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# NORTH CAROLINA ADVANCED PRACTICE REGISTERED NURSES

*A Report on the Advanced Practice Registered Nurse  
Workforce in North Carolina*

**Final Report**



THE CECIL G. SHEPS CENTER FOR HEALTH SERVICES RESEARCH  
Health Workforce Research and Policy

## A Report on the Advanced Practice Registered Nurse Workforce in North Carolina

### Final Report

September 25, 2024

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## Definitions

### Active Practice

This report includes Advanced Practice Registered Nurses (APRNs) in “active practice” who have a NC practice address. Active practice is defined as Nurse Practitioners (NPs) and Certified Nurse Midwives (CNMs) with approval to practice from the Joint Subcommittee of the NC Board of Nursing (NCBON) and North Carolina Medical Board (NCMB) for NPs and the Midwifery Joint Committee for CNMs. Clinical Nurse Specialists (CNSs) and Certified Registered Nurse Anesthetists (CRNAs) are considered in active practice if they have recognition from the NCBON.

### Advanced Practice Registered Nurse (APRN)

A registered nurse (RN) who has completed an accredited graduate-level education program in one of four recognized APRN roles, including Nurse Practitioners (NPs), Certified Nurse Midwives (CNMs), Certified Registered Nurse Anesthetists (CRNAs), and Clinical Nurse Specialists (CNSs); passed a national certification examination specific to the APRN role and population-focused competencies and maintained certification through a national certification program; and who has obtained (and maintains) licensure, approval to practice, or recognition as an APRN in one of the four APRN roles.

### Approval to Practice for CNMs

Authorization by the [NC Midwifery Joint Committee](#) for a CNM to practice within the CNM’s area of educational preparation and certification either (1) independently or (2) under a collaborative practice agreement with a collaborating provider (see definitions for CNM collaborative practice and independent practice).

### Approval to Practice for NPs

[Authorization by the Joint Subcommittee](#) of the NCMB and the NCBON for a nurse practitioner to practice within their area of educational preparation and certification with a collaborative practice agreement by an NCMB- licensed physician.

### Area Health Education Center (AHEC) Regions

North Carolina’s [Area Health Education Center Program](#) is a statewide program that 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. It is administered through nine regions made up of adjacent counties. Each region has its own AHEC center focused on the unique workforce needs of the region.

### Birthing-Age

Individuals identifying as female between the ages of 14-54.

### Certification

Credential(s) obtained by the APRN which demonstrate(s) successfully passing a national certification exam that measures the APRN role and population-focused standards identified by the profession ([APRN Consensus Model](#)). As noted by the [NCBON](#), credentials obtained provide evidence to the public of the knowledge, skills, and qualifications of the APRN with the obtained designation.

**Collaborative Practice for CNMs**

North Carolina Certified Nurse Midwives (CNMs) with fewer than [24 months and 4,000 hours of practice as a CNM](#) practice in consultation with a collaborating provider in accordance with a collaborative provider agreement. The [collaborating provider](#) may be a CNM who holds an active, unencumbered approval to practice as a CNM and a minimum of four years and 8,000 hours of practice as a CNM or a physician who holds an active, unencumbered license to practice medicine in North Carolina with a [minimum of four years and 8,000 hours](#) of practice as a physician and who is actively engaged in the practice of obstetrics.

**Independent Practice for CNMs**

North Carolina CNMs with at least 24 months experience and 4,000 practice hours as a CNM who have been granted approval to practice independently as a CNM by the [Midwifery Joint Committee](#).

**Metropolitan**

Metropolitan counties in this report are those associated with at least one core urbanized area with 50,000 or more people, as defined by the [United States Census Bureau](#) and the Office of Management and Budget (plus adjacent counties having a high degree of commuting patterns to the metropolitan core). As counties may change their metropolitan status over time, we applied the definition which was current at the time of the data (e.g., using a 2020 definition in 2020-2022; and 2018 definition for 2018-2019).

**Nonmetropolitan**

A county that does not contain a core urban area of 50,000 or more people, as defined by the United States Census Bureau and the Office of Management and Budget. Typically, this designation is used to describe rural counties. Similar to metropolitan, we applied the definition which was current at the time of the data.

**Population Foci**

One of six populations, as noted by the [APRN Consensus Model](#), for which the APRN is competent to provide care based on focused educational preparation: family/individual across the lifespan, adult-gerontology, pediatrics, neonatal, women's health/gender-related or psychiatric/mental health.

**Recognition for CRNAs**

Acknowledgement by the NCBON that the CRNA has provided acceptable evidence to the NCBON regarding the education and qualifications of the CRNA to practice in the designated role.

**Recognition for CNSs**

Acknowledgement by the NCBON that the CNS has provided acceptable evidence to the NCBON regarding the education and qualifications of the CNS to practice in the designated role.

**Underrepresented Minority (URM)**

Health professionals who self-identify as African American/Black, American Indian or Alaskan Native, and/or Hispanic.

## Chapter 1: Introduction

### Introduction

North Carolina's (NC's) population continues to grow rapidly, and in 2023, the state gained more people than any other state except Texas and Florida.<sup>1</sup> Net migration from other states and international immigration will continue to be significant contributors to this growth, accounting for 95% of NC's total population increase between 2020 and 2030.<sup>1</sup>

As NC's population expands, the demographic composition of the population is also undergoing rapid change. By 2029, one in five North Carolinians will be 65 years and older; by 2031, there will be more older adults than children in the state.<sup>2</sup> Older adults use significantly more healthcare services than younger populations, and the state's aging population will drive increased demand for primary care, specialty care, and long-term care services in urban and rural communities. NC's nonmetropolitan counties are home to 38% of the 65 and older population, and these counties have faced longstanding health workforce shortages.

The racial/ethnic composition of NC's population has also changed. Between 2020 and 2023, the percent of the population identifying as White decreased from 70.2% to 60.7%, the percent identifying as Black or African American was constant at about 21%, and the percent identifying as Hispanic increased from 4.5% to 11.4%. Even though North Carolina's population is increasingly racially/ethnically diverse, most of the state's<sup>3</sup> health workforce, including nurses, is not representative of the population.

NC's growing and aging population is increasing the demand for services at a time when the state is confronting health workforce shortages. Reports of patients unable to get an appointment with a primary care provider are increasingly surfacing in the news.<sup>4,5</sup> These anecdotes are supported by data – in North Carolina, only 14% of medical students are in primary care practice five years after graduation, and only 1% practice primary care in rural areas.<sup>6</sup> The demand for behavioral health services has increased dramatically since the pandemic,<sup>7</sup> and the state is facing a behavioral health crisis.<sup>8</sup> Approximately 4 million people, or about 2 in 5 North Carolinians, live in a [mental health professional shortage area](#). More than 50% of children and adults who want to access behavioral health care are unable to get care.

To address the rising demand for healthcare services, state policymakers are investing in recruiting, retaining, and sustaining a “workforce for health.”<sup>9</sup> A “workforce for health” includes an interprofessional team of healthcare workers, including Advanced Practice Registered Nurses (APRNs) who are employed across acute, community, and public health settings and are poised to meet the physical and behavioral health needs of patients and populations, as well as address the social risk factors that adversely affect health. The APRN workforce in North Carolina is an important component of a workforce for health but is not well understood or enumerated. APRNs include four roles: Nurse Practitioners (NPs), Certified Nurse Midwives (CNMs), Certified Registered Nurse Anesthetists (CRNAs), and Clinical Nurse Specialists (CNSs).

Nurse Practitioners provide care for a broad range of health issues (acute, episodic, or chronic). Although historically the NP role began in rural primary care, now NPs practice in many settings. Nurse practitioners in NC have prescriptive authority and practice within a collaborative practice agreement with a supervising physician.<sup>10</sup>

Certified Nurse Midwives provide well-woman and gynecological care for women of all ages. Care includes family planning, infertility, preconception, menopause, and treatment of common health problems. Obstetrical care provided by CNMs includes prenatal, postpartum, intrapartum, and newborn care. Certified Nurse Midwives attend births in hospitals, birth centers, and at homes.<sup>11</sup>

Certified Registered Nurse Anesthetists, the oldest of the APRN roles, practice within interdisciplinary health care teams with surgeons, dentists, podiatrists, physician anesthesiologists, and other health care clinicians in almost every setting in which anesthesia is administered. They conduct pre-anesthesia preparation and evaluation of the client, administer anesthesia, manage post-anesthesia recovery, insert central vascular access catheters and epidural catheters, consult on respiratory and ventilatory care, and initiate and manage pain relief therapy.<sup>12</sup>

Clinical Nurse Specialists integrate care across the continuum to continuously improve client outcomes and nursing care through three overlapping and integrated spheres of influence: patient, nurse, and system. Clinical Nurse Specialists are responsible and accountable for treatment of health/illness states, disease management, health promotion, and prevention of illness and risk behaviors among individuals, families, groups, and communities. They may provide preventive care, client and family education and counseling, psychotherapy, and/or supervision and mentoring of physical and mental health needs over time.<sup>13</sup>

Legislative discussions in NC related to the reimbursement, regulation, and supervision of APRNs have been ongoing since (at least) the early 1990s.<sup>14</sup> Proposed legislation, including legislative changes for all four APRN roles, has been introduced at every legislative session since 2015.<sup>15</sup> The most recent version, the SAVE Act,<sup>16</sup> filed in February 2023, would remove current statutory requirements for physician supervision and grant all four roles full practice and prescriptive authority under the sole regulation of the NCBON. Identical SAVE Act bills were filed in the NC House and Senate; however, no committee hearings have been held for legislators to debate the bills this legislative session.

In May of 2023, the North Carolina General Assembly (NCGA) passed legislation that included changes to laws for CNMs. These new laws provide a pathway for CNMs with 24 months and 4,000 hours of clinical practice as CNMs to practice independently in NC. Certified Nurse Midwives with fewer than 24 months and 4,000 hours of practice as a CNM must practice within a collaborative provider agreement with a collaborative provider who is either a CNM with a minimum of four years and 8,000 years of practice or a physician licensed to practice medicine in NC with a minimum of four years and 8,000 hours of practice and who is or has engaged in the practice of obstetrics.<sup>17</sup>

During the 2023-2024 legislative session, revisions to an existing bill under consideration by the NCGA included recommendations to allow a pathway for NPs with 4,000 hours of practice as NPs to practice independently (language similar to the new NC laws for CNMs). The proposed legislation also states that NPs with fewer than 4,000 hours of practice as an NP will be required to practice with a collaborating provider, defined as a physician licensed to practice in NC who has 8,000 hours of practice experience, or an NP licensed to practice in NC who has at least 8,000 hours of practice experience.<sup>18</sup> The NC Senate Healthcare Committee debated the proposed changes to the legislation in May of 2024; legislators in the committee approved the proposed changes and re-referred the bill to the NC Senate Finance Committee for further

legislative debate. The bill had not been scheduled for a hearing in the NC Senate Finance Committee as of the date of this report's submission.

Understanding the supply, distribution, demographic, training, and practice characteristics of the APRN workforce is critical to providing state and federal policymakers with data on where APRNs practice, the populations they serve, the settings in which they practice, and their current numbers and geographic distribution. National data sources on the number of APRNs in practice do not agree. For example, the Bureau of Labor Statistics<sup>19</sup> groups NPs with CRNAs and CNMs and estimates a total of 323,000 APRNs in the US in 2022. The American Association of Nurse Practitioners<sup>20</sup> reported 385,000 licensed NPs in the US, according to their 2022 practitioner database. HRSA's projection model estimated the supply of NPs in 2021 to be significantly lower, with 295,910 NPs at the national level.<sup>21</sup>

Most APRN studies are at the national level, examining facets of nurse practice settings,<sup>22</sup> training and education,<sup>23,24</sup> scope of practice,<sup>25,26</sup> the value or cost-effectiveness of nurses collaboration,<sup>27,28</sup> care coordination, or teamwork,<sup>29,30</sup> among other topics.

Some state-level APRN studies exist but rely on surveys and suffer from low response rates that may produce results that are not representative of the true population of APRNs.<sup>31</sup> Burpo et al. 2018 conducted a state-level analysis of APRNs in Arizona, assessing the relationship between population density and scope of practice for CRNAs.<sup>31</sup> They used a survey and found population density did not correlate with SOP; however, job satisfaction was positively correlated with expanded scope of practice. Vedam et al. 2018 examined the extent to which midwives are integrated into regional healthcare systems for all 50 states.<sup>29</sup> Notably, NC ranked lowest in this study.

Few states have the data needed to develop workforce projection models to estimate the future supply and demand for APRNs, so state policymakers have had to rely on federal projections. In March 2024, the Health Resources & Services Administration (HRSA) released a workforce projection model<sup>32</sup> that forecasted the supply and demand for Advance Practice Registered Nurses (APRNs) from 2021 to 2036. The model projected a significant oversupply of NPs, with the number of NPs expected to be nearly double demand in the United States in 2036. Certified Registered Nurse Anesthetist supply was estimated to exceed demand by 118% and CNM supply forecast to exceed demand by 139% in 2036 at the national level. HRSA's APRN projections did not include CNSs.<sup>32</sup>

The HRSA model includes state-level forecasts only for Nurse Practitioners and those data suggest that the supply of Nurse Practitioners in North Carolina will be double demand in 2036.<sup>32</sup> The HRSA's model relies on data from the National Sample Survey of Registered Nurses to enumerate the current supply of NPs and notably their model uses a starting point of 8,530 NPs in North Carolina in 2021. However, licensure data from the NCBON, which represent a full census of NPs in active practice in the state, suggest there were 10,337 NPs in NC in 2021. This difference highlights the need for caution when interpreting federal projections of NC's APRN workforce. It also underscores the importance of using licensure data when enumerating the supply, distribution, educational and practice characteristics of the APRN workforce in North Carolina.

The lack of robust, consistent and comprehensive state-level data on the APRN workforce makes understanding current supply and forecasting future supply extremely challenging. To address this gap, the Cecil G. Sheps Center's Program on Health Workforce collaborated with the

NCBON to study the APRN workforce in NC. The project sought to describe trends in the supply, demographic, educational, practice and geographic characteristics of the four APRN roles in NC.

The data that emerge from this study are timely as the state considers ways to address the growing demand for health care services and better understand the roles that APRNs play in meeting this demand. The data are also timely given the recent changes to APRN regulation in North Carolina. Will the state see an increase in the overall supply of CNMs given the new pathway to independent practice? Will certain geographies and practice settings experience differential effects? This study is also timely to provide policy makers with empirical data on APRNs as they discuss APRN-related legislation. Finally, the data collected and presented in this report provide the foundation from which to develop a model that projects the future supply and demand of APRNs in North Carolina.



## Chapter 2: Data & Methods

### Data Sources

#### *NC Board of Nursing Licensure Files*

Since 1979, the NCBON and other health professional regulatory boards have submitted their annual licensure data to the North Carolina Health Professions Data System (NC HPDS) at the Cecil G. Sheps Center Health Services (Sheps Center) at the University of North Carolina at Chapel Hill. The NC Area Health Education Center Program (NC AHEC) provides ongoing funding for the NC HPDS which supports the collection, cleaning and dissemination of HPDS data on an interactive [visualization](#). Although the Sheps Center maintains the data system, the data remain the property of the respective licensing boards.

Data in this report are derived from the annual licensure application and renewal forms that APRNs fill out as a part of their renewal cycle. NPs and CNMs renew annually, CNSs every two years, and CRNA every four years. While APRNs maintain licensure as RNs, the APRN data are collected separately from their RN renewal process.

Nurse Practitioners and CNMs complete a practice agreement specific to their practice site. Certified Registered Nurse Anesthetists and CNSs practice location data are collected from their APRN licensure file.

#### *Data Elements*

These application, renewal, and practice agreement forms (for NPs and CNMs) include data on:

1. Year of licensure data (2013-2022 data are included in this report)
2. Active status
3. Demographics
  - a. Age
  - b. Gender
  - c. Race/Ethnicity
4. Educational Institution
  - a. State in which APRN Program is Located
  - b. Graduation Year
  - c. Years since Graduation (Year of data – graduation year)
5. National Certification
6. Self-Reported Practice Setting Type (e.g., Hospital Inpatient, Group Medical)
7. Practice Site Location
  - a. County
  - b. County's metropolitan/nonmetropolitan status

#### *North Carolina Population Data*

State population data in this report come from the NC Office of State Budget and Management (OSBM). The NC OSBM releases [population projections](#) interpolated based on data from the 2000, 2010, and 2020 censuses. This report utilized the 2023 vintage of population data, including population counts and demographic data (i.e., age, sex, and race) at the state and county levels. Counts of birthing-age female population include individuals identifying as female between the ages of 14 and 54.

***Metropolitan and Nonmetropolitan Data***

Definitions of nonmetropolitan and metropolitan counties used in this report are derived from the US Office of Management and Budget (OMB) designation of core-based statistical areas (CBSAs) metropolitan, micropolitan, or neither (areas without a CBSA). Metropolitan counties include those with at least one core urbanized area with a 50,000+ population plus adjacent counties with high commuting patterns to the metropolitan core. Nonmetropolitan counties include micropolitan counties and counties without CBSAs.

CBSA designations change over time. In this report, we applied the current definition at the time of the data (e.g., APRN data presented from 2020-2022 use a 2020 definition of metropolitan/nonmetropolitan, whereas APRN data for 2018-2019 would use the 2018 definition).

***Sample***

The sample includes APRNs in active practice in North Carolina between 2013-2022. Active practice includes NPs with approval to practice from the joint subcommittee of the NC Board of Nursing (NCBON) and NC Medical Board (NCMB) and an NC practice address, CNMs with approval to practice from the Midwifery Joint Committee and an NC practice address. Clinical Nurse Specialists and CRNAs are considered in active practice if they have recognition from the NCBON and an NC practice address.

***Missing Data Consideration***

As detailed in the report, missing data were problematic in some analyses. Unless otherwise noted, when data were missing, we calculated descriptive and bivariate statistics using non-missing data. For example, if data on race/ethnicity were missing, we calculated the percentages using the denominator of APRNs who reported their race and noted the number and percentage of missing values on race/ethnicity.

***Protection of Privacy***

To protect APRNs' privacy, we suppressed data in tables/figures with counts of fewer than five APRNs.

***Data Analysis***

Descriptive and bivariate analyses were conducted using chi-square and t-tests to assess whether differences between groups (e.g., settings, certifications, sex, race) and over time (e.g., 2014 vs 2022) were statistically significant.

## Chapter 3: Findings by APRN Role

### Nurse Practitioners

Nurse practitioners are the largest group of APRNs in the United States (US). However, there are conflicting estimates on the number of NPs in the US, from an estimated 258,230 in the 2022 Bureau of Labor Statistics data<sup>33</sup> to 385,000 in data from the American Association of Nurse Practitioners in 2023.<sup>20</sup>

#### Supply

Similar to national trends, NPs comprise the largest percentage of the APRN workforce in NC, representing 71.6% of the active APRN workforce in 2018 and 76.1% in 2022 (Table 1).

**Table 1.** Nurse Practitioners as a Percentage of the Total Active North Carolina APRN Workforce, 2018-2022

Year	NPs as Percent of Active NC APRN Workforce
2018	71.6%
2019	72.1%
2020	72.3%
2021	74.9%
2022	76.1%

*Note.* Nurse practitioner (NP); Advanced practice registered nurse (APRN).

North Carolina experienced a 147.3% increase in its active NP workforce between 2013 and 2022. The ratio of NPs per 10,000 population increased 125% from 4.8 NPs to 10.8 between 2013 and 2022 (Table 2).

