Outcomes of NC Medical School Graduates: How Many Stay in Practice in NC, in Primary Care, and in High Needs Areas?

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Hilary A. Campbell, PharmD, JD
Sheps Health Workforce NC
Cecil G. Sheps Center for Health Services Research

Hugh H. Tilson, Jr., JD, MPH
North Carolina AHEC

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EXECUTIVE SUMMARY

In 1993, the General Assembly mandated an annual report on the progress of medical school graduates going into primary care. North Carolina AHEC and the Sheps Center produce this report each year using state licensure databases as well as national databases.

North Carolina is a national model for tracking annual workforce outcomes of its medical school graduates. This report includes analyses on:

- NC medical school graduates with a primary practice location in a NCDHHS safety net setting, where a significant proportion of care is delivered to vulnerable populations.
- Outcomes of NC medical school graduates at ten years post-graduation in addition to outcomes five years post-graduation, which better measures specialty after fellowship training is completed and likely permanent geographic practice location is established.

This report summarizes the five-year outcomes of NC class of 2016 graduates and ten-year outcomes of NC class of 2011 graduates. These analyses use 2021 NC medical license data; the most recent year available.

Data in this report show:

- Of the 440 NC medical school graduates from the class of 2016, 60 (14%) were in practice in primary care in NC in 2021, 6 (1%) of whom practice in a rural NC county.
- As in prior years, ECU retained the largest proportion of graduates in practice in NC at the five-year mark (52%), followed by UNC (39%), Wake Forest (19%), and Duke (15%).
- For the class of 2016, a greater percentage of public medical school graduates were practicing in primary care in-state five years after graduating (ECU: 33%, n=21; UNC: 15%, n=26), compared to private medical school graduates (Wake Forest: 7%, n=8; Duke: 5%, n=5).
- Five graduates from the class of 2016 were in practice in safety net settings in NC in 2021, including four ECU graduates and one UNC graduate.
- Meanwhile, six graduates from the class of 2011 were in practice in safety net settings in 2021, including five UNC graduates and one Duke graduate.
- Of the 433 NC medical school graduates from the class of 2011, 53 (12%) were in primary care in NC in 2021, 10 years post-graduation; 9 graduates (2%) were in rural primary care in NC.
- Eleven percent (n=46 of 433) of the 2011 NC medical school graduates matched to a general surgery residency, and 3% (n=12) were in practice in general surgery in NC ten years later. One of those surgeons practiced in a rural NC county in 2021.

Continued monitoring of GME outcomes will allow assessment of potential pandemic effects on physician workforce dynamics, and in upcoming years, the state's newest medical school (Campbell) will have been established long enough to be included in these analyses. GME is an important component of health workforce development, but to develop and sustain access to care, GME should be partnered with loan repayment programs, continuous professional and practice support, technology, and other investments.

BACKGROUND

In 1993, the North Carolina General Assembly expressed interest in expanding the pool of generalist physicians for the state. In N.C.S.L.1993-321, the General Assembly required each of the state's four medical schools to develop a plan to expand the percent of medical school graduates choosing residency positions in primary care. Primary care was defined as family practice, general internal medicine, general pediatric medicine, internal medicine-pediatrics, and obstetrics-gynecology. It set the goal for the East Carolina University (ECU) and UNC Schools of Medicine at 60% of graduates entering primary care. For the Wake Forest University and Duke University Schools of Medicine, it set the goal at 50%. Campbell University School of Osteopathic Medicine graduated its first class in 2017 and was therefore not included in these goals.

Since 1994, the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill ("Sheps Center") and the NC Area Health Education Centers program (AHEC) have collaborated to produce this report. This annual report is the primary method that the state uses to track workforce outcomes for NC medical schools. As a result of the legislative mandate, NC is a national model for tracking medical student outcomes. Data from this report were featured in the New England Journal of Medicine as an example of how to track these outcomes in John Iglehart's 2018 article on "The challenging quest to improve rural health care."[1]

While not required by the original legislation, the Sheps Center and NC AHEC have modified the annual report to address the state needs and high-urgency workforce issues. As in prior years, this report tracks NC medical school graduate outcomes for physicians who practice in NC and in rural NC counties. This report also includes an analysis of practice in NC safety net settings[2] that deliver care to uninsured, Medicaid, and other vulnerable populations.

