NCCCS): The 58 community colleges located across the state that are authorized to offer up to the associate's degree. The State Board of Community Colleges approves any new nursing program in the NCCCS.
- University of North Carolina System (UNC System): The state's university system, comprised of 17 constituent institutions, that is authorized to offer bachelor's, master's, and doctoral degrees. The University of North Carolina Board of Governors approves any new nursing program in the UNC System.
- North Carolina Board of Nursing (NC BON): The NC BON is authorized by the General Assembly to oversee and regulate the practice of nursing in North Carolina. The NC BON establishes standards for faculty, curricula, facilities, and administration of programs, reviews all programs at least once every eight years, and approves all nursing programs for operation in the North Carolina.
- Accreditation Commission for Education in Nursing (ACEN): This national accreditation organization establishes standards for nursing programs at the practical, diploma, associate's, baccalaureate, master's, and clinical doctorate level. Areas covered include administrative capacity, faculty and staff, curriculum, resources, and program outcomes. There are 20 NCCCS and two UNC System institutions that hold accreditation through ACEN.
- Commission on Collegiate Nursing Education (CCNE): This national accrediting organization establishes standards for nursing programs at the baccalaureate and graduate level. Areas covered include program quality, curriculum, faculty, institutional commitment and resources, and assessment of program outcomes. There are 12 UNC System institutions that hold accreditation through CCNE.
- North Carolina Area Health Education Centers (NC AHEC): provides and supports educational activities and services with a focus on primary care in rural communities and those with less access to resources to recruit, train, and retain the workforce needed to create a healthy North Carolina.
- North Carolina Institute of Medicine (NCIOM): is an independent organization focused on improving the health and well-being of North Carolinians by providing analysis, identifying solutions, building consensus, and informing health policy.

Nursing Education Degrees

- Practical Nursing (Diploma): This diploma is offered by 41 NCCCS colleges, and along with successful completion of the NCLEX-PN examination, allows a student to apply for licensure as a Licensed Practical Nurse (LPN) in North Carolina.

- Associates Degree in Nursing (ADN): This undergraduate degree is offered by 56 colleges within the NCCCS, and along with successful competition of the NCLEX-RN examination, allows a student to apply for licensure as a Registered Nurse (RN) in North Carolina.
- Bachelor of Science in Nursing (BSN): This undergraduate degree is offered by 12 UNC System institutions, and along with successful completion of the NCLEX-RN examination, allows a student to apply for licensure as a Registered Nurse (RN) in North Carolina. Individuals with this degree can serve as preceptors and teach courses in LPN programs.
- Master of Science in Nursing (MSN): This graduate degree is offered by eight UNC System institutions and provides an individual with advanced practice skills and training that can either lead to specialized care, management, and leadership in nursing. Graduates are able to teach any nursing course through the bachelor's degree.
- Doctor of Nursing Practice (DNP): This graduate program is offered by seven UNC System institutions and is the terminal degree for professional practice in nursing. Graduates are prepared for advanced practice roles, senior leadership, and management, and are able to teach any course, through the doctoral level, in nursing.
- Doctor of Philosophy in Nursing (PhD): This graduate program is offered by three UNC System institutions and is the terminal degree for research in nursing. Graduates are prepared for advanced research roles, senior leadership, and management, and are able to teach any course, through the doctoral level, in nursing.

Licensed Nursing Occupations

- Licensed Practical Nurse (LPN): Professionals are licensed to work under the direction of an RN and provide basic and essential care.
- Registered Nurse (RN): Professionals are licensed to practice nursing independently.
- Advanced Practice Nurse (APRN): Professionals are licensed to serve in advanced roles, including nurse practitioner, nurse anesthetists, clinical nurse specialists, and other primary care roles.

APPENDIX B: COMPARISON OF NURSING ROLES

The entry level roles in nursing include RNs and LPNs[9]

1. RNs are the largest portion of the nursing workforce. An RN is a nurse who has successfully passed the National Council Licensure Examination for Registered Nurses (NCLEX) and practices independently. A nurse is eligible to apply to sit for the NCLEX exam if he/she successfully completes one of three different training programs: a Nursing Diploma program, an Associate Degree in Nursing program (ADN), or a Bachelor's Degree in Nursing (BSN) program**.**

[9] American Nurses Association. *What is Nursing?* Retrieved from: https://www.nursingworld.org/practicepolicy/workforce/what-is-nursing/

2. LPNs, also known as the Licensed Vocational Nurse (LVN), are licensed nurses. An LPN serves in a support role and must work under the supervision of an RN, APRN, or Medical Doctor. A nurse is eligible to sit for the LPN National Council Licensure Examination for Practical Nurses (NCLEX-PN exam) after successfully completing a Practical Nursing program at the community college level. Upon passing of the NCLEX-PN, the nurse becomes an LPN.

Public, Post-secondary Nursing Preparation Programs, Goals, and Training

Program for nursing preparation	Length of program	Degree	Program Goal	Curriculum	Eligible License or certification	Number of programs in NC
Licensed Practical Nursing	~1 year	Diploma	Competent, dependent nurse who functions under the supervision of an RN or other qualified provider	Didactic and clinical experiences that cover patients across the lifespan, primarily in longterm care or outpatient clinics	Licensed Practical Nurse (LPN), after successful completion of the NCLEX-PN	41
Associate Degree in Nursing (ADN)	~2 years	Associate or applied science degree	Competent, independent nurse for hospital and community settings	Didactic and clinical nursing experiences that cover patients across the lifespan and hospital/community settings	Registered Nurse (RN), after successful completion of NCLEX	56
Bachelor of Science in Nursing (BSN)	~4	Baccalaureate degree	competent, independent nurse for hospital, community, and public health settings	General education requirements in the first two years followed by didactic and clinical nursing experiences that cover the lifespan and hospital, community, public health settings with a focus on community health, leadership, and research.	Registered Nurse (RN), after successful completion of NCLEX	12