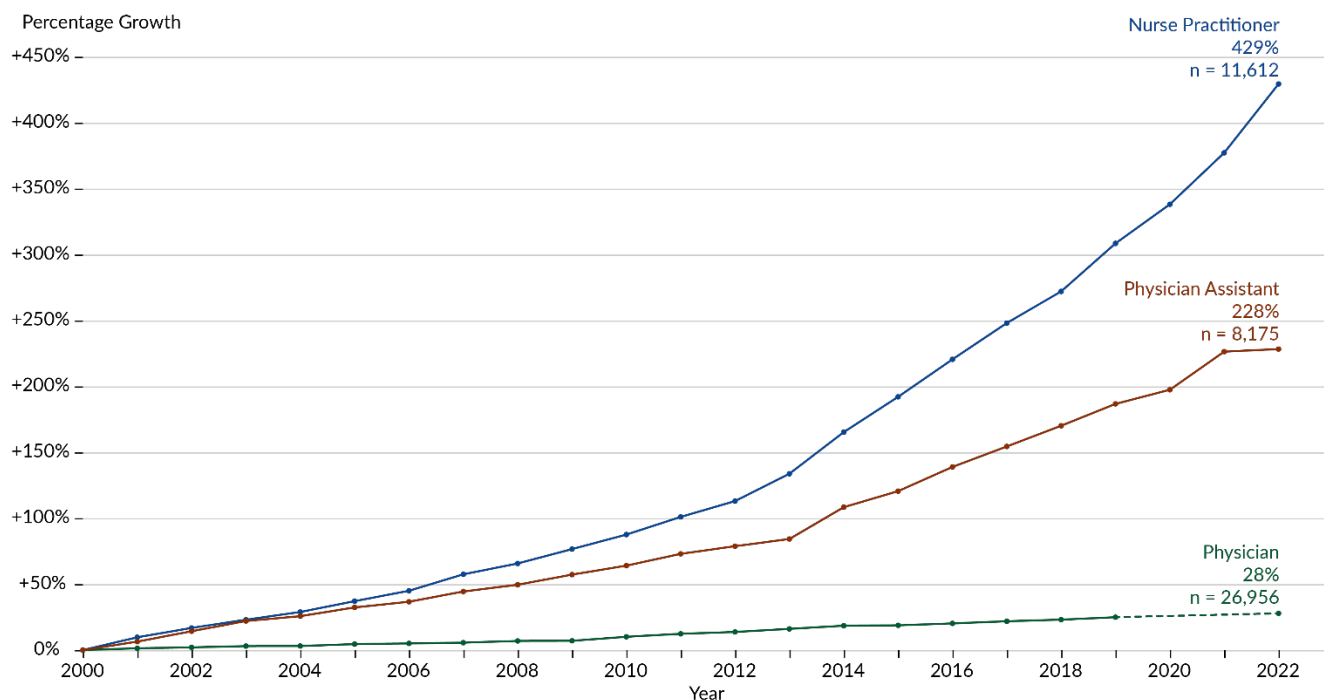
**Table 2.** North Carolina Active Nurse Practitioner Growth by Year, 2013-2022

Year	Total Active NC NPs	Percent Increase (relative to 2013)	NPs per 10k NC Population	NC Population
2013	4,696	-	4.8	9,804,787
2014	5,372	14.4%	5.4	9,881,906
2015	5,966	27.0%	6.0	9,968,747
2016	6,620	41.0%	6.6	10,080,436
2017	7,261	54.6%	7.1	10,181,491
2018	7,840	68.6%	7.7	10,284,335
2019	8,689	85.0%	8.4	10,381,670
2020	9,401	100.2%	9.0	10,472,553
2021	10,337	120.1%	9.8	10,571,934
2022	11,612	147.3%	10.8	10,705,403

*Note.* Nurse practitioner (NP); North Carolina (NC).

Relative to the physician and physician assistant (PA) workforce, NPs experienced the largest percent increase in supply. The NP workforce grew 429% between 2000 and 2022, compared to the physician and PA workforces, which increased by 28% and 228% respectively, during the same period (Figure 1). However, there are still more than twice as many physicians than NPs in NC.

**Figure 1.** Cumulative Percentage Growth of North Carolina Nurse Practitioners, Physicians, and Physician Assistants, 2000-2022



*Note.* Data from 2020 and 2021 are unavailable because of issues with the data which make longitudinal comparisons misleading.

Several pathways exist for APRNs to join the NC workforce. APRNs can enter the workforce each year through a **NC pathway** by:

- recently (within last two years) finishing an APRN education program located in North Carolina (NC Education Pathway)
- obtaining their first NC approval to practice/recognition as an APRN two or more years after finishing an APRN education program located in North Carolina (NC Educated, Delayed Entry)
- re-entering APRN practice after being inactive as an APRN (Returners)

APRNs can also enter the workforce each year **through an out-of-state pathway** by:

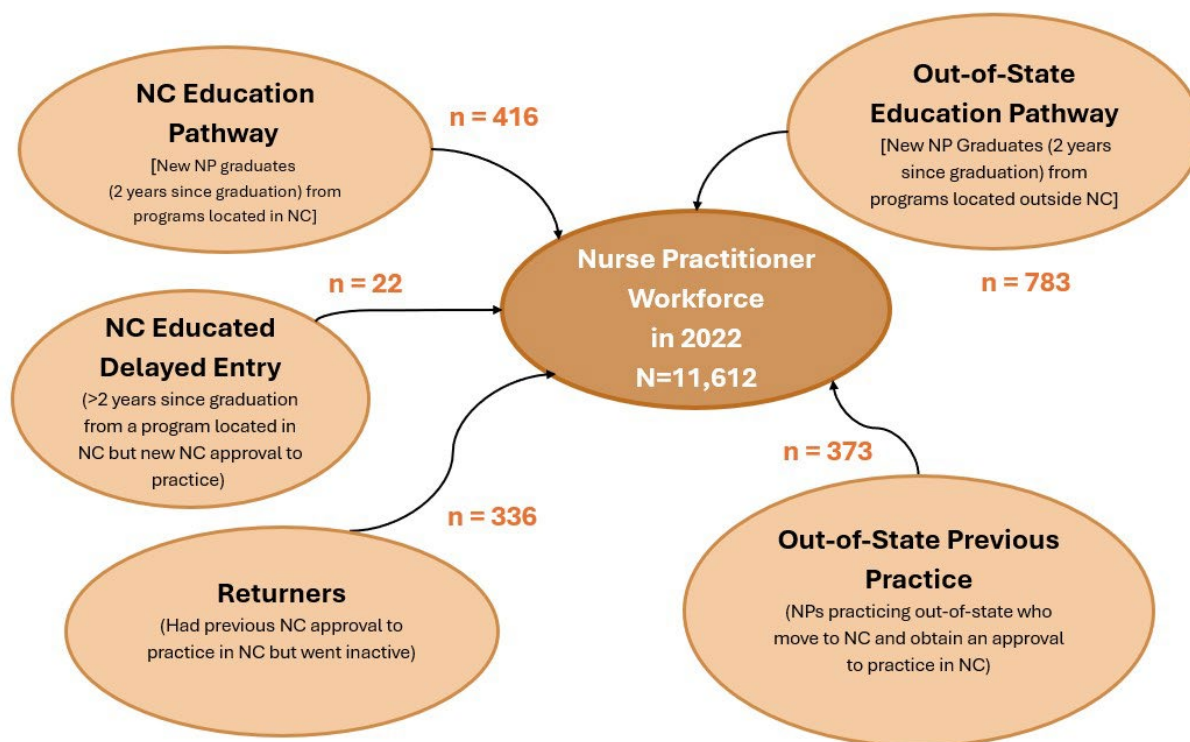
- recently (within last two years) finishing an APRN education program located in another state (Out-of-State Education Pathway)
- obtaining their first NC approval to practice after practicing in another state (Out-of-State Previous Practice).

An increasing percentage of new entrants to the NC NP workforce enter via out-of-state pathways (either through the out-of-state education pathway or out-of-state previous practice pathway) (Table 3). In 2022, among the 1,940 new entrants and returners to the existing NC NP workforce, 1,156 (59.6%) entered via out-of-state pathways. This included entering via the out-of-state education (n = 783) and out-of-state previous practice (n = 373) pathways (Figure 2). North Carolina pathways comprised 774 (39.9%) of new entrants to the NP workforce in 2022 (Table 3). Among these new entrants, 416 entered via the NC-education pathway, 22 via the NC delayed entry pathway, and 336 via the “returners” pathway (Figure 2).

**Table 3.** New Entrants to the North Carolina Nurse Practitioner Workforce, 2014-2022

			Includes NC Education Pathway, NC Education (Delayed Entry), and Returners		Includes Out-of-State Education Pathway and Out-of-State Previous Practice	
Year	Total Active NPs	Total New Entrants & Returners	NC Pathways	Percent of New NPs	Out-of-State Pathways	Percent of New NPs
2014	5,372	951	450	47.3%	481	50.6%
2015	5,966	883	450	51.0%	433	49.0%
2016	6,620	979	514	52.5%	465	47.5%
2017	7,261	1,004	512	51.0%	492	49.0%
2018	7,840	1,171	554	47.3%	617	52.7%
2019	8,689	1,351	617	45.7%	734	54.3%
2020	9,401	1,195	507	42.4%	686	57.4%
2021	10,337	1,647	701	42.6%	945	57.4%
2022	11,612	1,940	774	39.9%	1,156	59.6%

*Note.* Nurse practitioner (NP); North Carolina (NC). North Carolina and out-of-state pathways may not equal total new entrants because there is a minimal subset whose graduation year is missing: n=20 in 2014, n=2 in 2020, n=1 in 2021, n=10 in 2022.

**Figure 2.** New Entrants to the North Carolina Nurse Practitioner Workforce, 2022

*Note.* Nurse practitioner (NP); North Carolina (NC). n=10 missing graduation year in 2022.

### ***Demographic Characteristics***

**Gender.** The NP workforce in NC is predominantly female. Women made up 93.1% of the workforce in 2013 and 91.1% in 2022. However, the percentage of male NPs in NC has increased slowly from 6.9% of the workforce in 2013 to 8.9% in 2022 (Table 4). The gender composition of NC NPs is consistent with national data, which shows that females comprise 89% of NPs and males 10% nationally.<sup>33</sup>

**Table 4.** North Carolina Nurse Practitioners by Gender, 2013-2022

Year	Total Active NPs	Missing Gender	Female	Female as % of Total NPs Reporting Gender	Male	Male as % of Total NPs Reporting Gender
2013	4,696	1	4,373	93.1%	322	6.9%
2014	5,372	5	4,978	92.8%	389	7.2%
2015	5,966	6	5,533	92.8%	427	7.2%
2016	6,620	10	6,114	92.5%	496	7.5%
2017	7,261	8	6,669	91.9%	584	8.1%
2018	7,840	2	7,193	91.8%	645	8.2%
2019	8,689	0	7,982	91.9%	707	8.1%
2020	9,401	2	8,600	91.5%	799	8.5%
2021	10,337	6	9,435	91.3%	896	8.7%
2022	11,612	17	10,561	91.1%	1,034	8.9%

Note. Nurse practitioner (NP).

**Age.** The mean age of NPs in NC has remained relatively constant with a slight decrease from 45.8 years in 2013 to 44.2 years in 2022 (Table 5). This decrease is likely due to the rapid growth in younger NPs entering the workforce.

**Table 5.** North Carolina Nurse Practitioners by Age, 2013-2022

Year	Total Active NPs	Mean Age	Median Age	Minimum Age	Maximum Age
2013	4,696	45.8	45	24.0	80.0
2014	5,372	45.5	45	23.0	81.0
2015	5,966	45.3	44	24.0	82.0
2016	6,620	45.1	44	23.0	83.0
2017	7,261	45.2	44	23.0	84.0
2018	7,840	44.4	43	24.0	84.0
2019	8,689	44.7	43	24.0	86.0
2020	9,401	44.4	43	23.0	85.0
2021	10,337	44.3	43	23.0	86.0
2022	11,612	44.2	43	23.0	87.0

Note. Nurse practitioner (NP).

**Race/Ethnicity.** While the racial/ethnic distribution of NPs has increased over time, it does not match that of NC's population (Table 6). In 2022, 14.3% of NPs identified as Black compared to 20.9% of the population, 2.6% reported being Hispanic compared to 11.0 % of NC's population (Table 7), and 1.3% reported being American Indian/Alaskan Native compared to 1.7 % of the population.<sup>34</sup>

However, the diversity of the NP workforce is slowly increasing. The percentage of NPs who identify as Black increased from 9.3% of the workforce in 2013 to 14.3% in 2022 (Table 6), the percent identifying as Asian/Pacific Islander rose from 2.0% in 2013 to 3.7% in 2022 (Table 6),

and NPs identifying as Hispanic ethnicity increased from 1.4% in 2013 to 2.6% in 2022 (Table 7) (chi-square test,  $p < 0.05$ ). Missing data on the race/ethnicity of NPs has increased over time in NCBON licensure files (6 NPs were missing race/ethnicity data in 2013 compared with 1,796 in 2022) (Table 6; Table 8).

A slightly higher percent of NPs (60.3%) who identify as underrepresented minorities (URM) are family nurse practitioners compared to NPs who do not identify as URM (56.6%) (Table 9). A striking difference is that psychiatric/mental health NPs make up 7.9% of NPs who identify as URM compared to 4.3% of NPs who are not URM (chi-square  $p < 0.05$ ).

**Table 6.** North Carolina Nurse Practitioners by Race Compared to North Carolina Population, 2013 and 2022

	2013 (n = 4,690 NPs)		2013 NC Population	2022 (n = 9,816 NPs)		2022 NC population
Race/Ethnicity	n	Percent	Percent	n	Percent	%
White	3,997	85.1%	71.4%	7,592	77.3%	69.6%
Black	436	9.3%	21.8%	1,399	14.3%	20.9%
American Indian/Alaskan Native	58	1.2%	1.6%	124	1.3%	1.7%
Asian/Pacific Islander	96	2.0%	2.7%	359	3.7%	3.7%
Other	103	2.2%	2.5%	342	3.5%	4.0%
Total	4,696	100%	100%	9,816	100%	100%

Note. Nurse practitioner (NP); North Carolina (NC).

**Table 7.** North Carolina Nurse Practitioners by Ethnicity Compared to North Carolina Population, 2013 and 2022

	2013 (n = 4,690 NPs)		2013 NC Population	2022 (n = 9,816 NPs)		2022 NC population
	n	%	%	N	%	%
Hispanic	66	1.4%	9.4%	255	2.6%	11.0%

Note. Nurse practitioner (NP); North Carolina (NC).



**Table 8.** North Carolina Nurse Practitioner Missing Race/Ethnicity Data, 2013-2022

Year	Total Active NPs	Reported Race/Ethnicity Data	Missing Race/Ethnicity Data	Percent Missing Race/Ethnicity Data
2013	4,696	4,690	6	0.1%
2014	5,372	5,365	7	0.1%
2015	5,966	5,953	13	0.2%
2016	6,620	6,600	20	0.3%
2017	7,261	7,240	21	0.3%
2018	7,840	7,815	25	0.3%
2019	8,689	8,334	354	4.1%
2020	9,401	8,718	683	7.3%
2021	10,337	9,137	1,196	11.6%
2022	11,612	9,816	1,796	15.5%

Note. Nurse practitioner (NP).

**Table 9.** North Carolina Nurse Practitioners Who Identify as Underrepresented Minorities by Certification, 2022

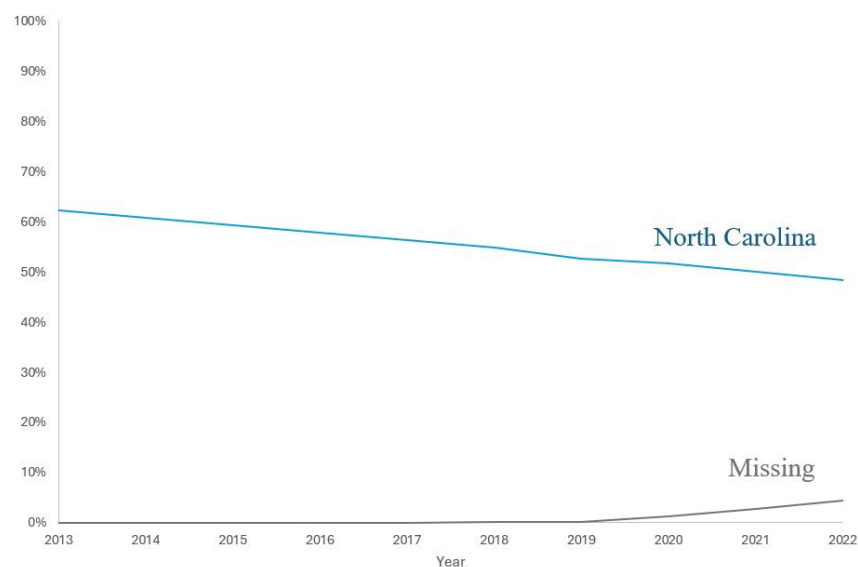
Certification	Underrepresented Minority	Percent	Non-Underrepresented Minority	Percent
FNP <sup>a</sup>	1,072	60.3%	4,550	56.6%
Adult/Gero NP	280	15.8%	1,216	15.1%
Dual/Multi-Focused <sup>a</sup>	141	7.9%	507	6.3%
Psychiatric NP <sup>a</sup>	140	7.9%	342	4.3%
Acute Care NP <sup>a</sup>	47	2.6%	455	5.7%
Pediatric NP <sup>a</sup>	36	2.0%	428	5.3%
Women's Health/OBGYN	24	1.4%	148	1.8%
Neonatal NP <sup>a</sup>	21	1.2%	276	3.4%
All Other	5	0.2%	76	1.0%
Missing Certification	12	0.7%	41	0.5%
Total	1,777	100.0%	8,039	100.0%

Note. Nurse practitioner (NP); Obstetrical-gynecological (OBGYN); Family nurse practitioner (FNP); Gerontological (Gero). <sup>a</sup> significant difference in the chi-square test between certification and identified underrepresented minority/non-underrepresented minority. 1796 NPs were missing race/ethnicity in 2022. Underrepresented minorities include health professionals that self-identify as African American/Black, American Indian or Alaskan Native, and/or Hispanic.

### ***Educational Characteristics***

A decreasing percentage of NC's NP workforce obtained their education from programs located in NC (Figure 3). In 2013, 62.3% of active NPs graduated from programs located in NC compared to 48.3% in 2022. (Table 10). This decrease was even more significant for new NP graduates (Figure 4). In 2013, although 73.5% of newly educated NPs graduated from programs located in NC this percentage had declined to 43.7% of newly educated NPs in 2022 (Table 11).

**Figure 3.** Percentage of North Carolina's Nurse Practitioner Workforce Educated in North Carolina, 2013-2022

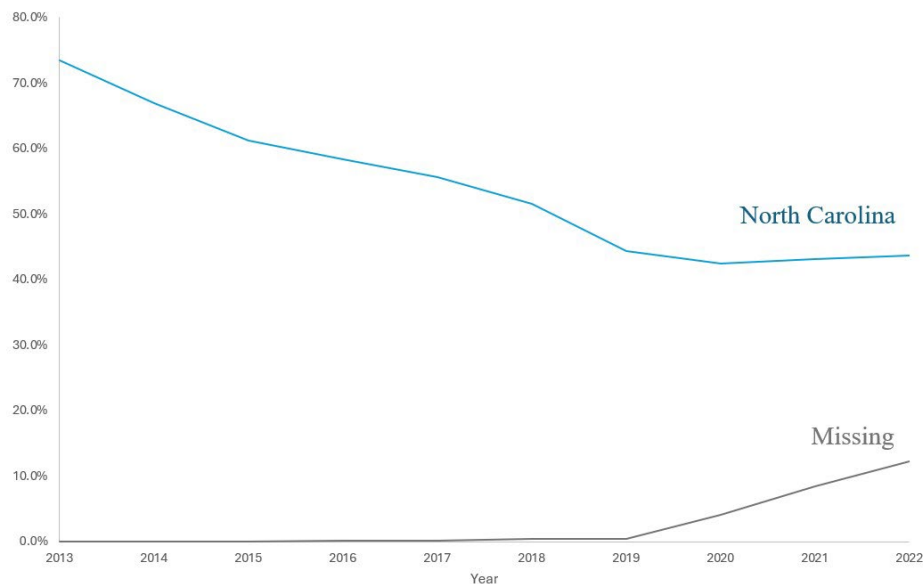


**Table 10.** North Carolina Nurse Practitioners Educated in Programs Located in North Carolina and Out-of-State, 2013-2022

Year	Total Active NPs	Missing Data	Reported Education Program	NC – Located Program	Percent	Out-of-State Program	Percent
2013	4,696	0	4,696	2,925	62.3%	1,771	37.7%
2014	5,372	0	5,372	3,266	60.8%	2,106	39.2%
2015	5,966	0	5,966	3,543	59.4%	2,423	40.6%
2016	6,620	2	6,618	3,831	57.9%	2,787	42.1%
2017	7,261	3	7,258	4,086	56.3%	3,172	43.7%
2018	7,840	8	7,832	4,304	55.0%	3,528	45.0%
2019	8,689	12	8,677	4,575	52.7%	4,102	47.3%
2020	9,401	121	9,280	4,796	51.7%	4,484	48.3%
2021	10,337	291	10,046	5,024	50.0%	5,022	50.0%
2022	11,612	510	11,102	5,360	48.3%	5,742	51.7%

Note. Nurse practitioner (NP); North Carolina (NC).

**Figure 4.** Percentage of North Carolina’s Newly Educated Nurse Practitioner Workforce Educated in North Carolina, 2013-2022



*Note.* Newly educated is defined as  $\leq 2$  years since graduation.