Historically, this report has examined NC medical school graduates at five years following graduation per the legislative mandate. However, this period is not ideal given the time required to complete residency (3-6 years). In particular, at five-years post-graduation from medical school, physicians in psychiatry, obstetrics & gynecology (ob/gyn), surgery, and medicine/pediatrics are just completing residency, or may be in fellowship/specialty training, and may not have settled in a permanent practice location. This is typically the case for general surgeons, whose standard training period is five years, and for ob/gyns, psychiatrists and medicine/pediatrics residents who often do a fellowship after a four-year residency. Ten years following graduation from medical school is a more reasonable timeframe to track outcomes, as it allows for fellowship training following residency. In addition to tracking five-year outcomes for the 2016 cohort, this report also includes ten-year outcomes for the 2011 cohort.

[1] Iglehart J. The challenging quest to improve rural health care. NEJM, 2018. 378(5):473-479. https://www.nejm.org/doi/full/10.1056/NEJMhpr1707176

[2] NC DHHS Office of Rural Health. Safety Net Resources website. Accessed March 28, 2022. https://www.ncdhhs.gov/divisions/office-rural-health/safety-net-resources

DATA SOURCES AND METHODS

Data Sources

Data included in this report come from several sources:

- The North Carolina Medical Board's annual licensure files, maintained by the NC Health Professions Data System
- GMETrack, the graduate medical education tracking file of Association of American Medical Colleges (AAMC)
- Data from the alumni and student affairs offices at the Duke University School of Medicine, the Brody School of Medicine at East Carolina University, the University of North Carolina at Chapel Hill School of Medicine, and the Wake Forest University School of Medicine
- The Federal Office of Management and Budget for population and core based statistical area data, which are used to determine which counties in NC are classified as metropolitan (urban) or non-metropolitan (rural)
- The NC Department of Health and Human Services (DHHS) list of safety net sites, updated December 1, 2020

In the report we submitted most recently prior to this one, we included analyses of the 2008 and 2014 graduation year cohorts (2008 was used instead of 2009 because of data availability complications). This year, we are submitting this report in the spring, rather than in the fall, and this timing change allows us to submit even more timely analyses. Thus, this year's report includes analyses of the more up-to-date 2011 and 2016 cohorts compared to 2021 licensure data, rather than the 2010 and 2015 cohort analyses that might have been expected.

Campbell University School of Osteopathic Medicine (Campbell) is not mandated to provide data for this report, as the school did not exist when the 1993 legislation was passed. Campbell's first class graduated in 2017. In prior years, this report has not emphasized initial residency match data, as some physicians change residency specialties or locations over the course of their GME training. Outcomes are better measured after graduation from residency. However, given that workforce outcomes five years following graduation will only be available for Campbell starting later in 2022, we began reporting initial match data in the 2017 report and have continued that practice here.

Methods

The format for the information on medical students is consistent with and comparable to the baseline information provided in the May 1994 report "Expanding the Pool of Generalist Physicians for North Carolina."

GMETrack data from the AAMC were merged with the NCMB annual licensure file to determine physician practice outcomes at five or ten years post-graduation from medical school. We produced descriptive statistics to determine where physicians were practicing and in which specialties.

For safety net provider information, we used the North Carolina Department of Health and Human Services safety net site list and we geocoded NC Medical Board file for physicians who reported a practice address in North Carolina. Safety net providers are defined as health care facilities that provide a significant level of health care and other health-related services to uninsured, Medicaid, and other vulnerable populations

One methodological issue over the past decade has been the dramatic increase of physicians choosing full time hospitalist practice, which decreases the proportion of primary care physicians in general internal medicine and, increasingly, other specialties. Hospitalists are included in primary care counts in the findings presented in this report because we do not have a way to systematically identify them in the dataset; this is likely a substantial issue for counts of internal medicine physicians.