**Table 11.** North Carolina Nurse Practitioners Newly Educated in Programs Located in North Carolina and Out-of-State, 2013-2022

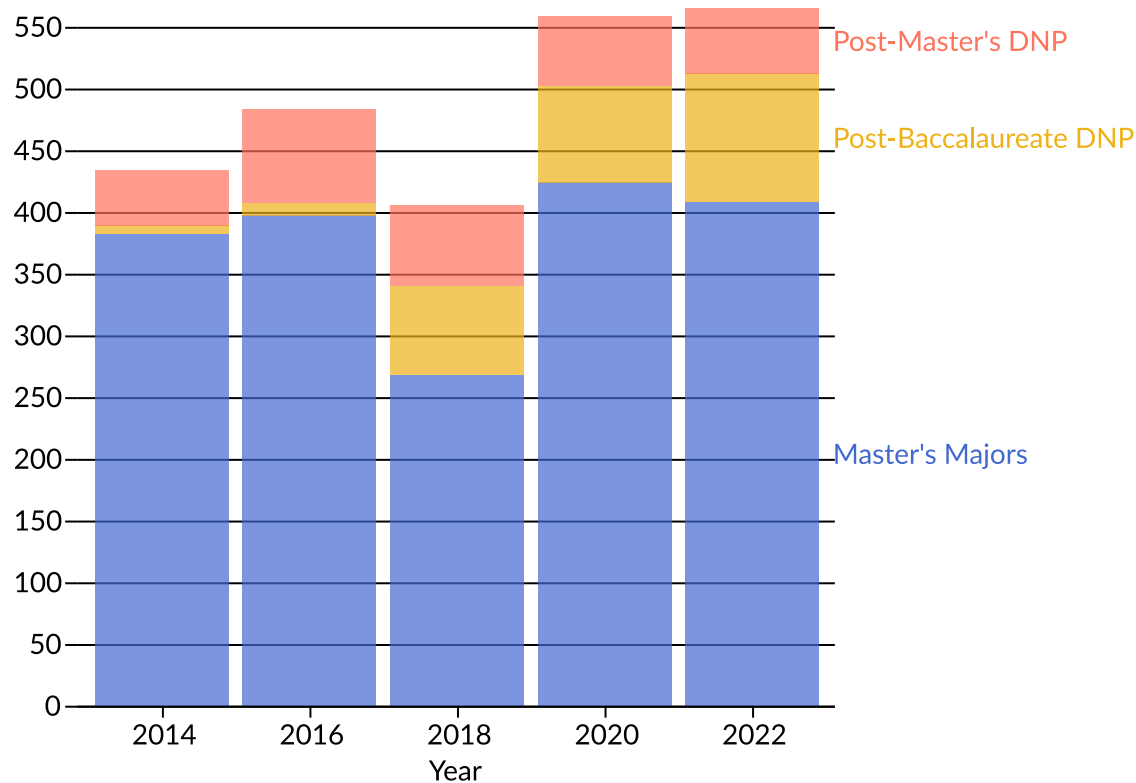
Year	Newly Educated NPs	Missing Data	Reported Education Program	NC – Located Program	Percent	Out-of-State Program	Percent
2013	846	0	846	622	73.5%	224	26.5%
2014	1,137	0	1,137	761	66.9%	376	33.1%
2015	1,342	0	1,342	821	61.2%	521	38.8%
2016	1,504	2	1,502	876	58.2%	628	41.8%
2017	1,587	2	1,585	882	55.6%	705	44.4%
2018	1,712	6	1,706	880	51.6%	826	48.4%
2019	2,033	8	2,025	897	44.3%	1,128	55.7%
2020	2,062	85	1,977	840	42.5%	1,137	57.5%
2021	2,242	190	2,052	885	43.1%	1,167	56.9%
2022	2,433	298	2,135	932	43.7%	1,203	56.4%

*Note.* Nurse practitioner (NP); North Carolina (NC).

Among NPs who obtained their education from programs located in NC, most graduates attained master’s degrees. However, the number of post-baccalaureate, Doctor of Nursing Practice (DNP) degrees have recently increased (Figure 5). The top two population foci for NC NP program graduates remain the FNP and adult-gerontology primary care NP concentrations (2014 – 2022) (Figure 6).

**Figure 5.** North Carolina Nurse Practitioner Graduates from Programs Located in North Carolina by Degree Type, 2014-2022

↑ Number of Nurse  
Practitioner Graduations

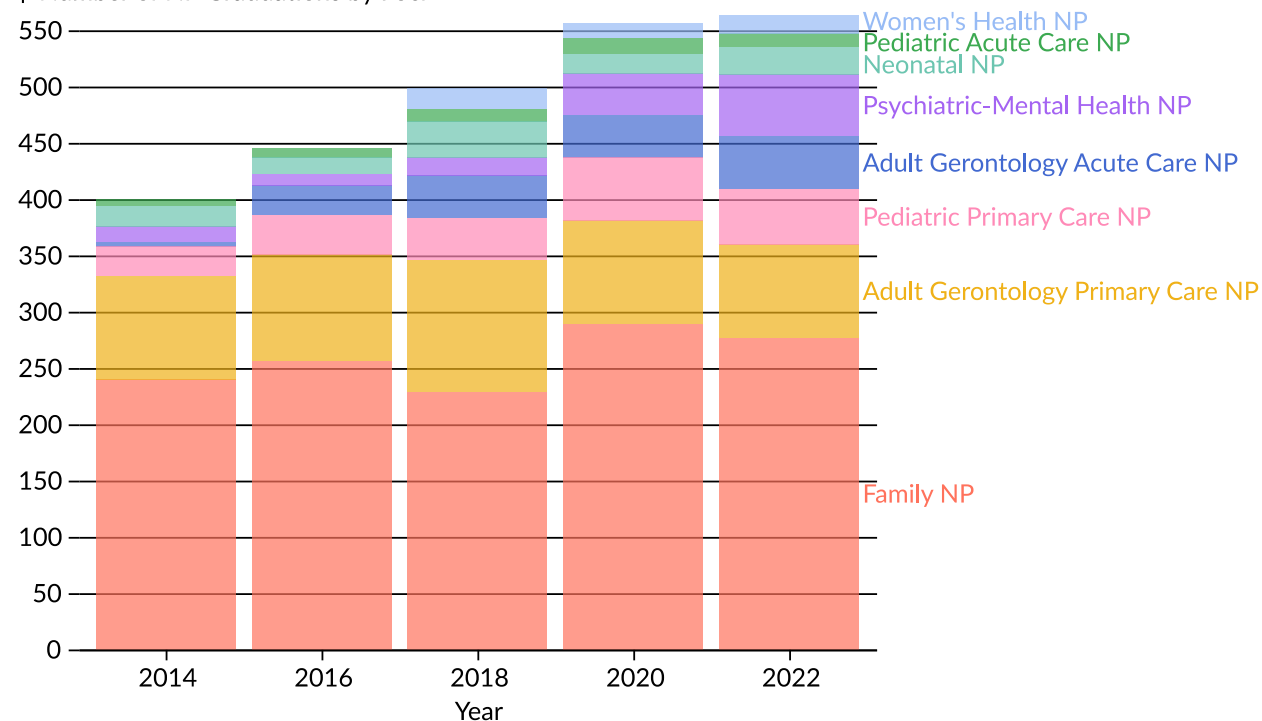


*Note:* Nurse practitioner (NP); Doctor of Nursing Practice (DNP).

*Source:* American Association of College of Nursing, Research and Data Services, 2024. Fewer programs reported data in 2018.

**Figure 6.** North Carolina Nurse Practitioner Graduates from Programs Located in North Carolina by Population Foci, 2014-2022

↑ Number of NP Graduations by Foci



Note: Nurse practitioner (NP).

Source: American Association of College of Nursing, Research and Data Services, 2024

### Practice Characteristics

**Practice Experience.** In 2022, Acute Care NPs and Psychiatric/Mental Health NPs were the only two NP certification categories in which a majority of NPs had fewer than five years of practice experience (Table 12). On average, NC NPs have eight to nine years of practice experience since graduation (Table 13). National data suggest 47.2% of NPs have fewer than six years of practice experience.<sup>35</sup>

**Table 12.** North Carolina Nurse Practitioner Certifications by Years Since Graduation, 2022

Certification	Total Active NPs	n ≤ 2 Years	Percent	n 3-5 Years	Percent	n > 5 Years	Percent
FNP	6,768	1,478	21.8%	1,759	26.0%	3,459	51.7%
Pediatric NP	553	94	16.9%	98	17.7%	348	62.9%
Women's Health/OBGYN	209	31	14.8%	37	17.7%	135	64.6%
Adult/Gero NP	1,681	270	16.1%	354	21.1%	1,039	61.8%
Acute Care NP	622	173	27.8%	170	27.3%	277	44.5%
Neonatal NP	316	41	13.0%	37	11.7%	223	70.6%
Psychiatric NP	628	264	42.0%	160	25.6%	202	32.5%
Pediatric Acute Care NP	86	16	18.6%	19	22.1%	51	59.3%
All Other Certifications	1	0	0.0%	1	100.0%	0	0.0%
Dual/Multi-Focused	690	51	7.4%	92	13.3%	540	78.3%
Missing	58	15	25.9%	10	17.2%	30	51.7%
Total	11,612	2,433	21.0%	2,737	23.6%	6,303	54.3%

*Note.* Nurse practitioner (NP); Obstetrical-gynecological (OBGYN); Family nurse practitioner (FNP); Gerontological (Gero). n=139 had unknown graduation date.

**National Certifications.** Compared to national trends, a lower percentage of NC NPs have FNP certification (70.2% nationally compared with 58.3% in North Carolina) and Psychiatric/Mental Health certification (8.8% nationally compared to 5.4% in NC). North Carolina has a higher percentage of Pediatric NP certification holders (4.8% in NC compared with 2.7% nationally) and Acute Care certified NPs (5.4% in NC compared with 2.8% nationally).<sup>35</sup> Although the majority of NPs in NC are FNPs, the Psychiatric/Mental Health certification (2.9% in 2014 to 5.4% in 2022) and Acute Care certification (3.6% in 2014 and 5.4% in 2022) were the fastest-growing NP certifications between 2014 - 2022 (300.0% and 225.7% respectively). As noted in Table 14, the growth in these certifications is statistically significantly different. Other certifications have remained relatively stable over time (Table 14).

In 2022, 5.9% of NC NPs (n = 690) held more than one NP certification (Table 14). Nurse practitioners with dual/multiple certifications can provide services to a broader population of patients, aligned with the additional certifications attained. Of dually certified NPs, 182 FNPs had a second certification as a Psychiatric/Mental Health NP and 93 FNPs had a second certification as an Acute Care NP (Table 15). See appendix for additional tables with analyses of dual certifications by additional certification types (Appendix Tables A7-A11).

**Table 13.** North Carolina Nurse Practitioners by Years in Practice Since Graduation, 2013-2022

Year	Total Active NPs	Missing Data	Reported	Mean Years in Practice Since Graduation	Median	Min.	Max.
2013	4,696	708	3,988	8.2	7	0.0	42.0
2014	5,372	275	5,097	8.9	7	0.0	42.0
2015	5,966	257	5,709	8.8	7	0.0	43.0
2016	6,620	243	6,377	8.8	7	0.0	44.0
2017	7,261	224	7,037	8.9	7	0.0	45.0
2018	7,840	195	7,647	8.7	6	0.0	46.0
2019	8,689	176	8,513	8.6	6	0.0	47.0
2020	9,401	152	9,239	8.6	6	0.0	47.0
2021	10,337	146	10,192	8.5	6	0.0	48.0
2022	11,612	139	11,474	8.5	6	0.0	49.0

*Note.* Nurse practitioner (NP); Minimum (Min.); Maximum (Max.).

**Table 14.** North Carolina Nurse Practitioner Certifications, 2014 and 2022

National Certification Exam	2014		2022		Change 2014 – 2022	
	n	Percent	n	Percent	n	Percent Growth
Psychiatric NP <sup>a</sup>	157	2.9%	628	5.4%	471	300.0%
Acute Care NP <sup>a</sup>	191	3.6%	622	5.4%	431	225.7%
Pediatric Acute Care NP	33	0.6%	86	0.7%	53	160.6%
FNP <sup>a</sup>	2,826	52.6%	6,768	58.3%	3,942	139.5%
Dual/Multi-Focused	330	6.1%	690	5.9%	360	109.1%
Adult-Gerontology NP	833	15.5%	1681	14.5%	848	101.8%
Women's Health/OBGYN	111	2.1%	202	1.7%	91	82.0%
Pediatric NP <sup>a</sup>	331	6.2%	553	4.8%	222	66.2%
Neonatal NP <sup>a</sup>	223	4.2%	316	2.7%	93	41.7%
None Indicated/Missing <sup>a</sup>	336	6.3%	58	0.5%	-278	-82.7%
All Other	1	0.0%	8	< 0.5%	7	700.0%
Total	5,372	100%	11,612	100%	6,240	116.8%

*Note.* Nurse practitioner (NP); Obstetrical-gynecological (OBGYN); Family nurse practitioner (FNP). <sup>a</sup> significant difference in the chi-square test between the year and national certification.



**Table 15.** North Carolina Family Nurse Practitioners with Dual Certifications by Second Certification Type, 2022

FNP Dual Certification Type	Number of FNPs	Percent
PMHNP	182	50.0%
ACN	93	25.5%
WH	28	7.7%
ANP	28	7.7%
AGN	12	3.3%
PNP	6	1.6%
GNP	6	1.6%
Ped. Acute	6	1.6%
All Other	3	0.8%
Total	364	100.0%

*Note.* Family nurse practitioner (FNP); Psychiatric-metal health nurse practitioner (PMHNP); Acute care nurse practitioner (ACN); Women’s health nurse practitioner (WH); Adult nurse practitioner (ANP); Adult-gerontology nurse practitioner (AGN); Pediatric nurse practitioner (PNP); Geriatric nurse practitioner (GNP); Pediatric acute care nurse practitioner (Ped. Acute). The “all other” certification type captures categories of second certifications for which the information is suppressed to protect the individual’s privacy and confidentiality.

**Practice Settings.** More than one-third (36.4%) of active NC NPs reported practicing in a group medical setting in 2022 (Table 16). Settings with the largest percentage growth in NPs between 2014 – 2022 included home health (387%) and mental health (258%). In 2022, the percentage of NPs (9.1%) practicing in hospital outpatient settings in NC is lower than national trends which show 13.5% of NPs practicing in hospital outpatient clinics. By contrast, NC has a higher percentage of NPs in hospital inpatient settings (16.0%) compared to national data which show 12.4% of NPs hospital inpatient units.<sup>35</sup> In 2022, a higher percentage (41.3%) of new graduate NPs in NC reported practicing in the group medical setting (Table 17) compared to all active NPs (36.4%) (Table 16). Additionally, a greater percentage of new graduate NPs (7.3%) reported practicing in mental health settings (Table 17) compared to all active NPs (5.1%) (Table 16).

**Certification by Practice Setting.** Family Nurse Practitioners comprise the largest percentage (27.6%) of NPs working in hospital inpatient settings (Table 18). However, only 7.6% of NC’s FNPs work in hospital inpatient settings. The second and third largest shares of hospital inpatient NPs are Acute Care (21.6%) and Neonatal NPs (16.0%). Most Acute Care (64.1%) and Neonatal NPs (94.0%) work in hospital inpatient settings. Pediatric acute care NPs were also overwhelmingly found in hospital inpatient settings (72.1%), though they comprised just 3.4% of the NP inpatient workforce (Table 18).

Psychiatric/Mental Health NPs comprised the greatest percentage of NPs (58.2%) working in NC mental health settings (Table 19); 53.8% of NPs with the Psychiatric/Mental Health certification practice in mental health settings (Table 20). As previously noted, among the 690 NC NPs with dual/multiple certifications in 2022, 182 were FNPs who also had a Psychiatric/Mental Health certification (Table 15). Family NPs with a dual certification in Psychiatric/Mental health comprised 11.9% of NPs in mental health settings (Table 21).

The majority (68.2%) of Nurse Practitioners in group medical settings held the FNP certification, followed by NPs with an Adult/Gerontology certification (13.9%), and Pediatric certification (7.0%) (Table 22).

Among NPs with FNP certifications, 42.4% of FNPs worked in group medical settings (Table 22). Additionally, more than half of Pediatric (53.5%) and Women's Health (60.3%) NPs worked in group medical settings (Table 22).

**Table 16.** North Carolina Nurse Practitioners by Practice Settings, 2014 and 2022

Setting	2014		2022		Change 2014 - 2022	
	Number of NPs	Percent	Number of NPs	Percent	Number of NPs	Percent growth
Home Health <sup>a</sup>	47	0.9%	229	2.0%	182	387%
Mental Health <sup>a</sup>	165	3.1%	590	5.1%	425	258%
Other <sup>a</sup>	405	7.5%	1,233	10.6%	827	204%
Long Term <sup>a</sup>	157	2.9%	469	4.0%	312	199%
Self Employed	93	1.7%	254	2.2%	161	173%
HMO	23	0.4%	58	0.5%	35	152%
Group Nursing	15	0.3%	35	0.3%	20	133%
Hospital Outpatient	505	9.4%	1,055	9.1%	550	109%
Hospital Inpatient	908	16.9%	1,859	16.0%	951	105%
Group Medical <sup>a</sup>	2,072	38.6%	4,231	36.4%	2,159	104%
Public/Community Health	354	6.6%	658	5.7%	304	86%
Hospital Emergency <sup>a</sup>	163	3.0%	265	2.3%	102	63%
Retail <sup>a</sup>	190	3.5%	299	2.6%	109	57%
Industry/Occupational <sup>a</sup>	88	1.6%	133	1.1%	45	51%
School Health <sup>a</sup>	41	0.8%	59	0.5%	18	44%
Hospital (other) <sup>a</sup>	114	2.1%	163	1.4%	49	43%
Nursing School	6	0.1%	8	0.1%	2	33%
Medical School <sup>a</sup>	21	0.4%	14	0.1%	-7	-33%
Total	5,367	100%	11,612	100%	6,245	116%

Note. Nurse practitioner (NP); Health Maintenance Organization (HMO). <sup>a</sup> significant difference in chi-square test between year and distribution of practice setting. 5 NPs were missing practice setting in 2014.

**Table 17.** Newly Educated North Carolina Nurse Practitioners by Practice Setting, 2022

Practice Setting	Number of Newly Educated NPs	Percent	Total NP Workforce	Percent
Group Medical <sup>a</sup>	1,006	41.3%	4,231	36.4%
Hospital Inpatient <sup>a</sup>	344	14.1%	1,859	16.0%
Other	250	10.3%	1,233	10.6%
Mental Health <sup>a</sup>	177	7.3%	590	5.1%
Hospital Outpatient <sup>a</sup>	158	6.5%	1,055	9.1%
Public/Community Health	117	4.8%	658	5.7%
Long Term	110	4.5%	469	4.0%
Retail <sup>a</sup>	81	3.3%	299	2.6%
Hospital Emergency	45	1.8%	265	2.3%
Home Health	38	1.6%	229	2.0%
Self Employed <sup>a</sup>	35	1.4%	254	2.2%
Hospital (other)	31	1.3%	163	1.4%
Group Nursing	13	0.5%	35	0.3%
HMO	13	0.5%	58	0.5%
School Health	7	0.3%	59	0.5%
Industry/Occupational <sup>a</sup>	7	0.3%	133	1.1%
All Other Settings	1	0.0%	22	0.2%
<b>Total</b>	<b>2,433</b>	<b>100%</b>	<b>11,612</b>	<b>100%</b>

*Note.* Nurse practitioner (NP); Health Maintenance Organization (HMO). Newly educated is defined as  $\leq 2$  years since graduation. <sup>a</sup>significant difference in chi-square test between newly educated compared to total NPs and distribution of practice setting.

**Table 18.** North Carolina Nurse Practitioner Certifications by Hospital Inpatient Setting, 2022

Certification	Total NPs	Percent of all NPs	NPs in Hospital Inpatient Setting	Percent of Total NPs within Hospital Inpatient Setting	Percent of Total Certification
FNP	6,768	58.6%	511	27.6%	7.6%
Acute Care NP	622	5.4%	399	21.6%	64.1%
Neonatal NP	316	2.7%	296	16.0%	94.0%
Adult/Gero NP	1,681	14.5%	276	14.9%	16.5%
Dual/Multi-Focused	690	6.0%	179	9.7%	26.0%
Pediatric NP	553	4.8%	71	3.8%	12.9%
Pediatric Acute Care NP	86	0.7%	62	3.4%	72.1%
Psychiatric NP	628	5.4%	48	2.6%	7.7%
Women's Health/OBGYN	209	1.8%	8	0.4%	4.0%
All Other Settings	1	0.0%	0	0.0%	0.0%
Total	11,554	100.0%	1,850	100.0%	-

*Note.* Nurse practitioner (NP); Obstetrical-gynecological (OBGYN); Family nurse practitioner (FNP); Gerontological (Gero). n = 58 are missing certification data in 2022.

**Table 19.** North Carolina Nurse Practitioners Working in Mental Health Settings by Certification, 2022

Certification	Total NPs	Percent of all NPs	NPs in Mental Health Setting	Percent of NPs within Mental Health Setting	Percent of Total Certification
Psychiatric NP	628	5.4%	338	58.2%	53.8%
FNP	6,768	58.5%	119	20.5%	1.8%
Dual/Multi-Population Focus	690	6.0%	95	16.4%	13.6%
Adult/Gero NP	1,681	14.5%	20	3.4%	1.2%
Pediatric NP	553	4.9%	9	1.5%	1.6%
All Other Settings	1,148	49.9%	5	0.9%	0.4%
Pediatric Acute Care NP	86	0.7%	0	0.0%	0.0%
Total	11,554	100.0%	586	100.0%	-

*Note.* Nurse practitioner (NP); Family nurse practitioner (FNP); Gerontological (Gero). n = 58 are missing certification data in 2022.