Data Limitations Starting in 2020

In prior iterations of this report, before 2020, we have reported the number and percent of NC medical school graduates in training or practice in primary care, whether or not they were located in NC. These findings were possible because AAMC was able to match their data on medical school graduates to AMA physician Masterfile data on physician practice locations and specialties across the U.S. However, in 2020, the AAMC and AMA legal teams renegotiated their data use agreement for the AMA Masterfile. Per the terms of the new agreement, AAMC is no longer able to match and share AMA Masterfile data with the Sheps Center. In the past, we have used AMA data to identify physicians who had died or were no longer in practice. In addition, we compared names of physicians who practiced in NC per AMA data with the NCMB physician roster, to determine whether we were missing NC physicians due to name changes. In both cases, the corrections were small—but we were unable to make similar corrections for the graduating cohorts in this report. Our match rates for the cohorts in this report were in line with prior years' match rates, but it is possible that we are missing a few physicians that we would have been able to identify historically.

FINDINGS

Retention of Graduates in Primary Care: Class of 2016

The most valuable measure of the choice of primary care careers is retention of graduates in clinical primary care after residency. **Table 1 (page 12)** shows the graduates and the percentage that remained in primary care in NC and in rural NC five years after graduation (in 2021).

Figure 1: Retention of 2016 NC Medical Graduates in NC Rural Primary Care Five Years After Graduating

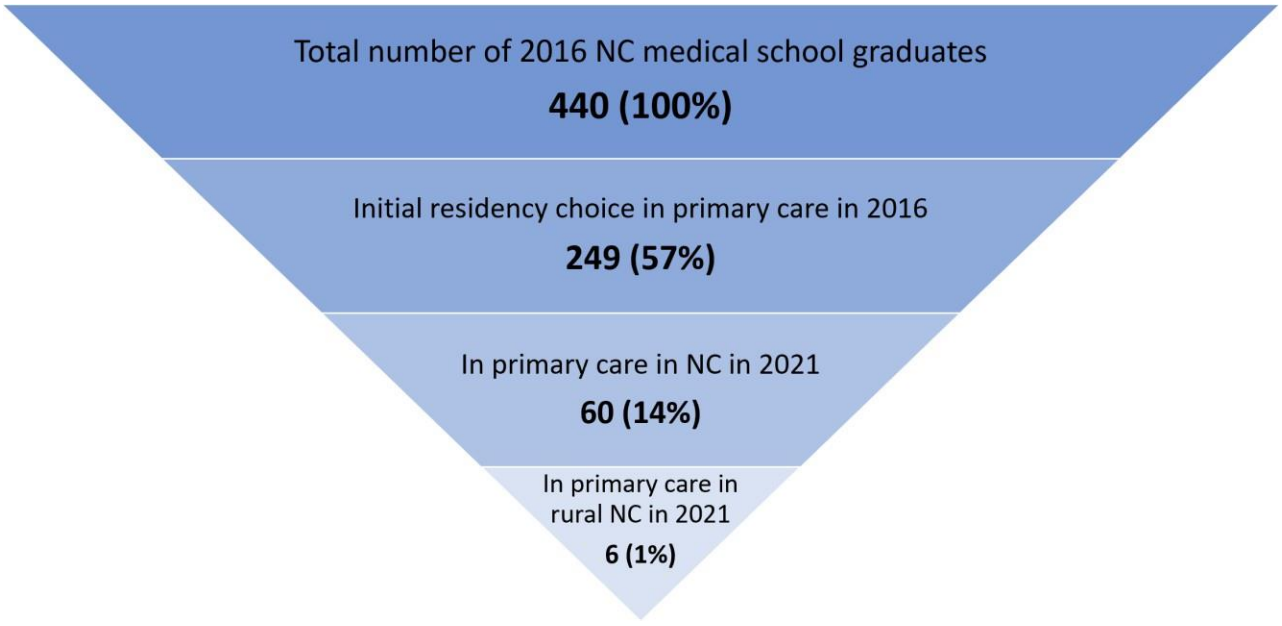


Figure 1 (prior page): Produced by the Program on Health Workforce Research and Policy, Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Source: North Carolina Health Professions Data System with data derived from the Association of American Medical Colleges, and the NC Medical Board, 2021. Rural source: US Census Bureau and Office of Management and Budget, July 2017. "Core Based Statistical Area" (CBSA) is the OMB's collective term for Metropolitan and Micropolitan Statistical areas. Here, nonmetropolitan counties include micropolitan and counties outside of CBSAs.