**Table 20.** North Carolina Nurse Practitioners with Psychiatric Mental Health Certification by Setting, 2022

Setting	Total NPs	Percent of all NPs	PMHNPs	Percent of PMHNPs	PMHNPs as % of Setting
Mental Health	590	5.1%	338	53.8%	57.3%
Group Medical	4,231	36.4%	70	11.1%	1.7%
Hospital Inpatient	1,859	16.0%	48	7.6%	2.6%
Public/Community Health	658	5.7%	31	4.9%	4.7%
Hospital Outpatient	1,055	9.1%	30	4.8%	2.8%
Hospital Emergency	265	2.3%	25	4.0%	9.4%
Self Employed	254	2.2%	25	4.0%	9.8%
Long Term	469	4.0%	22	3.5%	4.7%
Other	1,233	10.6%	22	3.5%	1.8%
All Other Settings	403	3.5%	10	1.6%	2.5%
Hospital (other)	163	1.4%	7	1.1%	4.3%
Industry/Occupational	133	1.1%	0	0.0%	0.0%
Retail	299	2.6%	0	0.0%	0.0%
Total	11,612	100.0%	628	100.0%	-

Note. Nurse practitioner (NP); Psychiatric mental health nurse practitioner (PMHNP).

**Table 21.** North Carolina Family Nurse Practitioners with Psychiatric Mental Health Certifications by Setting, 2022

Setting	Total NPs	% of all NPs	Dual FNP/PMHNPs	% of Dual FNP/PMHNPs	Dual FNP/PMHNP % of Setting
Mental Health	590	5.1%	70	38.5%	11.9%
Group Medical	4,231	36.4%	26	14.3%	0.6%
Hospital Inpatient	1,859	16.0%	22	12.1%	1.2%
Public/Community Health	658	5.7%	15	8.2%	2.3%
All Other Settings	1,840	9.4%	14	7.7%	0.8%
Self Employed	254	2.2%	12	6.6%	4.7%
Other	1,233	10.6%	10	5.5%	0.8%
Long Term	469	4.0%	7	3.8%	1.5%
Hospital Emergency	265	2.3%	6	3.3%	2.3%
HMO	58	0.5%	0	0.0%	0.0%
Nursing School	8	0.1%	0	0.0%	0.0%
Medical School	14	0.1%	0	0.0%	0.0%
Industry/Occupational	133	1.1%	0	0.0%	0.0%
Total	11,612	100.0%	182	100.0%	-

Note. Nurse practitioner (NP); Psychiatric mental health nurse practitioner (PMHNP); Family nurse practitioner (FNP); Health Maintenance Organization (HMO).

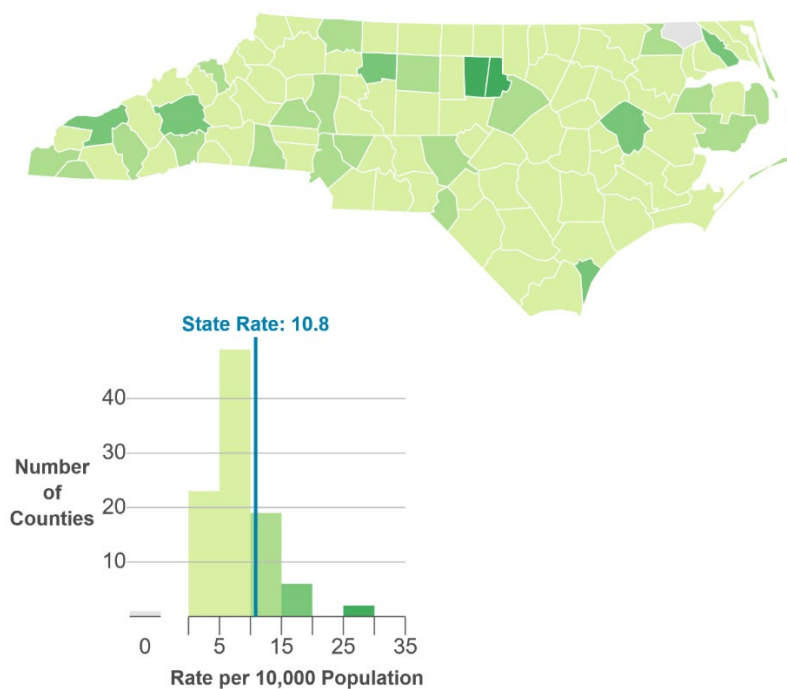
**Table 22.** North Carolina Nurse Practitioners Working in Group Medical Settings by Certification, 2022

Population Focus	Total NPs	Percent of all NPs	NPs in Group Medical Setting	Percent of NPs in Group Medical Setting	Percent of Total Certification
FNP	6,768	58.5%	2,867	68.2%	42.4%
Pediatric NP	553	4.8%	296	7.0%	53.5%
Women's Health/ OBGYN NP	209	1.8%	126	3.0%	60.3%
Adult/Gero NP	1,681	14.5%	583	13.9%	34.7%
Acute Care NP	622	5.4%	100	2.4%	16.1%
Psychiatric NP	628	5.4%	70	1.7%	11.1%
Pediatric Acute Care/Neonatal NP	402	3.5%	6	0.1%	1.5%
All Other Certifications	1	0.0%	1	0.0%	0.0%
Dual/Multi-Population Focus	690	6.0%	155	3.7%	22.5%
Total	1,154	100.0%	4,204	100.0%	-

*Note.* Nurse practitioner (NP); Family nurse practitioner (FNP); Gerontological (Gero); Obstetrical-gynecological (OBGYN). n = 58 are missing certification data in 2022.

### ***Geographic Characteristics***

In 2022, NC had an average of 10.8 NPs per 10,000 population but NPs are not evenly distributed throughout NC (Figure 7). Gates County had no NPs in 2022, while Orange and Durham counties had 28 and 29 NPs per 10,000 population, respectively (Figure 7). A decreasing percentage of NC's NP workforce is practicing in nonmetropolitan counties. In 2013, 15.9% of NPs worked in nonmetropolitan counties while 22.2% of NC's population lived in nonmetropolitan counties (Table 23). By 2022, the population living in nonmetropolitan counties declined to 17.9% and the percent of NPs practicing in those counties also declined to 14.4% (Table 23). Even with the decline in the percentage of NPs who practice in nonmetropolitan counties, NPs make up an increasing percentage of the clinician workforce (nurse practitioners + physicians+ physician assistants) in NC's nonmetropolitan counties (Figure 8). Despite the rapid growth of NPs in nonmetropolitan counties, physicians continue to comprise the largest percentage of the workforce in nonmetropolitan counties (Figure 9).

**Figure 7.** North Carolina Nurse Practitioners per 10,000 Population by County, 2022

Source: North Carolina Health Professions Data System, [Program on Health Workforce Research and Policy](https://nchealthworkforce.unc.edu/interactive/supply/), Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Created September 16, 2024 at <https://nchealthworkforce.unc.edu/interactive/supply/>.

**Table 23.** North Carolina Nurse Practitioners in Nonmetropolitan Counties Compared to State Population, 2013-2022

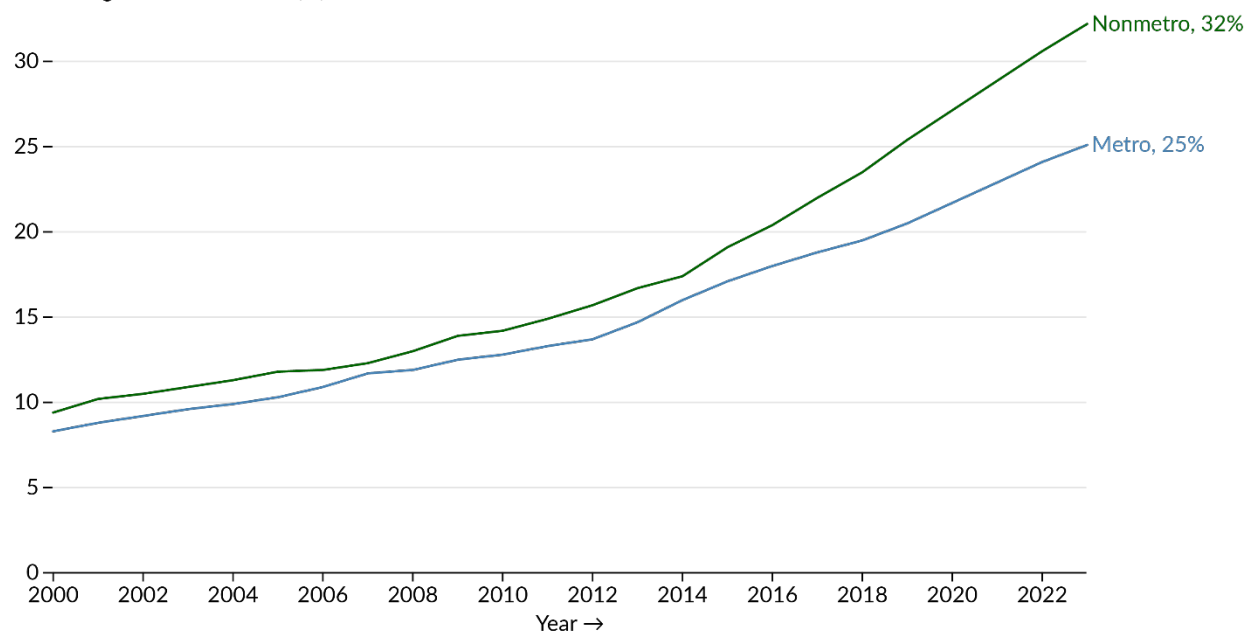
Year	Number of NPs in Nonmetropolitan Counties	Percent of NPs	NC Population in Nonmetropolitan Counties	Percent of NC Population
2013	745	15.9%	2,173,864	22.2%
2014	820	15.3%	2,166,346	21.9%
2015	910	15.3%	2,157,059	21.6%
2016	1,004	15.2%	2,153,884	21.4%
2017	1,118	15.4%	2,152,715	21.1%
2018	1,137	14.5%	1,926,629	18.7%
2019	1,265	14.6%	1,923,322	18.5%
2020	1,335	14.5%	1,915,323	18.3%
2021	1,500	14.5%	1,909,545	18.1%
2022	1,694	14.4%	1,919,014	17.9%

Note. Nurse practitioner (NP); North Carolina (NC).

Source: Population census data and estimates are downloaded from the North Carolina Office of State Budget and Management County/State Population Projections. Data include active, licensed professionals in practice in North Carolina as of October 31 of each year. Data are derived from licensure data from licensing boards. County estimates are based on primary practice location. Metropolitan or rural (nonmetropolitan) county status was defined using US Office of Management and Budget Core Based Statistical Areas (CBSAs). Nonmetropolitan counties include micropolitan counties and non-CBSAs. The vintage or year of the delineation file used to aggregate the counties corresponds with the delineations in place for each year of data. That is, the counties defined as nonmetropolitan in 2000 are different than the nonmetropolitan ones in 2017.

**Figure 8.** Nurse Practitioners as a Percentage of Total Clinicians in North Carolina by Metropolitan/Nonmetropolitan Counties, 2000-2022

↑ Percentage NPs of Clinicians (%)



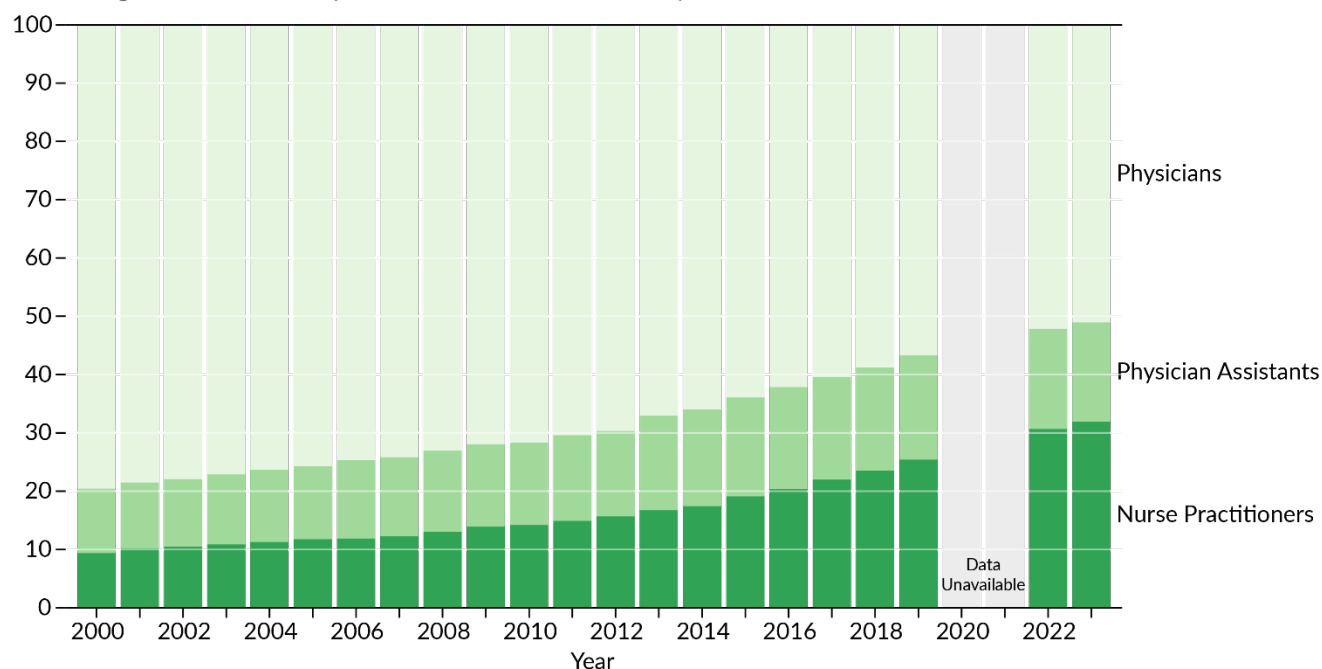
*Note.* Clinicians are defined as nurse practitioners, physicians, and physician assistants.

*Source:* Data include active, licensed professionals in practice in North Carolina as of October 31 of each year. Data are derived from licensure data from each profession's licensing board. County estimates are based on primary practice location. metropolitan or rural (nonmetropolitan) county status was defined using US Office of Management and Budget Core Based Statistical Areas (CBSAs). Nonmetropolitan counties include micropolitan counties and non-CBSAs. The vintage or year of the delineation file used to aggregate the counties corresponds with the delineations in place for each year of data. That is, the counties defined as nonmetropolitan in 2000 are different than the nonmetropolitan ones in 2017.



**Figure 9.** North Carolina Nurse Practitioners as a Percentage of Nonmetropolitan Clinicians in the State, 2000-2022

↑ Percentage of Total Nonmetropolitan Clinicians (NPs + PAs + Physicians)



*Note.* Nurse practitioner (NP); Physician assistant (PA); North Carolina (NC). Clinicians are defined as nurse practitioners, physicians, and physician assistants. Physician data from 2020 and 2021 are unavailable because of data issues that make longitudinal comparisons misleading.

*Source:* Metropolitan or rural (nonmetropolitan) county status was defined using US Office of Management and Budget Core Based Statistical Areas (CBSAs). Nonmetropolitan counties include micropolitan counties and non-CBSAs. The vintage or year of the delineation file used to aggregate the counties corresponds with the delineations in place for each year of data. That is, the counties defined as nonmetropolitan in 2000 are different than the nonmetropolitan ones in 2017.

Family Nurse Practitioners represented 72.9% of the 1,655 NPs in practice in nonmetropolitan counties in 2022 compared to 56.1% of the 9,872 NPs in metropolitan counties in 2022 (Table 24). A higher percentage of NPs in nonmetropolitan counties practice in group medical (47.6%) and public/community health (10.7%) compared to NPs in practice in metropolitan counties. By contrast, a higher percentage of NPs in metropolitan areas practiced in hospital inpatient settings (17.8% of the metropolitan NP workforce) and outpatient settings (9.8% of the metropolitan NP workforce) compared to NPs in nonmetropolitan areas. (Table 25).

**Table 24.** North Carolina Nurse Practitioners Practicing in Metropolitan and Nonmetropolitan Areas by Certification, 2022

Certification	Metropolitan	Percent within Metropolitan	Nonmetropolitan	Percent within Nonmetropolitan
FNP <sup>a</sup>	5,542	56.1%	1,226	72.9%
PNP <sup>a</sup>	502	5.1%	51	3.0%
WH/OBGYN NP	179	1.8%	30	1.8%
AGNP <sup>a</sup>	1,515	15.3%	166	9.9%
ACNP <sup>a</sup>	570	5.8%	52	3.1%
NNP	304	3.1%	12	0.7%
PMHNP <sup>a</sup>	563	5.7%	65	3.9%
All Other Certifications	84	0.9%	3	0.2%
Dual/Multi-Focused <sup>a</sup>	613	6.2%	77	4.56%
Total	9,872	100%	1,682	100%

*Note.* Family nurse practitioner (FNP); Pediatric nurse practitioner (PNP); Women's health nurse practitioner (WH); Obstetrical-gynecological (OBGYN); Adult/geriatric nurse practitioner (AGNP); Adult nurse practitioner (ANP); Acute care nurse practitioner (ACNP); Neonatal nurse practitioner (NNP); Psychiatric-metal health nurse practitioner (PMHNP). n = 58 NPs are missing certification data in 2022. <sup>a</sup>significant difference in chi-square test between certification compared to total NPs and distribution of practice setting.

**Table 25.** North Carolina Nurse Practitioners Practicing in Metropolitan and Nonmetropolitan Areas by Setting, 2022

Setting	Total Active NPs in Metropolitan	Percent within Metropolitan	Total Active NPs within Nonmetropolitan	Percent within Nonmetropolitan
Group Medical <sup>a</sup>	3,434	35.0%	797	47.6%
Hospital Inpatient <sup>a</sup>	1,748	17.8%	111	6.6%
Hospital Outpatient <sup>a</sup>	965	9.8%	90	5.4%
Hospital Emergency <sup>a</sup>	193	2.0%	72	4.3%
Hospital (other)	147	1.5%	16	1.0%
Long Term	416	4.2%	53	3.2%
Group Nursing	29	0.3%	6	0.4%
Home Health <sup>a</sup>	213	2.2%	16	1.0%
Public/Community Health <sup>a</sup>	478	4.9%	180	10.7%
Mental Health <sup>a</sup>	534	5.4%	56	3.3%
Self Employed <sup>a</sup>	189	1.9%	65	3.9%
Retail <sup>a</sup>	276	2.8%	23	1.4%
School Health	46	0.5%	13	0.8%
Nursing School/Medical School	22	0.2%	0	0.0%
All Other Settings	1,114	11.4%	177	10.6%
Total	9,804	100.0%	1,675	100.0%

*Note.* Nurse practitioner (NP). <sup>a</sup>significant difference in chi-square test between setting compared to total NPs and distribution of practice setting.

## Certified Nurse Midwives

### Supply

There were 12,897 Certified Nurse Midwives (CNM) in the U.S. in 2020.<sup>36</sup> National data suggest that NC has the 7<sup>th</sup> largest number of Certified Nurse Midwives (behind California, New York, Florida, Texas, Georgia, and Pennsylvania).<sup>37</sup>

North Carolina's CNM workforce has increased 46.9% between 2013 and 2022. While this is noteworthy growth for one of NC's smaller APRN workforces, CNMs have remained at a stable 0.3% of the total NC RN workforce (Table 26).

**Table 26.** North Carolina Active Certified Nurse Midwife Growth by Year, 2013-2022

Year	Total Active CNMs	Percent Increase (vs 2013)	CNMs per 10k NC Population	Total Active RNs	CNMs as Percent of RN Workforce
2013	262	-	0.27	99,611	0.3%
2014	251	-4.2%	0.25	99,734	0.3%
2015	278	6.1%	0.28	100,134	0.3%
2016	291	11.1%	0.29	101,570	0.3%
2017	292	11.5%	0.29	103,425	0.3%
2018	303	15.6%	0.29	109,322	0.3%
2019	351	34.0%	0.34	107,477	0.3%
2020	318	21.4%	0.3	109,439	0.3%
2021	360	37.4%	0.34	110,244	0.3%
2022	385	46.9%	0.36	112,027	0.3%

*Note.* Certified nurse midwife (CNM); Registered nurse (RN); North Carolina (NC).