Per the 1993 legislation mandating this analysis, these primary care specialties include family medicine, general internal medicine, general pediatrics, obstetrics & gynecology, and internal medicine-pediatrics. Out of the 440 medical school graduates in 2016, 60 (14%) were in training or practice in primary care in NC in 2021 (**Figure 1**). For purposes of comparison, between 12% and 17% of the five previous graduating cohorts (the classes of 2010-2014), were in training or practice in primary care in NC five years after graduating, and the 2016 cohort has increased slightly as compared to the 2014 cohort. One percent (n=6) of the 2016 cohort was in primary care in a rural NC county, half as many as were seen from the 2014 cohort in 2019. Of the six graduates from the class of 2016 who working in rural NC primary care in 2021, one graduated from Duke, two graduated from ECU, and three graduated from UNC. Though lower than was seen in the last report, this percentage is in line with prior trends. Between 1% and 3% of NC medical school graduates tend to practice in primary care in rural NC five years after graduating.

Retention of Graduates in North Carolina and in Rural Counties

A greater percentage of graduates from the state's public medical schools are retained in NC five years after graduating, compared to the state's private medical schools. ECU tends to retain the greatest percentage of its graduates in state five years post-graduation, followed by UNC, Wake Forest, and Duke.

Table 2 (page 13) describes medical school graduates remaining in North Carolina. Thirty percent (n=134/440) of 2016 graduates from all four medical schools remained in NC five years after graduation. This percentage is right at the average for the past five years. In-state retention for the prior six medical school graduating cohorts ranged from 31% to 39%.

Practice in Safety Net Settings

Safety net providers are defined as health care facilities that provide a significant level of health care and other health-related services to uninsured, Medicaid and other vulnerable populations. **Table A** (next page) shows outcomes for 2016 graduates who were practicing in safety net settings in 2021.

Table A: Medical School, Primary Area of Practice, and Facility Type for Physicians Who Graduated from an NC Medical School in 2016 and Reported a Primary Practice Location in a Safety Net Setting in 2021

Medical School Primary Area of Practice	Number	Safety Net Facility Type	Rural County
ECU	4		
Family Medicine	*2*	*Critical Access Hospital**	*Yes*
Family Medicine	*1*	*Federally Qualified Health Center*	*Yes*
Emergency Medicine	*1*	*Small Rural Hospital*	*Yes*
UNC-CH	1		
Family Medicine	*1*	*Federally Qualified Health Center*	*No*

*Includes 1 at a hospital and 1 at a family care center at the same address.

Class of 2011 Outcomes

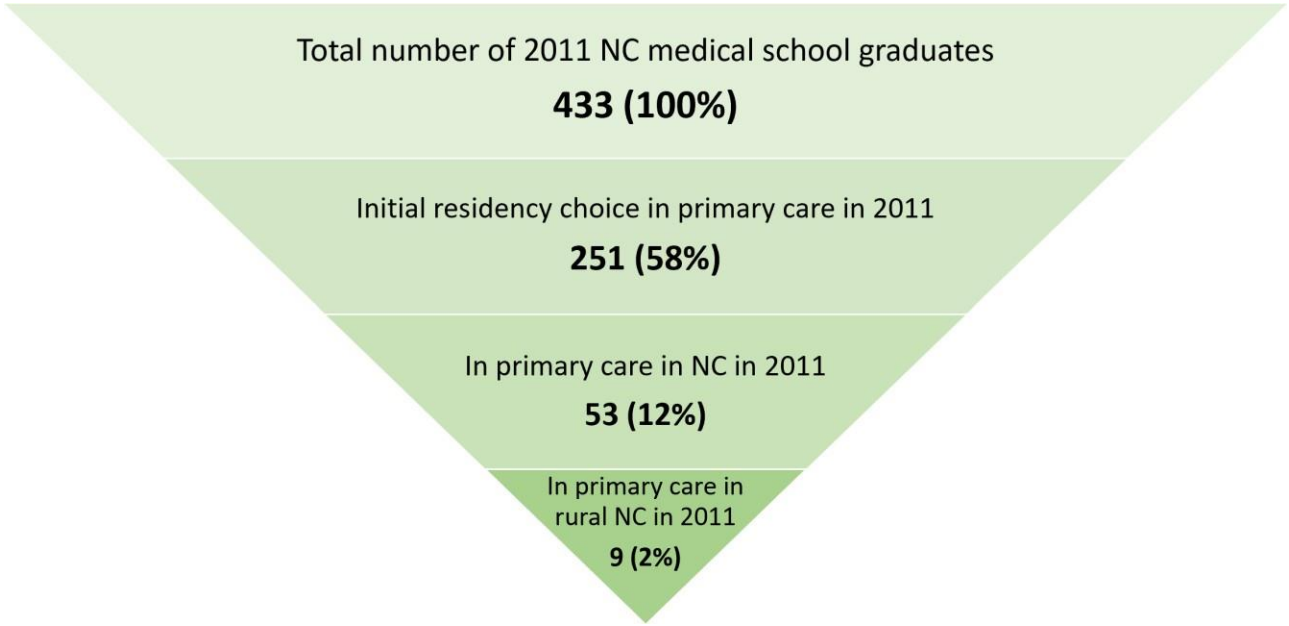
We conducted analyses on the 20011 graduates of NC medical schools to determine where graduates were ten years following graduation from medical school. As noted previously, ten years post-graduation from medical school allows time for physicians to complete residency and fellowship training. We used data from the 2011 graduating cohort that was matched to the 2021 NCMB licensure file.

Table 3 (page 15) shows the class of 2011's initial matches to primary care residencies.

Table 4 (page 17) shows the graduates from the class of 2011, retention in NC, in primary care in NC, and in primary care in rural NC ten years after graduation (in 2021).

Primary care specialties include family medicine, general internal medicine, general pediatrics, obstetrics/gynecology, and internal medicine-pediatrics. Out of the 433 medical school graduates from the 2011 cohort, 53 (12%) were in training or practice in primary care in NC as of 2021 (**Figure2**). Two percent (n=9) of the 2011 cohort were practicing in primary care in a rural NC county.

Figure 2: Retention of 2011 NC Medical Graduates in NC Rural Primary Care Ten Years After Graduating



Produced by the Program on Health Workforce Research and Policy, Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Source: North Carolina Health Professions Data System with data derived from the Association of American Medical Colleges, and the NC Medical Board, 2018. Rural source: US Census Bureau and Office of Management and Budget, July 2017. "Core Based Statistical Area" (CBSA) is the OMB's collective term for Metropolitan and Micropolitan Statistical areas. Here, nonmetropolitan counties include micropolitan and counties outside of CBSAs.

Retention of Graduates in North Carolina and in Rural Counties

Retention of the class of 2011 in NC and in rural NC is shown in **Table 5 (page 19)**. One third (33%, n=145/433) of the class of 2011 was in practice in NC ten years after graduation. By school, this included 46% (n=32/69) of ECU graduates, 41% (n=62/151) of UNC graduates, 35% (n=41/117) of Wake Forest graduates, and 10% (n=10/96) of Duke graduates.

Practice in Safety Net Settings

Table B (next page) shows outcomes for 2011 graduates who were practicing in safety net settings in 2021.

Table B: Medical School, Primary Area of Practice, and Facility Type for Physicians Who Graduated from an NC Medical School in 2011 and Reported a Primary Practice Location in a Safety Net Setting in 2021

Medical School Primary Area of Practice	Number	Safety Net Facility Type	Rural County
UNC-CH	5		
Family Medicine	*1*	*Federal CMS Certified Rural Health Clinic*	*No*
Family Medicine	*1*	*Critical Access Hospital*	*No*
Family Medicine	*1*	*Federally Qualified Health Center*	*No*
Family Medicine	*1*	*Federally Qualified Health Center*	*Yes*
Emergency Medicine	*1*	*Small Rural Hospital*	*Yes*
Duke	1		
Family Medicine	*1*	*Federally Qualified Health Center*	*Yes*

Retention in Psychiatry

Outcomes for 2011 graduates who matched to psychiatry residencies are shown in **Table 6 (page 20).** Psychiatrist counts include physicians who report practicing in the following specialties: Psychiatry, Child and Adolescent Psychiatry, Psychoanalysis, Forensic Psychiatry, Psychosomatic Medicine, Psychiatry/Geriatric, Family Medicine-Psychiatry, Internal Medicine-Psychiatry, and Pediatrics-Psychiatry. In the 2011 cohort, 14 graduates (3%) initially matched to a psychiatry residency.