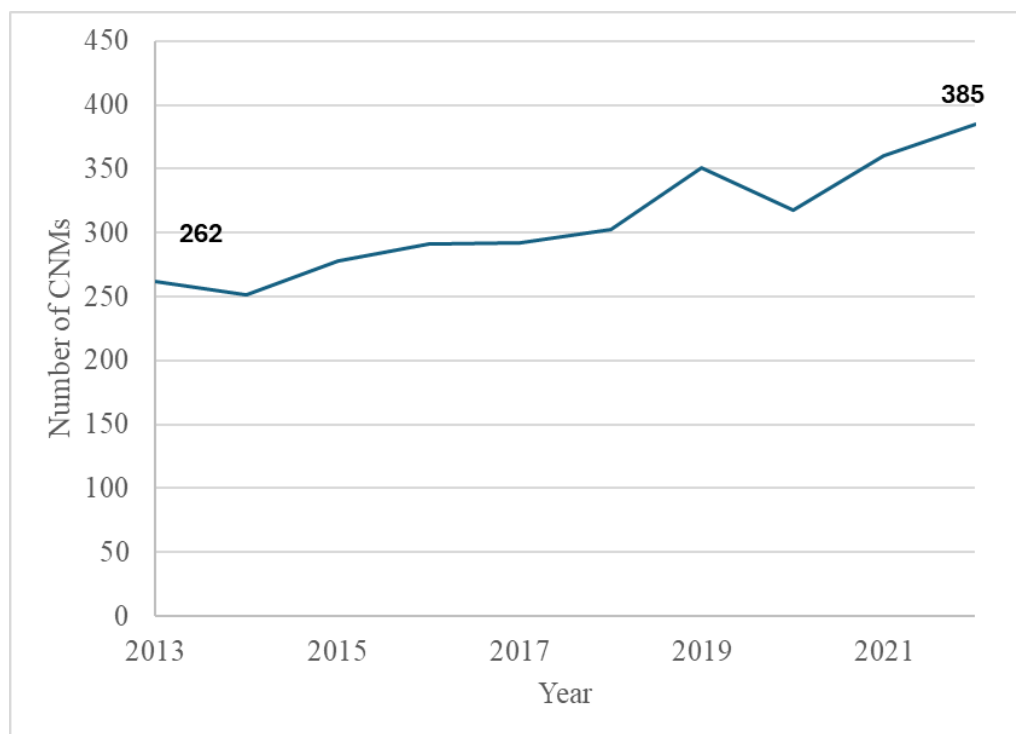
According to American Midwifery Certification Board (AMCB) data from 2022, the number of entrants to certification while periodically waxing and waning, appears stable overall.<sup>36</sup> North Carolina had an increase in the number of active CNMs from 2021-2022 (Figure 10) and also had year-to-year variability in the proportion of new entrants to the CNM workforce entering via out-of-state pathways (either through the out-of-state education pathway or out-of-state previous practice pathway) and NC-pathways (NC-education pathway, NC educated delayed entry pathway and returners) (Table 27). Among the 51 new entrants and returners to the existing NC CNM workforce in 2022, 35 (68.6%) entered via out-of-state pathways (Table 27). This included CNMs entering via the out-of-state education (n = 20) and out-of-state previous practice (n = 15) pathways (Figure 11). New entrants via NC pathways included 16 (31.4%) of all new entrants to the CNM workforce in 2022 (Table 27). These new entrants included those who entered via the NC education pathway (n = 11) and the NC "returners" pathway (n = 5) (Figure 11).

### Active CNMs Potentially Eligible for Independent Practice

It will be important to monitor the growth of CNMs in North Carolina given recent legislation that provides a path for CNMs to obtain independent practice. According to NC Session Law 2023 – 14, CNMs who have completed 24 months and 4,000 hours of practice as a CNM with a collaborative provider agreement (either with an experienced CNM or a physician) is authorized to practice midwifery independently in North Carolina.<sup>38</sup> This recent change enabling CNMs to

practice independently in NC could impact the number of nurses who choose to pursue a career as a CNM in NC via the NC education pathway. It may also entice CNMs who have exited the state to return to the NC workforce, students educated in out-of-state programs to move to NC and CNMs currently in practice in other states to move to NC.

**Figure 10.** North Carolina Certified Nurse Midwife Workforce Growth by Year, 2013-2022

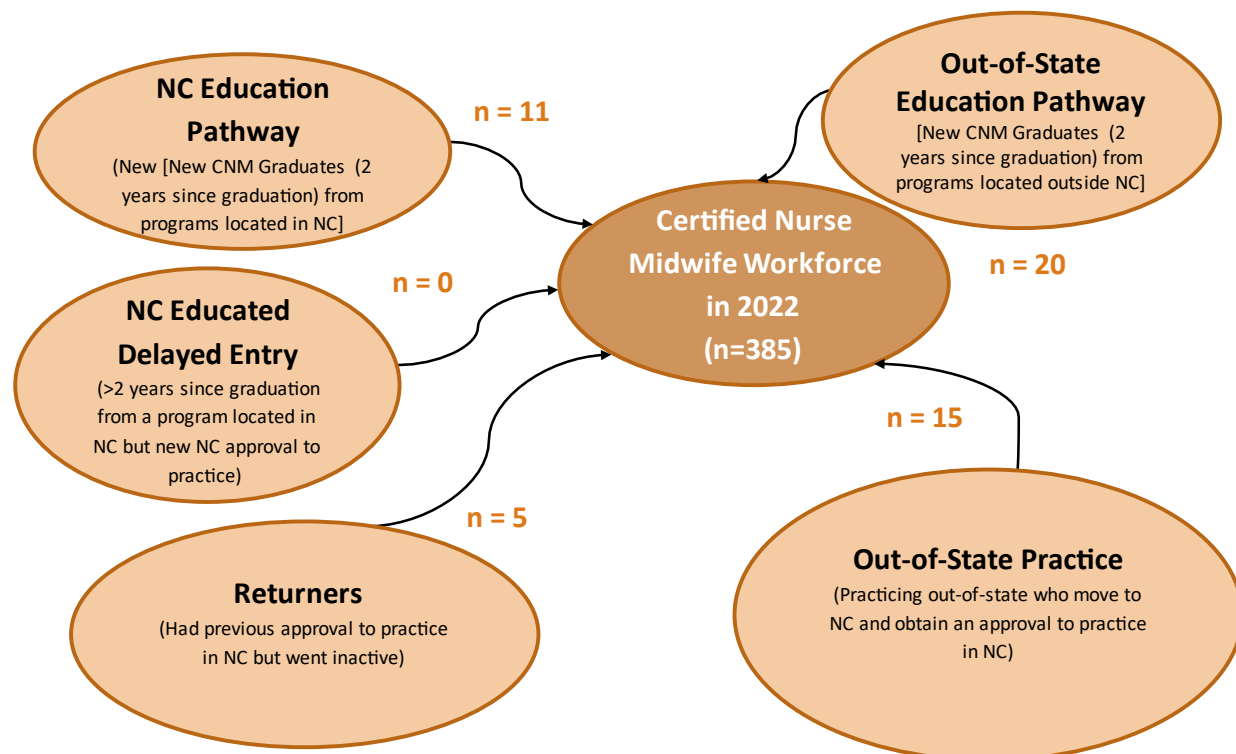


*Note.* Certified nurse midwife (CNM).

**Table 27.** New Entrants to the North Carolina Certified Nurse Midwife Workforce, 2014-2022

			Includes NC Education Pathway, NC Education (Delayed Entry), and Returners		Includes Out-of-State Education Pathway and Out-of-State Previous Practice	
Year	Total Active CNMs	Total New Entrants & Returners	NC Pathways	Percent of New CNMs	Out-of-State Pathways	Percent of New CNMs
2014	251	28	7	25.0%	20	71.4%
2015	278	28	11	39.3%	17	60.7%
2016	291	33	16	48.5%	17	51.5%
2017	Data Suppressed for 2017 and 2018					
2018						
2019	351	44	20	45.5%	24	54.5%
2020	318	32	13	40.6%	19	59.4%
2021	360	64	35	54.7%	29	45.3%
2022	385	51	16	31.4%	35	68.6%

*Note.* Certified nurse midwife (CNM); North Carolina (NC). Data for 2017 and 2018 were suppressed due to differences in CNM data collection in these years compared to other years in the study period. If NC and out-of-state pathways do not equal total new entrants that is because there is a minimal subset whose graduation year is missing: n=1 in 2014.

**Figure 11.** New Entrants to the North Carolina Certified Nurse Midwife Workforce, 2022

*Note.* North Carolina (NC).

### ***Demographic Characteristics***

**Gender.** Similar to national trends, 99% of NC’s CNM population is female. Data with exact gender counts are suppressed to protect CNMs’ privacy.

**Age.** Nationally, the average age of a Certified Nurse Midwife is 49.<sup>36</sup> In NC, the average age of CNMs has decreased from 47.5 to 46.0 between 2013-2022 (Table 28). While the average age has not significantly decreased, the age distribution of CNMs has changed. In 2013, 61% of the CNM workforce was aged 50 years or younger and in contrast, by 2022, 69.4% of CNMs were 50 years or younger (chi-square test,  $p < 0.05$ ).

**Table 28.** North Carolina Certified Nurse Midwives by Age, 2013-2022

Year	NC Active CNMs (n)	Mean Age	Median Age	Min. Age	Max Age
2013	262	47.5	47	27.0	75.0
2014	251	47.7	47	28.0	76.0
2015	278	47.8	47	26.0	77.0
2016	291	47.7	46	27.0	71.0
2017	292	48.7	47	28.0	72.0
2018	303	46.7	45	26.0	77.0
2019	351	47.2	45	26.0	74.0
2020	318	46.5	45	25.0	79.0
2021	360	46.3	45	26.0	76.0
2022	385	46.0	45	27.0	77.0

*Note.* Certified nurse midwife (CNM); North Carolina (NC); Minimum (Min.); Maximum (Max)

**Race/Ethnicity.** Nationally, more than 84% of the CNM workforce is White.<sup>36</sup> Given the low count of CNMs in NC, data on specific counts of CNMs by race/ethnicity categories were aggregated to indicate CNMs who identified as representing an underrepresented minority (URM) (Table 29). Although NC has had an increase in CNMs who identify as URM (8.4% in 2013 to 12.4% in 2022), the diversity of the CNM workforce does not match the NC birthing age population (34.3% of the NC birthing age population identifies as a URM in 2022) (Table 29). Missing data on the race/ethnicity of NC CNMs has increased over time from almost no missing data in 2013 to 14.3% of the workforce in 2022 (Table 30).

**Table 29.** North Carolina Certified Nurse Midwives Who Identify as Underrepresented Minorities, 2013-2022

Year	Underrepresented Minority		Underrepresented Minority NC Birthing Age Population	
	(n) CNMs	Percent CNMs	(n) Population	Percent Population
2013	22	8.4%	904,455	33.7%
2014	22	8.8%	911,491	33.9%
2015	26	9.4%	919,336	34.0%
2016	34	11.7%	929,555	34.1%
2017	34	11.6%	938,884	34.2%
2018	36	11.9%	947,031	34.3%
2019	38	11.3%	954,764	34.4%
2020	34	11.4%	959,292	34.4%
2021	41	12.7%	966,635	34.4%
2022	41	12.4%	977,393	34.3%

*Note.* Certified nurse midwife (CNM); North Carolina (NC); Underrepresented minority (URM). URM includes individuals who identify as African American/Black, American Indian/Alaskan Native, and/or Hispanic.

**Table 30.** North Carolina Certified Nurse Midwife Missing Race/Ethnicity Data, 2013-2022

Year	Active and In-State CNMs	Missing Race/Ethnicity Data	Percent Missing Race/Ethnicity Data
2013	262	1	0.4%
2014	251	0	0.0%
2015	278	0	0.0%
2016	291	0	0.0%
2017	292	0	0.0%
2018	303	1	0.3%
2019	351	16	4.6%
2020	318	21	6.6%
2021	360	36	10.0%
2022	385	55	14.3%

*Note.* Certified nurse midwife (CNM).

### ***Educational Characteristics***

North Carolina has seen a slight increase in the percent of actively practicing CNMs educated in programs located in NC. Between 2013 and 2022, approximately one third (30.9%-36.4%) of NC CNMs were educated at East Carolina University, the only program in NC that offers a CNM degree (Table 31; Figure 12). According to the American Association of Colleges of Nursing, ECU had 11 CNM program graduates in 2022 (Figure 13). Among the CNMs educated in programs located outside NC in 2022, 28.7% were from programs in Kentucky, 4.7% from New York, and 1.9% from South Carolina (Table 32). Over time, fewer CNMs have been attending the NY and SC programs and more attending the KY programs (the majority of which are from Frontier Nursing Program).



**Table 31.** North Carolina Certified Nurse Midwives Educated in Programs Located in North Carolina and Out-of-State, 2013-2022

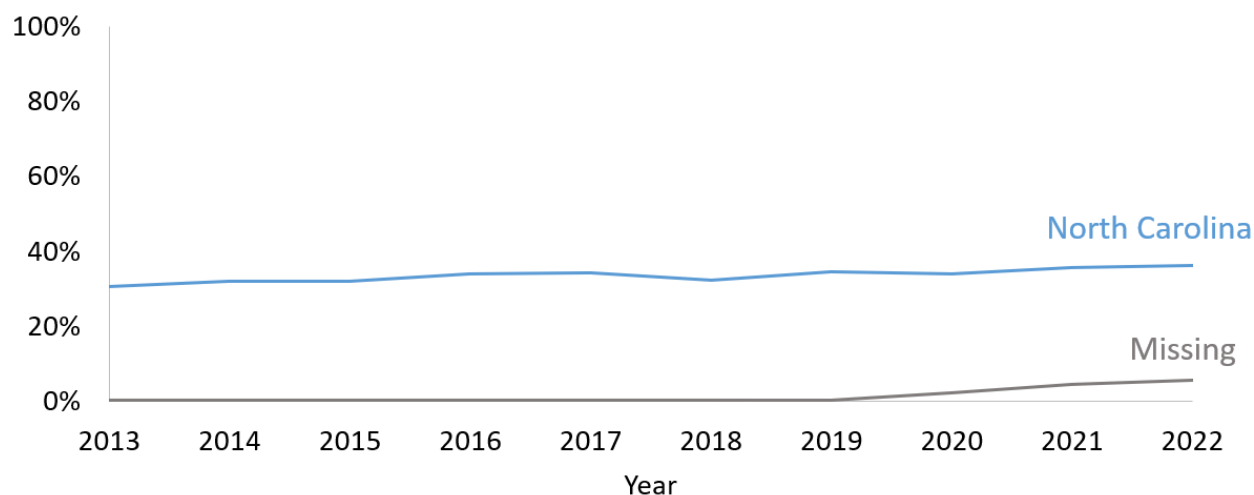
Year	Total Active CNMs	Missing Data	Reported Education Program	NC-Located Program	Percent	Out-of-State Program	Percent
2013	262	1	262	81	30.9%	181	69.1%
2014	251	1	250	80	32.0%	170	68.0%
2015	278	1	277	89	32.1%	188	67.9%
2016	291	1	290	99	34.1%	191	65.9%
2017	292	1	291	100	34.4%	191	65.6%
2018	303	1	302	98	32.5%	204	67.5%
2019	351	1	350	121	34.6%	229	65.4%
2020	318	7	311	106	34.1%	205	65.9%
2021	360	16	344	123	35.8%	221	64.2%
2022	385	22	363	132	36.4%	231	63.6%

Note. Certified nurse midwife (CNM); North Carolina (NC).

**Table 32.** North Carolina Certified Nurse Midwives Educated in Out-of-State, 2013-2022

Out-of-State Education Highlights							
Year	Reported	Kentucky	Percent	New York	Percent	South Carolina	Percent
2013	262	58	22.1%	21	8.0%	20	7.6%
2014	250	54	21.6%	20	8.0%	16	6.4%
2015	277	61	22.0%	21	7.6%	16	5.8%
2016	290	62	21.4%	21	7.2%	15	5.2%
2017	291	62	21.3%	21	7.2%	15	5.2%
2018	302	70	23.2%	18	6.0%	9	3.0%
2019	350	85	24.3%	21	6.0%	13	3.7%
2020	311	86	27.7%	15	4.8%	11	3.5%
2021	344	95	27.6%	17	4.9%	9	2.6%
2022	363	104	28.7%	17	4.7%	7	1.9%

**Figure 12.** Percentage of North Carolina’s Certified Nurse Midwife Workforce Educated in Programs Located in North Carolina, 2013-2022



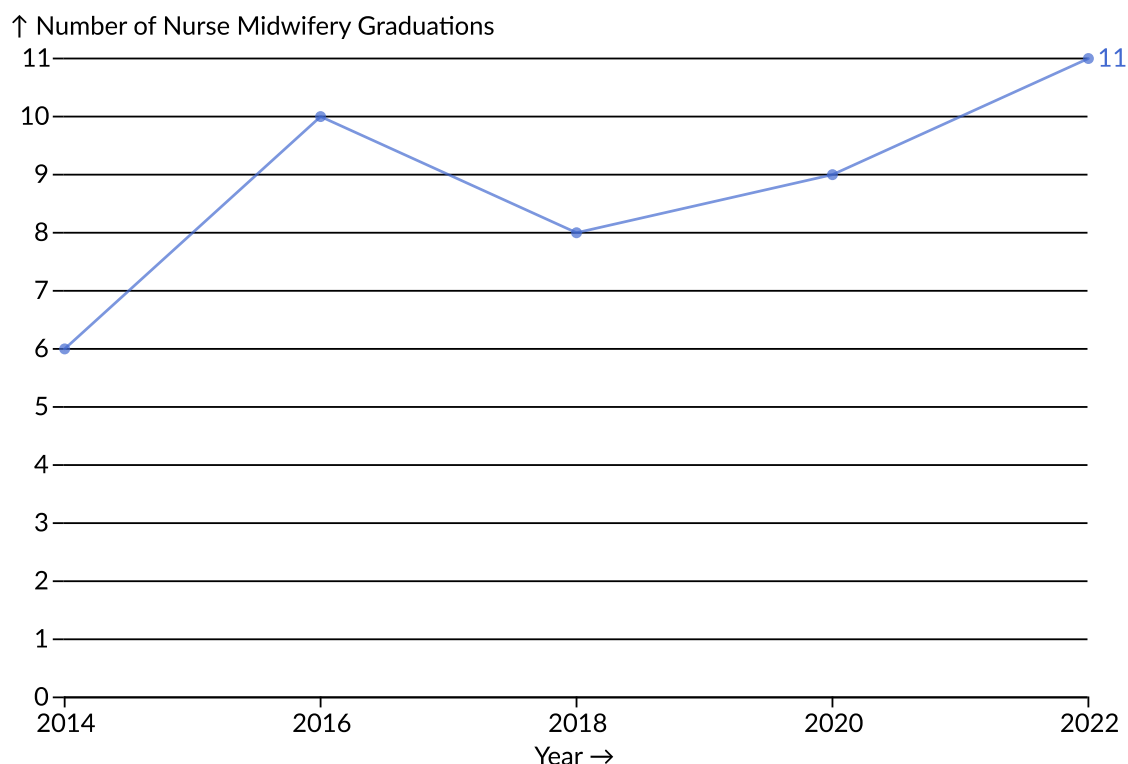
A declining percentage of newly educated CNMs were educated in NC, decreasing from 53.6% in 2013 to 45.3% in 2022 (Table 33).

**Table 33.** North Carolina Certified Nurse Midwives Newly Educated in Programs Located in North Carolina and Out-of-State, 2013-2022

Year	Newly Educated CNMs	Missing Data	Reported Education Program	NC-Located Program	Percent	Out-of-State Located Program	Percent
2013	28	0	28	15	53.6%	13	46.4%
2014	27	0	27	13	48.1%	14	51.9%
2015	33	0	33	14	42.4%	19	57.6%
2016	36	0	36	19	52.8%	17	47.2%
2017	26	0	26	16	61.5%	10	38.5%
2018	45	0	45	25	55.6%	20	44.4%
2019	57	0	57	28	49.1%	29	50.9%
2020	52	6	46	19	41.3%	27	58.7%
2021	65	15	50	21	42.0%	29	58.0%
2022	65	12	53	24	45.3%	29	54.7%

*Note.* Certified nurse midwife (CNM); North Carolina (NC).

**Figure 13.** Full-Time Certified Nurse Midwife Students Graduating from East Carolina University, 2014-2022



Source: American Association of Colleges of Nursing, Research and Data Services, 2024.

### **Practice Characteristics**

**Years in Practice.** In 2022, CNMs had been in practice an average 11.7 years, a decline from 12.6 years in 2013 (Table 34).

**Practice Setting.** NC has seen a statistically significant decline in the percentage of CNMs who practice in Group Medical Settings (Table 35). In 2018, 50.8% of CNMs practiced in group medical settings, compared to 40.5% in 2022 ( $p < 0.05$ ). Although not statistically significant, the percent of the CNM workforce employed in hospital inpatient and outpatient settings has increased between 2018 and 2022. Hospital inpatient employment increased from 22.1% ( $n = 67$ ) of the workforce in 2018 to 27.3% ( $n = 105$ ) in 2022 and hospital outpatient employment increased from 6.6% ( $n = 20$ ) to 10.4% ( $n = 40$ ) in the same period. Community health, self-employment, and all other settings have remained relatively stable over time (Table 35).

Newly educated CNMs (with two years or fewer in practice since graduation) were more likely to practice in hospital settings and less likely to practice in group medical settings in 2022 (Table 36). In 2022, 36.9% of newly educated CNMs practiced in the group medical setting compared to 40.5% of the total CNM workforce in NC, and 30.8% of newly educated CNMs practiced in the hospital inpatient setting compared to 27.3% of the total CNM workforce (Table 36).

**Table 34.** North Carolina Certified Nurse Midwives by Years in Practice Since Graduation, 2013-2022

Year	Total Active CNMs	Missing	Reported	Mean Years in Practice Since Graduation	Median	Min	Max
2013	263	32	231	12.6	11	0.0	40.0
2014	251	5	246	13.0	12	0.0	41.0
2015	278	5	273	13.2	12	0.0	42.0
2016	291	4	287	13.2	12	0.0	43.0
2017	292	4	288	14.1	13	1.0	44.0
2018	303	31	272	12.7	11	0.0	45.0
2019	351	1	350	12.7	11	0.0	46.0
2020	318	1	317	12.3	10	0.0	47.0
2021	360	1	359	11.9	10	0.0	48.0
2022	385	1	384	11.7	9	0.0	47.0

Note. Certified nurse midwife (CNM).

**Table 35.** North Carolina Certified Nurse Midwives by Practice Setting, 2018 and 2022

Setting	2018		2022	
	Total CNMs	Percent	Total CNMs	Percent
Hospital Inpatient	67	22.1%	105	27.3%
Hospital Outpatient	20	6.6%	40	10.4%
Group Medical <sup>a</sup>	154	50.8%	156	40.5%
Public/Community Health	21	6.9%	26	6.8%
Self Employed	8	2.6%	7	1.8%
Other	25	8.3%	35	9.1%
All Other Settings	8	2.6%	16	4.2%
Total	303	100.0%	385	100.0%

Note. Certified nurse midwife (CNM). <sup>a</sup> significant difference in chi-square test ( $p < 0.05$ ) between year and distribution of practice setting.

**Table 36.** Newly Educated Certified Nurse Midwives by Practice Setting, 2022

Practice Setting	Newly Educated CNMs	Percent of Newly Educated CNMs in Setting	Total CNMs	Percent of Total CNMs
Group Medical	24	36.9%	156	40.5%
Hospital Inpatient	20	30.8%	105	27.3%
Hospital Outpatient	10	15.4%	40	10.4%
Other	8	12.3%	35	9.1%
All Other Settings	3	4.6%	49	12.7%
Total	65	100.0%	385	100.0%

*Note.* Certified nurse midwife (CNM). Newly educated CNMs are CNMs who have been practicing  $\leq 2$  years from graduation date.

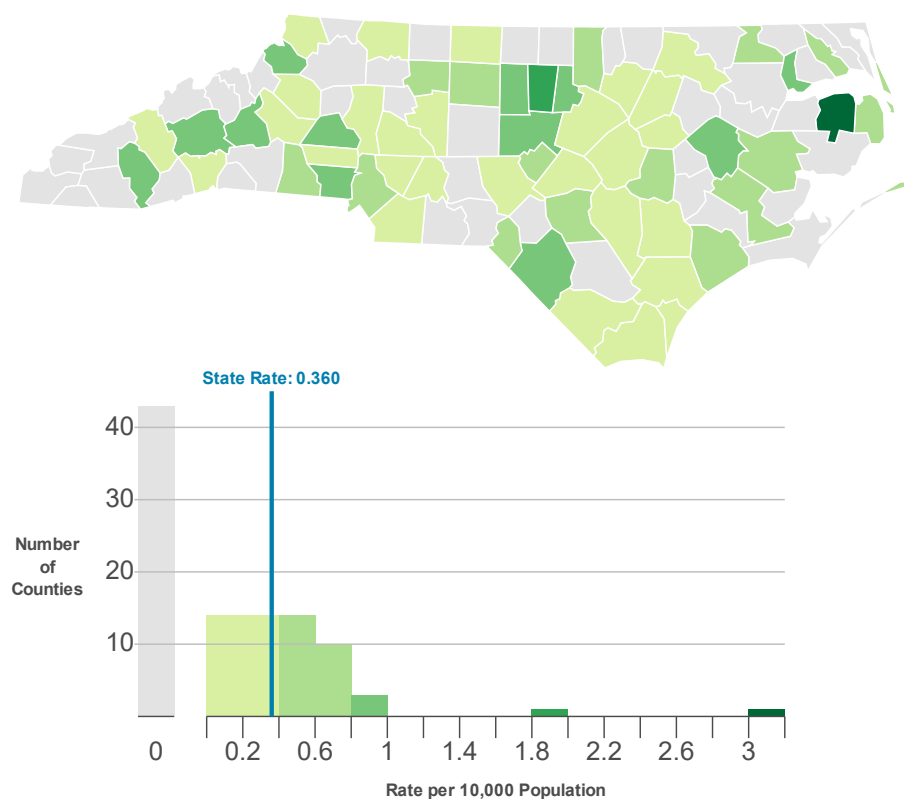
### ***Geographic Characteristics***

The percentage of CNMs in nonmetropolitan counties in NC has declined from 16.8% in 2013 to 13.5% in 2022 (Table 37). Additionally, in 2022, 43 NC counties had no CNMs (Figure 14). A significantly higher percentage of CNMs who identify as URM work in nonmetropolitan areas. Among the 41 CNMs who identify as URM in 2022, 27% practiced in nonmetropolitan counties compared to 12% of non-underrepresented minority CNMs ( $p < 0.05$ ) (Table 38).

**Table 37.** North Carolina Certified Nurse Midwives in Nonmetropolitan Counties Compared to State Population, 2013-2022

Year	Number of CNMs	Percent of CNMs	NC Population in Nonmetropolitan Counties	Percent of NC Population in Nonmetropolitan Counties
2013	44	16.8%	2,173,864	22.2%
2014	40	15.9%	2,166,346	21.9%
2015	40	14.4%	2,157,059	21.6%
2016	47	16.2%	2,153,884	21.4%
2017	47	16.1%	2,152,715	21.1%
2018	37	12.2%	1,926,629	18.7%
2019	45	12.8%	1,923,322	18.5%
2020	42	13.2%	1,915,323	18.3%
2021	51	14.2%	1,909,545	18.1%
2022	52	13.5%	1,919,014	17.9%

*Note.* Certified nurse midwives (CNMs); North Carolina (NC).

**Figure 14.** North Carolina Certified Nurse Midwives per 10,000 Population by County, 2022

Source: North Carolina Health Professions Data System, Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Created September 16, 2022 at <https://nchealthworkforce.unc.edu/interactive/supply/>.

**Table 38.** North Carolina Certified Nurse Midwives Who Identify as Underrepresented Minorities by Metropolitan Status, 2022

	URM		Non-URM	
	Number of URM CNMs	Percent of URM CNMs	Number of Non-URM CNMs	Percent of Non-URM CNMs
Metropolitan <sup>a</sup>	30	73%	254	88%
Nonmetropolitan <sup>a</sup>	11	27%	35	12%
Total	41	100%	289	100%

Note. Certified nurse midwives (CNMs); Underrepresented minority (URM); Non-underrepresented minority (Non-URM). <sup>a</sup>significant difference based on a Chi-square test  $p < .05$

## Certified Registered Nurse Anesthetists

### *Supply*

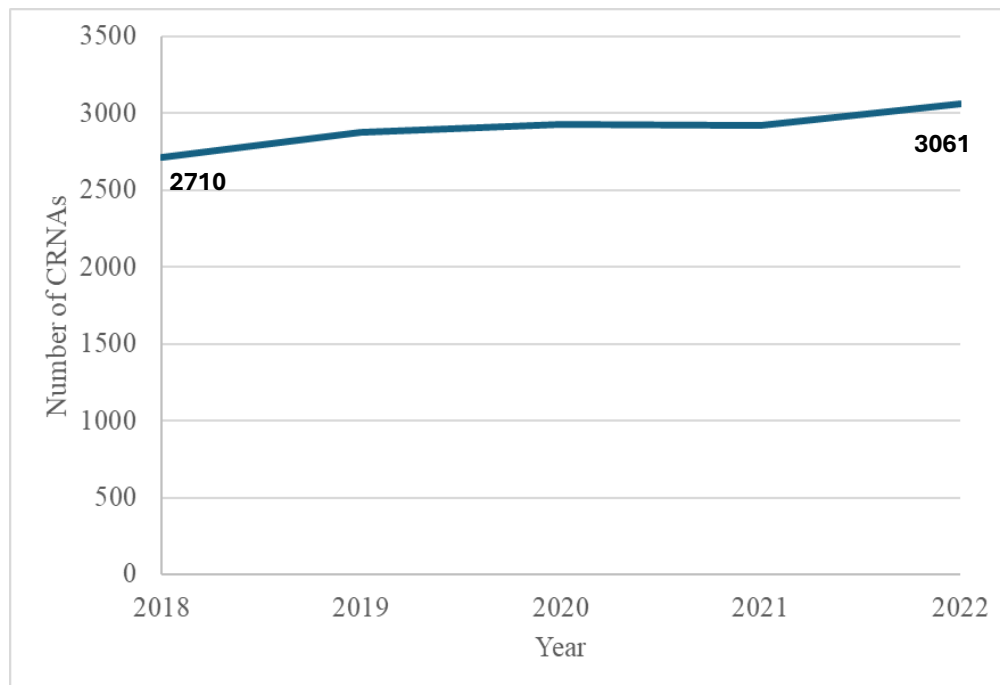
There are 46,540 Certified Registered Nurse Anesthetists (CRNAs) practicing in the US<sup>39</sup>; CRNAs in North Carolina make up the 7<sup>th</sup> largest population (behind Florida, Michigan, Ohio, Texas, Pennsylvania, and Minnesota).<sup>40</sup> The CRNA workforce in NC has grown from 2,710 CRNAs in active practice in 2018 to 3,061 in 2022 (Figure 15). Approximately 2% of the NC CRNA workforce practice on a compact RN license (data not shown). The CRNA workforce has increased at a slower rate than NPs. Nurse practitioners increased by 48.1% since 2018, while CRNAs increased by 13.0% during the same period (Table 39).

In 2022, 68.1% of new entrants to the CRNA workforce entered via NC pathways (Table 40). Among the 188 newly educated CRNAs who entered the NC workforce in 2022, 91 were educated in NC programs (Figure 16), a higher percentage compared to the NP and CNM workforces.

**Table 39.** North Carolina Active Certified Registered Nurse Anesthetist Growth by Year, 2018-2022

Year	Total Active CRNAs	Percent Increase from 2018	CRNAs per 10k NC Population	Total Active RNs	CRNA as Percent of Active RN
2018	2,710	-	2.6	109,322	2.5%
2019	2,877	6.2%	2.8	107,477	2.7%
2020	2,931	9.2%	2.8	109,439	2.6%
2021	2,920	7.7%	2.8	110,244	2.6%
2022	3,061	13.0%	2.9	112,027	2.7%

*Note.* Certified registered nurse anesthetist (CRNA); North Carolina (NC).

**Figure 15.** North Carolina Certified Registered Nurse Anesthetist Workforce, 2018-2022

*Note.* Certified registered nurse anesthetist (CRNA).

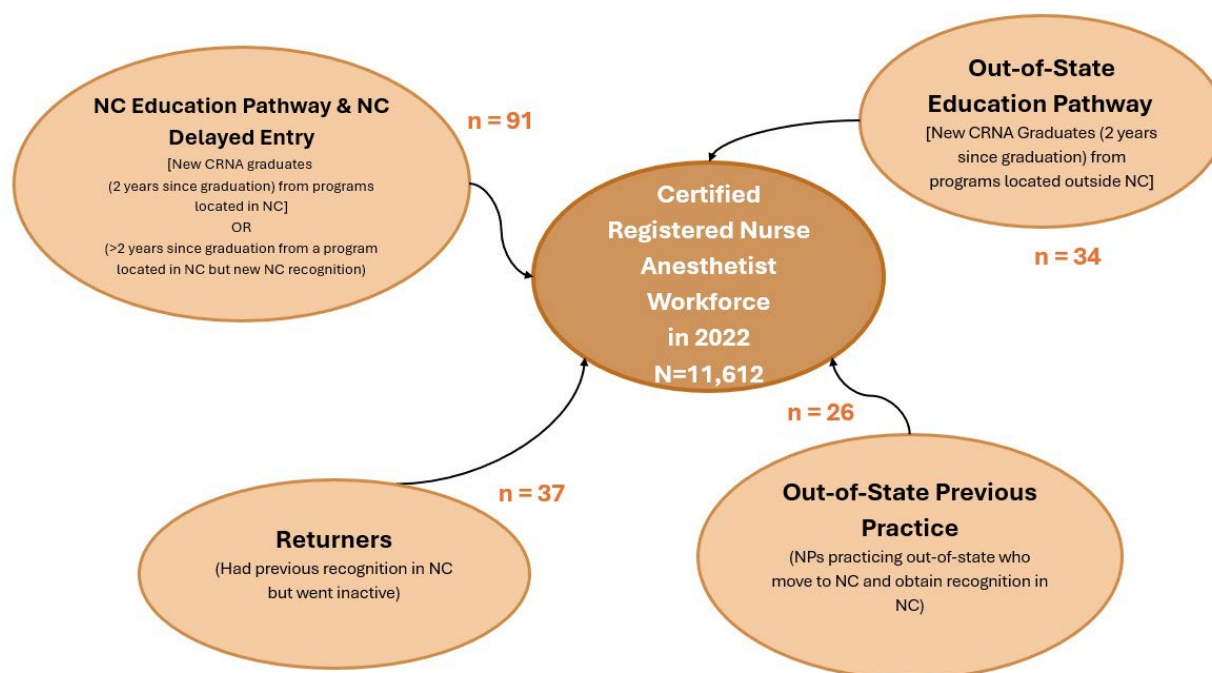
**Table 40.** New Entrants to North Carolina Certified Registered Nurse Anesthetist Workforce, 2019-2022

			Includes NC Education Pathway, NC Education (Delayed Entry), and Returners		Includes Out-of-State Education Pathway and Out-of-State Previous Practice	
Year	Total Active CRNAs	Total New Entrants & Returners	NC Pathways	Percent of New CRNAs	Out-of-State Pathways	Percent of New CRNAs
2019	2,877	248	198	79.8%	50	20.2%
2020	2,931	217	166	76.5%	51	23.5%
2021	2,920	257	171	66.5%	86	33.5%
2022	3,061	188	128	68.1%	60	31.9%

*Note.* Certified registered nurse anesthetist (CRNA); North Carolina (NC).



**Figure 16.** New Entrants to the North Carolina Certified Registered Nurse Anesthetist Workforce, 2022



### Demographic Characteristics

**Age.** The average age of the CRNA workforce has remained stable at 46-47 years (Table 41).

**Table 41.** North Carolina Certified Registered Nurse Anesthetists by Age, 2018-2022

Year	Total Active CRNAs	Mean Age	Standard Deviation	Median Age	Minimum Age	Maximum Age
2018	2,710	46.6	11.5	45	25.0	83.0
2019	2,877	46.6	11.6	45	25.0	84.0
2020	2,931	46.5	11.5	45	26.0	85.0
2021	2,920	46.0	11.1	45	25.0	77.0
2022	3,061	46.2	11.3	45	26.0	78.0

*Note.* Certified registered nurse anesthetist (CRNA).

**Gender.** Nationally, approximately 40% of CRNAs are men,<sup>41</sup> and CRNAs have the largest representation of males among the APRN groups. In NC, 33% of the workforce was male in 2022 (Table 42).

**Table 42.** North Carolina Certified Registered Nurse Anesthetists by Gender, 2018-2022

Year	Count of CRNA-Reported	Female	Percent of CRNA-Reported	Male	Percent of CRNA-Reported
2018	2,667	1,773	66.5%	894	33.5%
2019	2,846	1,890	66.4%	956	33.6%
2020	2,892	1,916	66.3%	976	33.7%
2021	2,880	1,914	66.5%	966	33.5%
2022	3,012	2,017	67.0%	995	33.0%

Note. Certified registered nurse anesthetist (CRNA).

**Race/Ethnicity.** The race/ethnicity of NC CRNAs has remained stable over time with 89-90% of the workforce identifying as White (Table 43).

**Table 43.** North Carolina Certified Registered Nurse Anesthetists by Race/Ethnicity, 2018 and 2022

	2018 (n = 2654 Reported)		2022 (n = 2982 Reported)	
Race/Ethnicity	Count of CRNA-Reported	Percent of CRNA-Reported	Count of CRNA-Reported	Percent of CRNA-Reported
White	2,392	90.1%	2,654	89.0%
Black	117	4.4%	138	4.6%
American Indian/Alaska Native	13	0.5%	11	0.4%
Hispanic	38	1.4%	54	1.8%
Asian/Pacific Islander	65	2.4%	92	3.1%
Other	29	1.1%	35	1.2%
Total	2,654	100.0%	2,982	100.0%

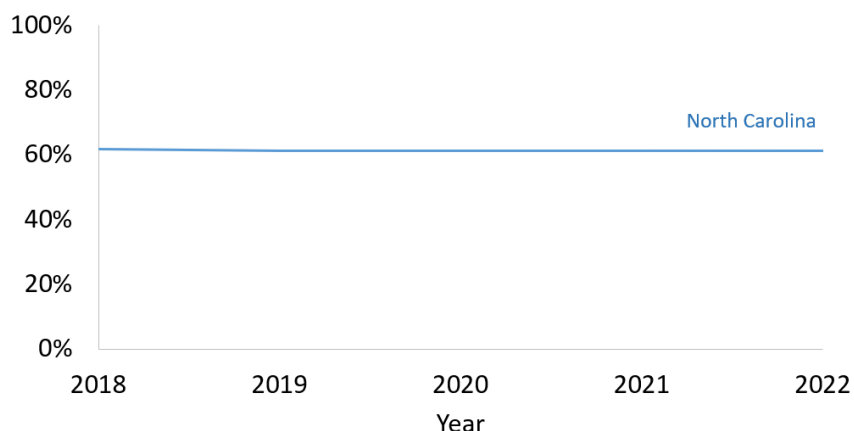
Note. Certified registered nurse anesthetist (CRNA).

### ***Educational Characteristics***

Nationally, there are 122 accredited CRNA programs, with the largest number in Pennsylvania (12), Florida (8), Tennessee (7), California (6,) and North Carolina (6).<sup>42</sup> The six programs in North Carolina include Duke University, Wake Forest, East Carolina Greenville, UNC Greensboro, UNC Charlotte, and Western Carolina Cullowhee. Approximately 60% of NC CRNAs are educated in programs located in NC (Figure 17). This trend has remained stable from 2018 – 2022 (Figure 17; Table 44) and differs from NPs and CNMs who are more likely to be educated in programs located outside of NC. The number of newly educated CRNAs educated in programs located in NC has declined from 77.2% in 2018 to 68.3% in 2022 (Table 45). The degree type obtained by CRNAs educated in NC has changed over time. As noted in Figure 18, CRNA program graduates in 2014 and 2016 were all educated at the master's level. In 2020,

more than 50% of program graduates held a post-baccalaureate Doctor of Nursing Practice (DNP) degree, and most program graduates in 2022 obtained the DNP degree. This reflects a switch from offering the master's degree to DNP degree in NC anesthesia school programs that occurred in 2020 to meet accrediting body requirements that by 2025 CRNA program graduates must have a DNP.<sup>43</sup> Data for 2018 graduates reflects incomplete reporting by programs to the American Association of Colleges of Nursing.