Table 6 (page 20) also shows the workforce outcomes of the 2008 graduates who became psychiatrists ten years post-graduation. Six remained in practice in NC: four UNC graduates, one ECU graduate, and one Wake Forest graduate. None of these practiced in a rural NC county.

Retention in General Surgery

We have refrained on reporting on general surgery outcomes in the five-year post-graduation analyses because general surgery residencies typically last five years, and many general surgeons complete a sub-specialty fellowship afterwards. For this reason, reporting on general surgery practice outcomes at five-years post-graduation may be misleading. Findings at ten-years post-graduation allows us to evaluate practice outcomes for general surgeons.

In this report, physicians are considered general surgeons if they practice in the specialties of General Surgery, Abdominal Surgery, Colon & Rectal Surgery, Critical Care Surgery, Head and Neck Surgery, Oncology Surgery, Pediatric Surgery, Transplant Surgery, Trauma Surgery, or Vascular Surgery.

Table 7 (page 21) shows that 11% (n=46/433) of the 2008 NC medical school graduate cohort matched to a general surgery residency. **Table 7 (page 21)** also shows that ten years after medical school graduation, 12 graduates (3%) were in practice in general surgery in NC, including six graduates from UNC, four from Wake Forest, and two from ECU. One UNC graduate practiced in a rural NC county.

Differences in Retention by Practice Specialty
When data are combined across all NC medical schools for the class of 2011 (**Table 8, page 22)**, findings in retention are presented by specialty.

Initial Match Data: 2021 Graduating Cohort
As mentioned earlier, we do not emphasize initial match data from the NC medical schools. Residents sometimes switch specialties or residency programs throughout the course of their training, and many subspecialize. However, Campbell has graduated four classes of medical students and initial match counts are the only data available thus far on Campbell's workforce outcomes. We offer a note of caution when interpreting these data and a reminder that the five-year and ten-year outcome data are more accurate in estimating the workforce outcomes for each medical school. Matches to "primary care" specialties (Family Medicine, Internal Medicine, Pediatrics, Internal Medicine-Pediatrics, and Obstetrics & Gynecology) are inflated compared to the number of graduates eventually expected to practice in those fields. We also track two other needed specialties in NC: psychiatry and general surgery. Prior trends indicate that many NC graduates, including most of those who match to Internal Medicine and General Surgery, will go on to complete fellowship training and eventually practice in a sub-specialty field. Family Medicine is an exception to this trend.

Table 9 (page 23) shows that in 2021, the public medical schools (UNC and ECU) had the highest percentage of graduates matched to an NC residency (43%, n=82/191; 34%, n=27/81, respectively), followed by Duke (28%, n=30/109), Campbell (25%, 38/151), and Wake Forest (22%, n=32/143).

The highest percent of matches to a primary care, psychiatry, or general surgery residency in NC were for ECU (29%, n=23/80), UNC (28%, n=54/191), Duke (18%, n=20/109), Campbell (17%, 25/151), and Wake Forest (12%, 17/143).

DISCUSSION

While most people interact with the health system at some point in their lives and have a general understanding of the work physicians do, the majority are unaware of the specifics related to physician training—for example, the difference between a medical student and a resident. Legislators[3] and other influential stakeholders, many of whom may be able to directly influence the health system, often come from career paths outside of healthcare. When concerns about the availability of physicians to meet the demand for healthcare arise, expanding medical education is a logical first impulse for those unfamiliar with physician training pathways. Medical school is one of multiple points along a physician's career trajectory where stakeholders can intervene to encourage practice in needed specialties and geographies.

[3] Spero JC, Fraher EP, Ricketts TC, Rockey PH. GME in the United States: A Review of State Initiatives. Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill. September 2013.

The newer analyses added in last year's report tell an important and previously untold story about the contribution of NC medical schools to the NC physician workforce. Overall, again we see a small percentage of the 2011 and 2016 graduating cohorts working in safety net settings. To address state workforce needs, we need to think broadly about both where those populations are geographically located—not all of them are in rural areas—and we also need to think broadly about which types of physicians serve those populations, as many work in specialties other than primary care.