**Figure 17.** Percentage of North Carolina's Certified Registered Nurse Anesthetist Workforce Educated in North Carolina, 2018-2022



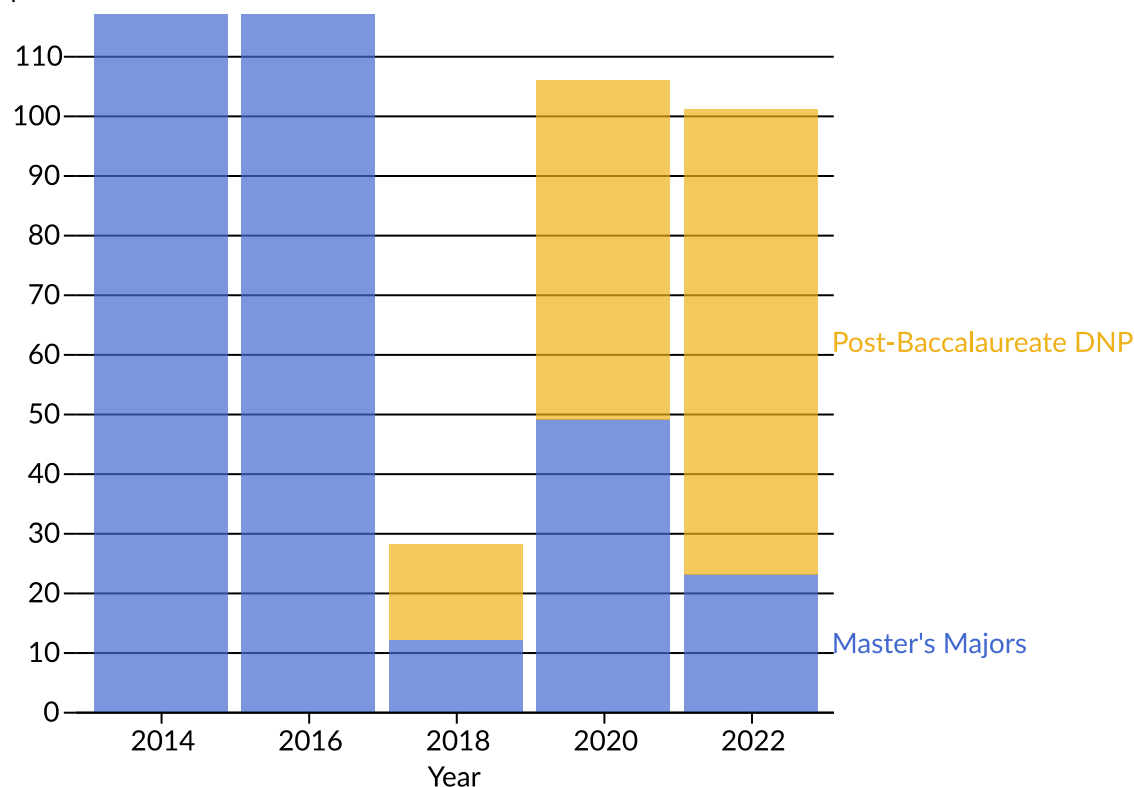
**Table 44.** North Carolina Certified Registered Nurse Anesthetists Educated in Programs Located in North Carolina and Out-of-State, 2018-2022

Year	Total Active CRNAs	NC-Located Program	Percent Educated in NC Located Program	Out-of-State Program	Percent Educated in Out-of-State Program
2018	2,710	1,675	61.8%	1,035	38.2%
2019	2,877	1,760	61.2%	1,117	38.8%
2020	2,931	1,802	61.5%	1,129	38.5%
2021	2,920	1,789	61.3%	1,131	38.7%
2022	3,061	1,871	61.1%	1,190	38.9%

*Note.* Certified registered nurse anesthetist (CRNA); North Carolina (NC).

**Figure 18.** North Carolina Certified Registered Nurse Anesthetist Graduates from Programs Located in North Carolina by Degree Type, 2014-2022

↑ Number of Nurse Anesthetist Graduations



Source: American Association of Colleges of Nursing, Research and Data Services, 2024.

**Table 45.** North Carolina Certified Registered Nurse Newly Educated in Programs Located in North Carolina and Out-of-State, 2018-2022

Year	Newly Educated CRNAs	NC-Located Program	Percent	Out-of-State Program	Percent
2018	289	223	77.2%	66	22.8%
2019	287	226	78.7%	61	21.3%
2020	324	258	79.6%	66	20.4%
2021	326	235	72.1%	91	27.9%
2022	344	235	68.3%	109	31.7%

Note. Certified registered nurse anesthetist (CRNA); North Carolina (NC).

### Practice Characteristics

The mean years in practice since graduation for NC CRNAs has remained stable at approximately 14 years between 2018 and 2022 (Table 46). In NC, the percentage of CRNAs practicing in hospital settings declined from 69.1% in 2018 to 65.0% in 2022 (Table 47). The number of CRNAs employed in academic settings has increased by 240.9% (from n = 22 in 2018 to n = 75 in 2022) (Table 47). The average age of CRNAs in academic settings has decreased

(54.3 years of age in 2018 compared to 48.4 in 2022) (Table 48). In 2022, the mean age of CRNAs in the hospital setting (45.6 years) is younger than the mean age of CRNAs in other settings (t-test  $p < 0.05$ ).

**Table 46.** North Carolina Certified Registered Nurse Anesthetists by Years in Practice Since Graduation, 2018-2022

Year	Total Active CRNAs	Missing	Reported	Mean Years in Practice	Median Years in Practice	Minimum Years in Practice	Maximum Years in Practice
2018	2,710	56	2,644	15.1	12	0.0	74.0
2019	2,877	55	2,819	15.0	12	0.0	75.0
2020	2,931	53	2,749	14.9	12	0.0	76.0
2021	2,920	44	2,870	14.4	12	0.0	77.0
2022	3,061	43	3,014	14.6	12	0.0	78.0

*Note.* Certified registered nurse anesthetist (CRNA).

**Table 47.** North Carolina Certified Registered Nurse Anesthetists by Practice Setting, 2018 and 2022

Setting	2018		2022		Percent Increase 2018-2022
	Count of CRNAs in Setting	Percent of CRNAs in Setting	Count of CRNAs in Setting	Percent of CRNAs in Setting	
Hospital	1,872	69.1%	1,986	64.9%	6.1%
Ambulatory Care	358	13.2%	388	12.7%	8.4%
Academic Setting	22	0.8%	75	2.5%	240.9%
Other	40	1.5%	63	2.0%	57.5%
All Other Settings	1	< 0.1%	6	0.2%	500%
Unknown	417	15.4%	543	17.7%	30.2%
Total	2,710	100.0%	3,061	100.0%	13.2%

*Note.* Certified registered nurse anesthetist (CRNA). CRNA setting based on data from Registered Nurse licensure file.

**Table 48.** North Carolina Certified Registered Nurse Anesthetist Practice Setting by Age, 2018 and 2022

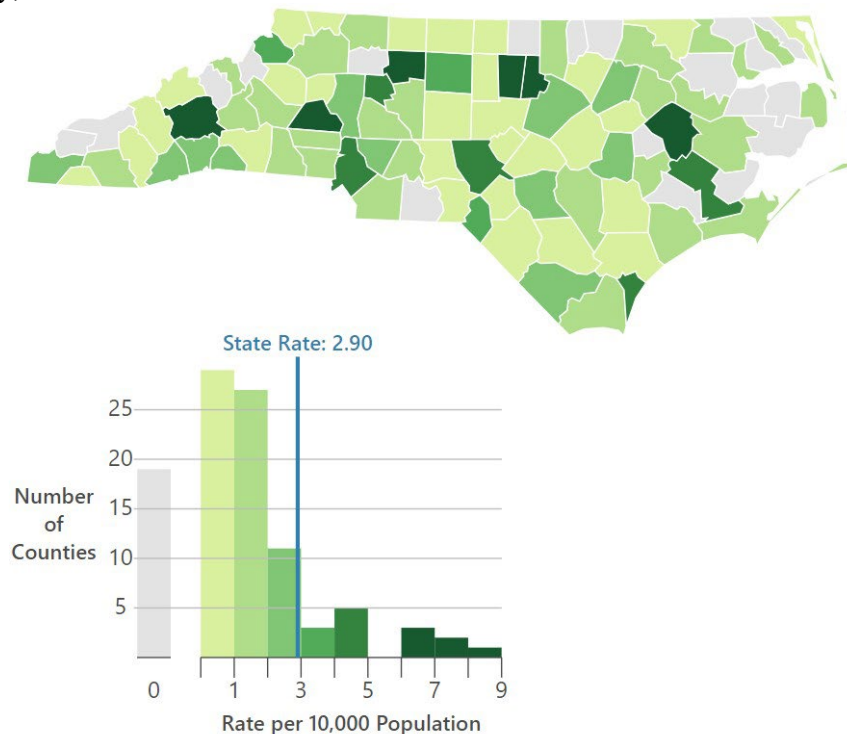
	2018			2022		
Setting	Count of CRNAs in Setting	Average Age	SD	Count of CRNAs in Setting	Average Age	SD
Hospital	1,872	45.9	10.9	1,986	45.6	10.3
Ambulatory Care	358	53.0	10.9	388	51.4	10.4
Academic Setting <sup>a</sup>	22	54.3	10.1	75	48.4	10.7
Other	40	51.7	11.5	63	53.2	11.6
All Other/Unknown	418	46.5	12.9	549	46.6	14.0

*Note.* Certified registered nurse anesthetist (CRNA); Significant difference (SD). CRNA setting based on data from registered nurse licensure file; <sup>a</sup>significant difference based on t-test,  $p < 0.05$ .

### ***Geographic Characteristics***

North Carolina had 2.9 CRNAs per 10,000 population in 2022; however, the rate varied by county, and 19 counties had no CRNAs (Figure 19). The percentage of CRNAs who practice in nonmetropolitan counties has declined since 2018 (from 9.6% to 8.5%) while the percentage of NC population in nonmetropolitan counties has declined from 18.7% in 2018 to 17.9% in 2022 (Table 49). There was little difference in the percent of CRNAs who identified as URM and not URM working in nonmetropolitan counties in 2022 (Table 50). There are significantly fewer CRNAs in nonmetropolitan areas working in ambulatory care and significantly more in hospital settings ( $p < 0.05$ ) (Table 51).

**Figure 19.** North Carolina Certified Registered Nurse Anesthetists per 10,000 Population by County, 2022



Source: North Carolina Health Professions Data System, [Program on Health Workforce Research and Policy](https://nchealthworkforce.unc.edu/interactive/supply/), Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Created September 16, 2024 at <https://nchealthworkforce.unc.edu/interactive/supply/>.

**Table 49.** North Carolina Certified Registered Nurse Anesthetists in Nonmetropolitan Counties Compared to State Population, 2018-2022

Year	Number of CRNAs	Percent of CRNAs	NC Population in Nonmetropolitan Counties	Percent of NC Population in Nonmetropolitan Counties
2018	259	9.6%	1,926,629	18.7%
2019	269	9.3%	1,923,322	18.5%
2020	264	9.0%	1,915,323	18.3%
2021	255	8.8%	1,909,545	18.1%
2022	260	8.5%	1,919,014	17.9%

Note. Certified registered nurse anesthetist (CRNA); North Carolina (NC).

**Table 50.** North Carolina Certified Registered Nurse Anesthetists Who Identify as Underrepresented Minorities by Metropolitan Status, 2022

	URM CRNAs		Non-URM CRNAs	
Metropolitan	187	92.1%	2,736	91.8%
Nonmetropolitan	16	7.9%	246	8.2%
Total	203	100.0%	2,982	100.0%

*Note.* Certified registered nurse anesthetist (CRNA); Underrepresented minority (URM).

**Table 51.** North Carolina Certified Registered Nurse Anesthetists Practicing in Metropolitan and Nonmetropolitan Areas by Setting, 2022

Setting	Metropolitan	Percent within Metropolitan	Nonmetropolitan	Percent within Nonmetropolitan
Hospital <sup>a</sup>	1,797	64.2%	189	72.7%
Ambulatory Care <sup>a</sup>	378	13.5%	10	3.8%
All Other Settings/Unknown	626	22.3%	61	23.5%
Total	2,801	100.0%	260	100.0%

*Note.* Certified registered nurse anesthetist (CRNA). <sup>a</sup>significant difference in setting based on metropolitan vs nonmetropolitan areas (chi-square test,  $p < 0.05$ ).



## Clinical Nurse Specialists

### *Supply*

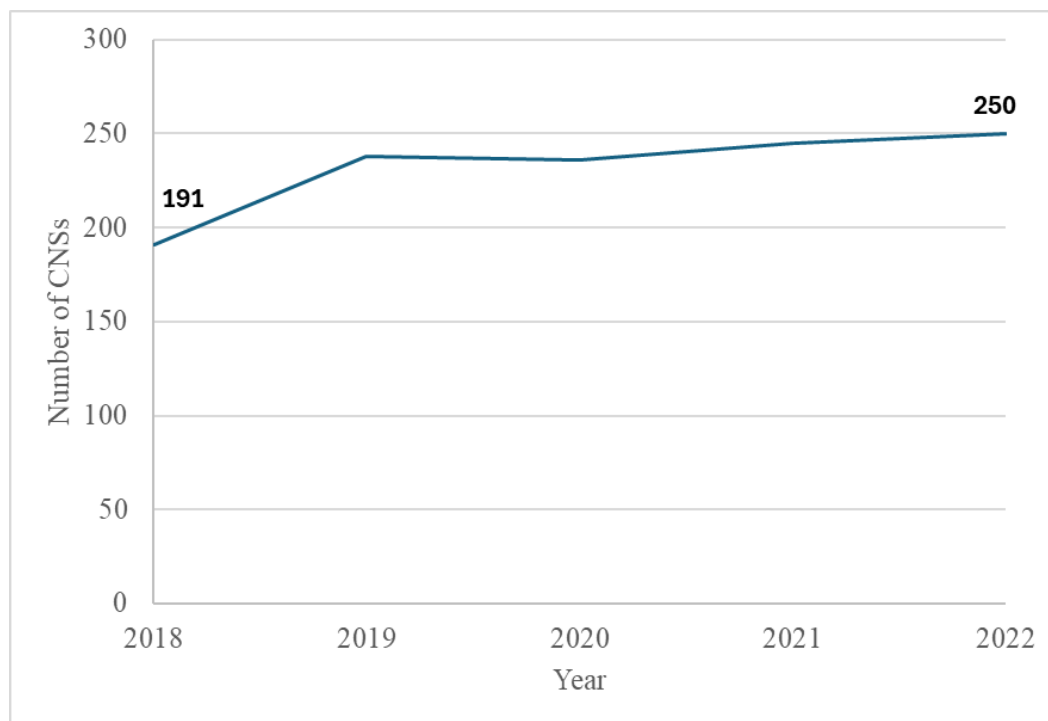
Varying estimates exist on the number of CNSs in the US. One study<sup>44</sup> that used the National Plan & Provider Enumeration System (NPPES) estimated that there were 10,000 CNSs with a national provider identifier (NPI). Given that NPIs are issued only to clinicians who bill Medicare and Medicaid, this is likely to be an underestimate of the number of CNSs in the United States. The majority of CNSs nationally were female and almost 20% also identified as Nurse Practitioners.<sup>44</sup> In 2022, 21 North Carolina CNSs (8.4%) also had an active NP approval to practice.

In North Carolina, Clinical Nurse Specialists do not fill out a separate practice agreement for recognition by the NCBON which makes it difficult to provide the same level of detailed information as NPs and CNMs. The workforce increased by 30.9% from 191 CNSs in 2018 to 250 CNSs in 2022 (Table 52; Figure 20). In 2022, 73.7% of new entrants to the NC CNS workforce entered via NC pathways (Table 53). Figure 21 shows that NC had 16 CNS program graduates in 2022. Among the 11 newly educated CNSs who entered the NC workforce in 2022, all were educated in NC programs (Figure 22).

**Table 52.** North Carolina Active Clinical Nurse Specialist Growth by Year, 2018-2022

Year	Total Active CNSs	Percent Increase from 2018	CNS per 10k NC Population	Total Active RNs	CNS as Percent of Active RN Workforce
2018	191	-	0.2	109,322	0.2%
2019	238	24.6%	0.23	107,477	0.2%
2020	236	23.6%	0.23	109,439	0.2%
2021	245	28.3%	0.23	110,244	0.2%
2022	250	30.9%	0.23	112,027	0.2%

*Note.* Clinical nurse specialist (CNS); North Carolina (NC); Registered nurse (RN).

**Figure 20.** North Carolina Clinical Nurse Specialist Workforce Growth by Year, 2018-2022

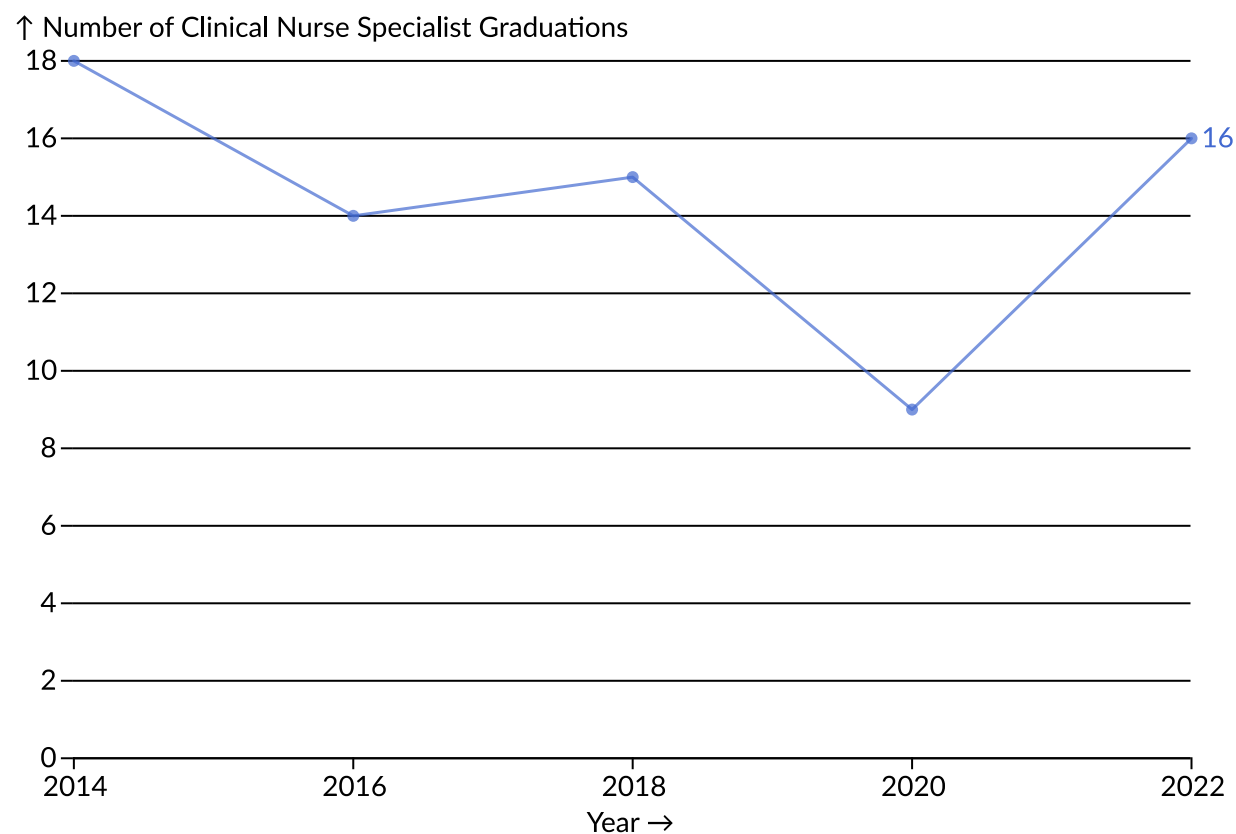
*Note.* Clinical nurse specialist (CNS)

**Table 53.** New Entrants to North Carolina Clinical Nurse Specialist Workforce, 2022

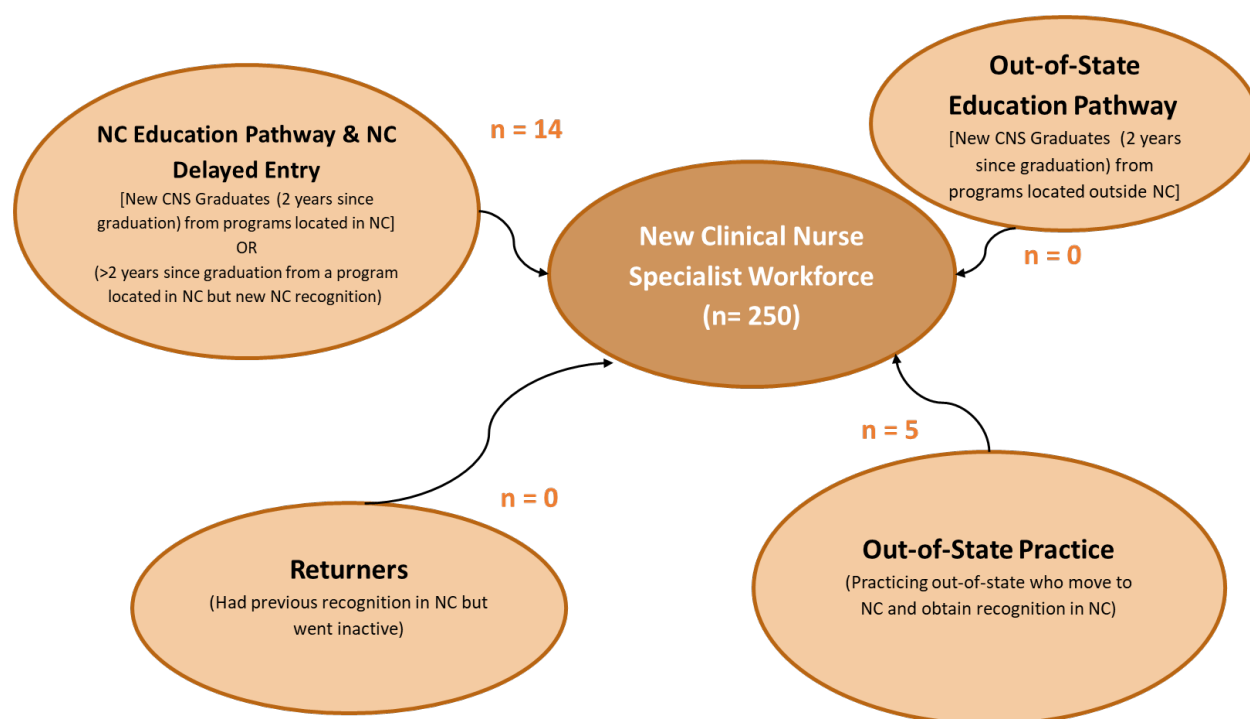
			Includes NC Education Pathway, NC Education (Delayed Entry), and Returners		Includes Out-of-State Education Pathway and Out-of-State Previous Practice	
Year	Total Active CNSs	Total New Entrants and Returners	NC Pathways	Percent of New CNSs	Out-of-State Pathways	Percent of New CNSs
2019	238	54	49	90.7%	5	9.3%
2020	236	16	9	56.3%	7	43.8%
2021	245	22	11	50.0%	11	50.0%
2022	250	19	14	73.7%	5	26.3%

*Note.* Clinical nurse specialist (CNS); North Carolina (NC).