While this report tracks outcomes from NC medical schools, it still does not track outcomes of NC residency programs, and there is no legislative mandate to track NC residency program outcomes. While some NC medical school graduates also complete an NC residency, many residents in NC residency programs completed medical school outside of North Carolina. We continue to think it would be valuable to track the outcomes of NC residency programs.

Tracking NC residency program outcomes would provide information to make decisions about how to target state funds most effectively. The Sheps Center, in collaboration with AHEC, is a national leader in tracking the workforce outcomes for medical schools and GME programs at the program level. In short, there are resources within the state that can accomplish this work if legislation is passed that requires a study of NC residency outcomes.

The Role of AHEC Residencies in Primary Care

A key driver of retention of primary care physicians in North Carolina is the availability of community based primary care residencies in the state. Medical students must go through at least three years of training before being able to practice independently, and many physicians practice close to their residencies for the remainder of their careers.[4][5][6] AHEC primary care residencies have a solid track record of keeping physicians in the state. Data from the American Medical Association physician master file demonstrate that 53% of active physicians who completed an NC AHEC residency between 1997-2017 remained in practice in NC, compared to 41% who completed a non-AHEC residency.[7]

[4] Dorner FH, Burr RM, Tucker SL. The geographic relationships between physicians' residency sites and the locations of their first practices. Acad Med. 1991;66(9):540–4

[5] Seifer SD, Vranizan K, Grumbach K. Graduate medical education and physician practice location. JAMA. 1995;274(9):685–91.

[6] Fagan EB, et. al. Family medicine graduate proximity to their site of training: policy options for improving the distribution of primary care access. Fam Med. 2015;47(2):124-30.

[7] Spero J. Compared to Non-AHEC Residents, a Higher Percentage of NC AHEC Residents are Practicing in NC. Sheps Health Workforce NC Blog, 18 March 2019. Accessed 10/8/19 at: https://nchealthworkforce.unc.edu/ahec_resident_outcomes_2017/

TABLE 1
North Carolina Medical Students - Retention in Primary Care Five Years After Graduation
2016 Graduates

School *Primary Care* Residency Specialty*	Total Number of 2016 Graduates	Number of 2016 Graduates in Training or Practice in North Carolina as of 2021	Percent of 2016 Graduates in Training or Practice in North Carolina as of 2021	Number of 2016 Graduates in Training or Practice with an Initial Residency Choice of Primary Care*	Percent of 2016 Graduates in Training or Practice with an Initial Residency Choice of Primary Care*	Number of 2016 Graduates in Training or Practice in Primary Care** in North Carolina as of 2021	Percent of 2016 Graduates in Training or Practice in Primary Care** in North Carolina as of 2021	Number of 2016 Graduates in Training or Practice in Primary Care** in Rural*** Counties in North Carolina as of 2021	Percent of 2016 Graduates in Training or Practice in Primary Care** in Rural*** Counties North Carolina as of 2021
Duke	97	15	15%	48	49%	5	5%	1	1%
Family Medicine				*6*	*6%*	*2*	*2%*	*1*	*1%*
Internal Medicine				*29*	*30%*	*1*	*1%*	*0*	*0%*
Pediatrics				*5*	*5%*	*1*	*1%*	*0*	*0%*
IM/ Peds				*4*	*4%*	*0*	*0%*	*0*	*0%*
OBGYN				*4*	*4%*	*1*	*1%*	*0*	*0%*
ECU	63	33	52%	46	73%	21	33%	2	3%
Family Medicine				*14*	*22%*	*11*	*17%*	*2*	*3%*
Internal Medicine				*10*	*16%*	*4*	*6%*	*0*	*0%*
Pediatrics				*13*	*21%*	*4*	*6%*	*0*	*0%*
IM/ Peds				*4*	*6%*	*0*	*0%*	*0*	*0%*
OBGYN				*5*	*8%*	*2*	*3%*	*0*	*0%*
UNC-CH	168	65	39%	99	59%	26	15%	3	2%
Family Medicine				*21*	*13%*	*12*	*7%*	*1*	*1%*
Internal Medicine				*43*	*26%*	*3*	*2%*	*1*	*1%*
Pediatrics				*17*	*10%*	*6*	*4%*	*0*	*0%*
IM/ Peds				*9*	*5%*	*2*	*1%*	*0*	*0%*
OBGYN				*9*	*5%*	*3*	*2%*	*1*	*1%*
Wake Forest	112	21	19%	56	50%	8	7%	0	0%
Family Medicine				*10*	*9%*	*0*	*0%*	*0*	*0%*
Internal Medicine				*30*	*27%*	*5*	*4%*	*0*	*0%*
Pediatrics				*11*	*10%*	*2*	*2%*	*0*	*0%*
IM/ Peds				*1*	*1%*	*0*	*0%*	*0*	*0%*
OBGYN				*4*	*4%*	*1*	*1%*	*0*	*0%*
Total	**440**	**134**	**30%**	**249**	**57%**	**60**	**14%**	**6**	**1%**
Family Medicine				*51*	*12%*	*25*	*6%*	*4*	*1%*
Internal Medicine				*112*	*25%*	*13*	*3%*	*1*	*0%*
Pediatrics				*46*	*10%*	*13*	*3%*	*0*	*0%*
IM/ Peds				*18*	*4%*	*2*	*0%*	*0*	*0%*
OBGYN				*22*	*5%*	*7*	*2%*	*1*	*0%*