**Figure 21.** Full-Time North Carolina Clinical Nurse Specialist Graduates from Programs Located in North Carolina, 2014-2022



Source: American Association of Colleges of Nursing, Research and Data Services, 2024.

**Figure 22.** New Entrants to the North Carolina Clinical Nurse Specialist Workforce, 2022

Note. North Carolina (NC).

### Demographic Characteristics

**Age.** The average age of CNSs is higher than that of the other APRN roles and has remained stable since 2018 at approximately 54 years old (Table 54).

**Table 54.** North Carolina Clinical Nurse Specialists by Age, 2018-2022

Year	Active and In-State CNSs	Mean Age	Standard Deviation	Median Age	Minimum Age	Maximum Age
2018	191	54.2	11.3	57.0	28.0	75.0
2019	238	53.8	12.0	57.0	28.0	76.0
2020	236	53.9	12.2	57.5	29.0	76.0
2021	245	53.6	12.5	57.0	29.0	77.0
2022	250	54.0	12.4	57.0	30.0	78.0

Note. Clinical nurse specialist (CNS).

**Gender.** The gender distribution of NC CNSs has also remained stable over time at approximately 96% female (Table 55).

**Table 55.** North Carolina Clinical Nurse Specialists by Gender, 2018-2022

Year	Total Active and In-State CNSs	Female	Percent of Active CNS Workforce	Male	Percent of Active CNS Workforce
2018	191	182	95.3%	9	4.7%
2019	238	229	96.2%	9	3.8%
2020	236	227	96.2%	9	3.8%
2021	245	235	95.9%	10	4.1%
2022	250	240	96.0%	10	4.0%

*Note.* Clinical nurse specialist (CNS).

**Race/Ethnicity.** Given the low count of CNSs in NC, counts of CNS by race/ethnicity categories were aggregated to indicate CNSs who identified as representing a URM (Table 56). Similar to CRNAs, CNSs have not increased their diversity at the same rate as CNMs and NPs. In 2013, 7.3% of the workforce identified as URM compared to 8.3% in 2022 (Table 56). Missing data on the race/ethnicity of NC CNSs has increased over time from full reporting in 2018 to 8.0% CNMs missing race/ethnicity data in 2022 (Table 57).

**Table 56.** North Carolina Clinical Nurse Specialists by Underrepresented Minority Status, 2018 and 2022

	2018		2022	
	Count of CNSs	Percent of CNSs	Count of CNSs	Percent of CNSs
Underrepresented Minority	14	7.3%	19	8.3%
Non-Underrepresented Minority	177	92.7%	211	91.7%
Total	191	100.0%	230	100.0%

*Note.* Clinical nurse specialist (CNS). Underrepresented minority includes individuals identifying as African American/Black, American Indian/Alaskan Native, and/or Hispanic.

**Table 57.** North Carolina Clinical Nurse Specialist Missing Race/Ethnicity Data, 2018-2022

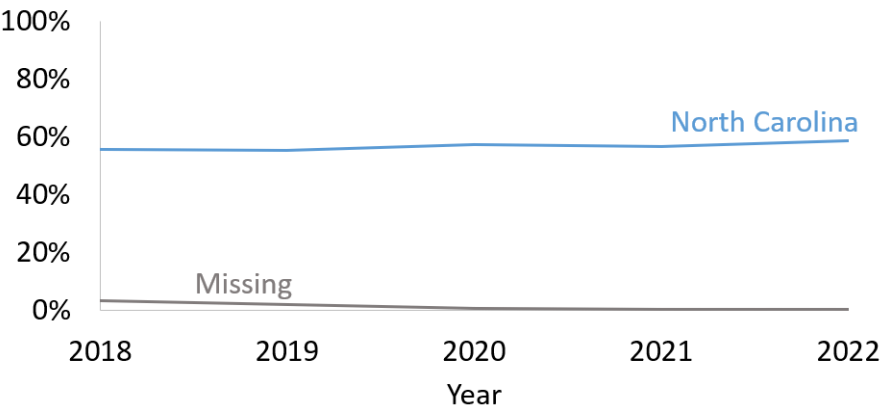
Year	Total Active and In-State CNSs	Count of Missing CNS Race/Ethnicity Data	Percent of CNSs Missing Race/Ethnicity Data
2018	191	0	0
2019	238	1	0.4%
2020	236	5	2.1%
2021	245	13	5.3%
2022	250	20	8.0%

*Note.* Clinical nurse specialist (CNS).

**Educational Characteristics**

More than half of NC CNSs are educated in programs located within NC (Figure 23; Table 58) and most newly educated CNSs are educated in programs located within NC (100% in 2018 and 85.7% in 2022) (Table 59).

**Figure 23.** Percentage of North Carolina’s Clinical Nurse Specialist Workforce Educated in Programs Located in North Carolina, 2018-2022



Source: American Association of Colleges of Nursing, Research and Data Services, 2024.

**Table 58.** North Carolina Clinical Nurse Specialists Educated in Programs Located in North Carolina and Out-of-State, 2018-2022

Year	Total Active CNSs	Missing	Reported	NC- Located Program	Percent Educated in NC Located Program	Out-of- State Program	Percent Educated in Out-of- State Program
2018	191	6	176	102	55.7%	89	44.3%
2019	238	5	188	129	55.3%	109	44.7%
2020	236	2	234	134	57.3%	100	42.7%
2021	245	1	244	138	56.6%	106	43.4%
2022	250	1	249	146	58.6%	103	41.4%

Note. Clinical nurse specialist (CNS); North Carolina (NC).

**Table 59.** North Carolina Clinical Nurse Specialists Newly Educated in Programs Located in North Carolina and Out-of-State, 2018-2022

Year	Newly Educated CNSs	NC- Located Program	Percent	Out-of-State Located Program	Percent
2018	14	12	85.7%	0	14.3%
2019	23	20	87.0%	3	13.0%
2020	23	20	87.0%	3	13.0%
2021	28	21	75.0%	7	25.0%
2022	21	18	85.7%	3	14.3%

*Note.* Clinical nurse specialist (CNS); North Carolina (NC).

### ***Practice Characteristics***

In 2022, CNSs in NC had been in practice an average 16.8 years since graduation (Table 60) and were, on average, older than other APRN groups. This is likely because many CNSs have been in the role for a long time and few new CNSs are entering the workforce (Figure 22) each year.

According to national data, most CNSs with a single clinical specialty work in Psychiatric or Adult Gerontology clinical specialties, and most also work in urban areas (90%).<sup>44</sup> In NC, approximately 54% of CNSs practiced in hospital settings in 2022, which has remained stable over time (Table 61).

**Table 60.** North Carolina Clinical Nurse Specialists by Years in Practice Since Graduation, 2018-2022

Year	Total Active CNSs	Missing	Reported	Mean Years in Practice	Median Years in Practice	Minimum Years in Practice	Maximum Years in Practice
2018	191	2	189	18.1	16	0.0	52.0
2019	238	2	236	17.4	15	1.0	53.0
2020	236	2	234	16.9	13	0.0	50.0
2021	245	2	243	16.7	13	0.0	51.0
2022	250	2	248	16.8	13	0.0	52.0

Note. Clinical nurse specialist (CNS).

**Table 61.** North Carolina Clinical Nurse Specialists by Practice Setting, 2018 and 2022

	2018		2022	
Setting	Total Active CNSs	Percent of Total Active CNSs	Total Active CNSs	Percent of Total Active CNSs
Hospital	92	48.2%	134	53.6%
Ambulatory Care	17	8.9%	22	8.8%
Academic Setting	11	5.8%	16	6.4%
Other <sup>a</sup>	41	21.5%	28	11.2%
Community Health	Data suppressed		6	2.4%
Mental Health	Data suppressed		7	2.8%
All Other Settings	7	3.7%	8	3.2%
Unknown <sup>a</sup>	23	12.0%	29	11.6%
Total	191	100.0%	250	100.0%

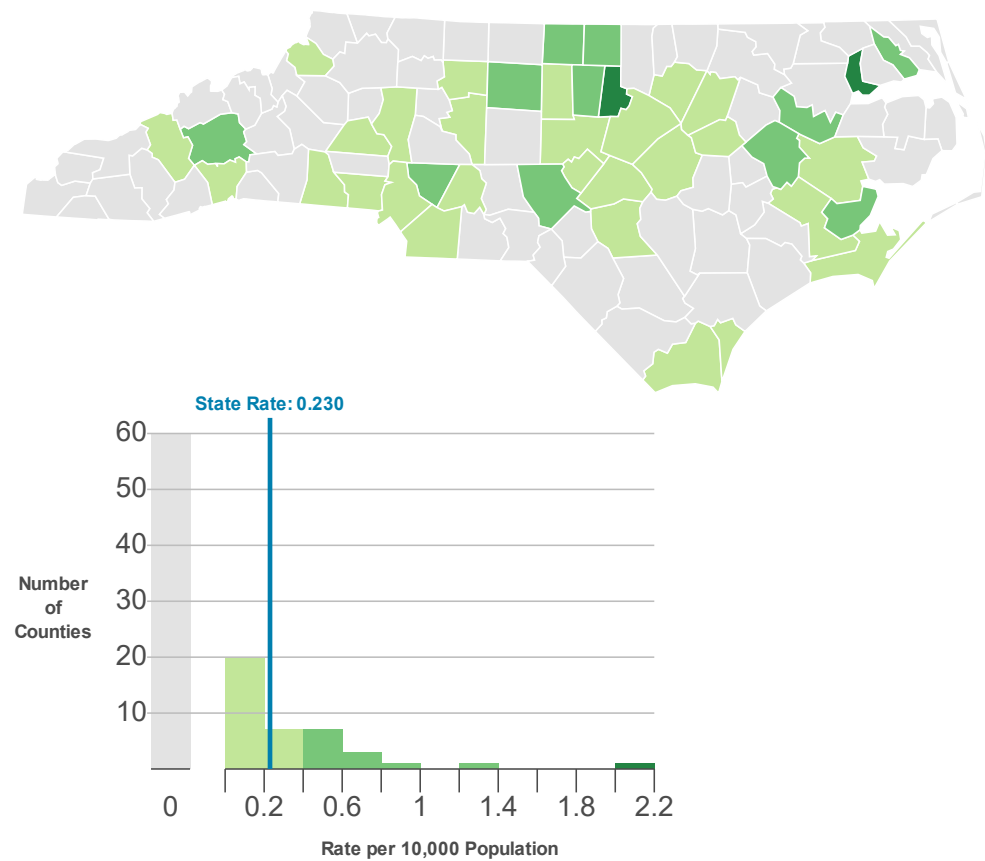
Note. Clinical nurse specialist (CNS). <sup>a</sup> Chi-square test shows a significant difference between the years and distribution of practice setting. 2018 data are suppressed to protect CNS privacy.

### ***Geographic Characteristics***

Most (n=60) NC counties do not have CNSs and the state had 0.23 CNSs per 10,000 population in 2022 (Figure 24). Aligned with national trends, most CNSs practice in metropolitan communities in NC. These trends have remained stable, with 90.8% of CNSs practicing in metropolitan areas and 9.2% in nonmetropolitan areas in 2022 (Table 62).



**Figure 24.** North Carolina Clinical Nurse Specialists per 10,000 Population by County, 2022



Source: North Carolina Health Professions Data System, [Program on Health Workforce Research and Policy](https://nchealthworkforce.unc.edu/interactive/supply/), Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Created September 16, 2024 at <https://nchealthworkforce.unc.edu/interactive/supply/>.

**Table 62.** North Carolina Clinical Nurse Specialists in Nonmetropolitan Counties Compared to State Population, 2018-2022

Year	Number of CNSs	Percent of CNSs	NC Population in Nonmetropolitan Counties	Percent of NC Population in Nonmetropolitan Counties
2018	16	8.4%	1,926,629	18.7%
2019	22	9.2%	1,923,322	18.5%
2020	24	10.2%	1,915,323	18.3%
2021	24	9.8%	1,909,545	18.1%
2022	23	9.2%	1,919,014	17.9%

Note. Clinical nurse specialist (CNS); North Carolina (NC).

## **Chapter 4: Next Steps**

The longstanding collaboration between the NCBON and the Sheps workforce team that made this report possible represents a unique opportunity to disseminate information about the supply, distribution, demographic, education and practice characteristics of the APRN workforce in North Carolina. Few, if any, states have comparable APRN data and so this report makes a unique contribution to the fields of nursing and health workforce research. The Sheps team is working with the NCBON to develop a dissemination plan for the report, including opportunities for the data to be shared with state and federal policy makers, professional associations, regulators, educators, employers, researchers and other stakeholders.

## Appendix

**Table A1.** North Carolina Nurse Practitioner Practice Settings by Years Since Graduation, 2022

Setting	Total Active NPs	n $\leq$ 2 Years	Percent	n 3-5 Years	Percent	n > 5 Years	Percent
Hospital Inpatient	1,840	344	18.7%	425	23.1%	1,071	58.2%
Hospital Outpatient	1,038	158	15.2%	229	22.1%	651	62.7%
Hospital Emergency	264	45	17.0%	63	23.9%	156	59.1%
Hospital (other)	157	31	19.7%	25	15.9%	101	64.3%
Long Term	465	110	23.7%	129	27.7%	226	48.6%
Group Medical	4,184	1,006	24.0%	983	23.5%	2,195	52.5%
Group Nursing	35	13	37.1%	5	14.3%	17	48.6%
HMO	58	13	22.4%	18	31.0%	27	46.6%
Home Health	227	38	16.8%	61	27.0%	128	56.2%
Public/Community Health	643	117	18.2%	160	24.9%	366	56.9%
Mental Health	587	177	30.2%	145	24.7%	265	45.1%
School Health	59	7	11.9%	15	25.4%	37	62.7%
Self Employed	248	35	14.1%	65	26.2%	148	59.7%
Industry/Occupational	129	7	5.4%	19	14.7%	103	79.8%
Retail	298	81	27.2%	80	26.8%	137	46.0%
All Other	1,242	251	20.2%	315	25.4%	676	54.4%
Total	11,474	2,425	21.1%	2,737	23.9%	6,304	54.9%

*Note.* Nurse practitioner (NP); Health Maintenance Organization (HMO).

**Table A2.** North Carolina Certified Nurse Midwife Practice Settings by Years Since Graduation, 2022

Setting	Total Active CNMs	n ≤ 2 Years	Percent	n 3-5 Years	Percent	n > 5 Years	Percent
Hospital Inpatient	105	20	19.0%	22	21.0%	63	60.0%
Hospital Outpatient	41	10	24.4%	6	14.6%	25	61.0%
Group Medical	156	24	15.4%	33	21.2%	99	63.5%
Medical School	6	0	0.0%	0	0.0%	6	100.0%
Self Employed	6	0	0.0%	0	0.0%	6	100.0%
All Other	70	11	15.7%	7	10.0%	52	74.3%
Total	384	65	16.9%	68	17.7%	251	65.4%

Note. Certified nurse midwife (CNM).

**Table A3.** North Carolina Certified Registered Nurse Anesthetist Practice Settings by Years Since Graduation, 2022

Setting	Total Active CRNAs	n ≤ 2 Years	Percent	n 3-5 Years	Percent	n > 5 Years	Percent
Hospital	1,985	178	9.0%	256	12.9%	1,551	78.1%
All Other Settings	532	8	1.5%	25	4.7%	499	93.8%
Unknown	542	158	29.2%	40	7.4%	344	63.5%
Total	3,059	344	11.2%	321	10.5%	2,392	78.2%

Note. Certified registered nurse anesthetist (CRNA).

**Table A4.** North Carolina Clinical Nurse Specialist Practice Settings by Years Since Graduation, 2022

Setting	Total Active CNSs	n ≤ 2 Years	Percent	n 3-5 Years	Percent	n > 5 Years	Percent
Hospital	134	20	14.9%	28	20.9%	86	64.2%
Mental Health	7	0	0.0%	0	0.0%	7	100.0%
All Other Settings	79	1	1.3%	6	7.6%	72	91.1%
Unknown	28	0	0.0%	1	3.6%	27	96.4%
Total	248	21	8.5%	35	14.1%	192	77.4%

Note. Clinical nurse specialist (CNS).

**Table A5.** North Carolina Nurse Practitioner Acute Care Certification by Practice Setting, 2022

Setting	Total NPs	Percent of all NPs	Acute Care NPs	Percent of Acute Care NPs	Acute Care NPs Percent of Setting
Hospital Inpatient	1,859	16.0%	400	64.0%	21.5%
Group Medical	4,231	36.4%	101	16.2%	2.4%
Hospital Outpatient	1,055	9.1%	48	7.7%	4.5%
Other	1,233	10.6%	25	4.0%	2.0%
Hospital (other)	163	1.4%	17	2.7%	10.4%
All Other Settings	1,873	16.1%	16	2.6%	0.9%
Long Term	469	4.0%	11	1.8%	2.3%
HMO	58	0.5%	7	1.1%	12.1%
Mental Health	590	5.1%	0	0.0%	0.0%
School Health	59	0.5%	0	0.0%	0.0%
Nursing School	8	0.1%	0	0.0%	0.0%
Medical School	14	0.1%	0	0.0%	0.0%
Total	11,612	100.0%	625	100.0%	-

Note. Nurse practitioner (NP); Health Maintenance Organization (HMO).

**Table A6.** North Carolina Nurse Practitioners Educated In-State with Acute Care Certification by Practice Setting, 2022

Setting	Total NPs	Percent of all NPs	Acute Care NPs	NC-Educated Acute Care NPs	Percent NC-Educated Acute Care NPs
Hospital Inpatient	1,859	16.0%	400	151	37.8%
Group Medical	4,231	36.4%	101	23	22.8%
Hospital Outpatient	1,055	9.1%	48	9	18.8%
All Other Settings	2,563	22.1%	51	8	15.7%
Other	1,233	10.6%	25	6	24.0%
Mental Health	590	5.1%	0	0	0.0%
School Health	59	0.5%	0	0	0.0%
Nursing School	8	0.1%	0	0	0.0%
Medical School	14	0.1%	0	0	0.0%
Total	11,612	100.0%	625	197	-

Note. Nurse practitioner (NP); North Carolina (NC).

**Table A7.** North Carolina Pediatric Nurse Practitioners with Dual Certifications, 2022

Pediatric Nurse Practitioner	
Dual Certification	Count of Certification
Pediatric Acute Care Nurse Practitioner	36
Neonatal Nurse Practitioner	9
Psychiatric Mental Health Nurse Practitioner	8
All Other	7
N/A	553
Total	613

**Table A8.** North Carolina Women's Health Nurse Practitioners with Dual Certifications, 2022

Women's Health Nurse Practitioner	
Dual Certification	Count of Certification
Adult Nurse Practitioner	11
Adult-Gerontology Nurse Practitioner	10
OBGYN	14
All Other	1
N/A	202
Total	238

*Note.* Obstetrical-gynecological (OBGYN).

**Table A9.** North Carolina Geriatric Nurse Practitioners with Dual Certifications, 2022

Geriatric Nurse Practitioner	
Dual Certification	Count of Certification
Adult-Gerontology Nurse Practitioner	13
Adult Nurse Practitioner	83
All Other	7
N/A	36
Total	139

**Table A10.** North Carolina Adult Nurse Practitioners with Dual Certifications, 2022

Adult Nurse Practitioner	
Dual Certification	Count of Certification
Acute Care Nurse Practitioner	13
Psychiatric Mental Health Nurse Practitioner	17
N/A	671
Total	701

**Table A11.** North Carolina Acute Care Nurse Practitioners with Dual Certifications, 2022

Acute Care Nurse Practitioner	
Dual Certification	Count of Certification
All Other	4
N/A	653
Total	657

*Note.* Acute nurse practitioner dual certifications were suppressed to protect individual's privacy and confidentiality.

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