*2016 Primary Care Residency Specialty includes Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology. Source: Association of American Medical Colleges (AAMC). Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

** As of 2017, primary care definitions are based on NC Medical Board licensure data (for NC physicians) and AAMC data (for non-NC physicians) and include Family Medicine (Family Medicine, Family Medicine-Adolescent Medicine, Family Medicine-Geriatric, Family Medicine-Sports Medicine, General Practice; Internal Medicine (Internal Medicine, Internal Medicine-Geriatric); Pediatrics (Pediatrics, Pediatrics-Adolescent, Pediatric-Sports Medicine); Internal Medicine-Pediatrics (Internal Medicine-Pediatrics, Internal Medicine-Adolescent Medicine); OBGYN (Obstetrics & Gynecology, Obstetrics, Gynecology).

***"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

TABLE 2
North Carolina Medical Students-Retention in NC and in Rural NC
2016 Graduates

School *Primary Care** *Residency Specialty*	Total Number of 2016 Graduates	Number of 2016 Graduates in Training or Practice in North Carolina as of 2021	Percent of 2016 Graduates in Training or Practice in North Carolina as of 2021	Number of 2016 Graduates in Training or Practice in Rural*** Counties in North Carolina as of 2021	Percent of 2016 Graduates in Training or Practice in Rural*** Counties in North Carolina as of 2021	Number of 2016 Graduates in Training or Practice in Primary Care** in Rural*** Counties in North Carolina as of 2021	Percent of 2016 Graduates in Training or Practice in Primary Care** in Rural*** Counties North Carolina as of 2021
Duke	97	15	15%	1	1%	1	1%
Family Medicine						*1*	*1%*
Internal Medicine						*0*	*0%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*0*	*0%*
ECU	63	33	52%	3	5%	2	3%
Family Medicine						*2*	*3%*
Internal Medicine						*0*	*0%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*0*	*0%*
UNC-CH	168	65	39%	5	3%	3	2%
Family Medicine						*1*	*1%*
Internal Medicine						*1*	*1%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*1*	*1%*
Wake Forest	112	21	19%	0	0%	0	0%
Family Medicine						*0*	*0%*
Internal Medicine						*0*	*0%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*0*	*0%*
Total	**440**	**134**	**30%**	**9**	**2%**	**6**	**1%**
Family Medicine						*4*	*0.9%*
Internal Medicine						*1*	*0.2%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*1*	*0.2%*

*2016 Primary Care Residency Specialty includes Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology. Source: Association of American Medical Colleges (AAMC). Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

** As of 2017, primary care definitions are based on NC Medical Board licensure data (for NC physicians) and AAMC data (for non-NC physicians) and include Family Medicine (Family Medicine, Family Medicine-Adolescent Medicine, Family Medicine-Geriatric, Family Medicine-Sports Medicine, General Practice; Internal Medicine (Internal Medicine, Internal Medicine-Geriatric); Pediatrics (Pediatrics, Pediatrics-Adolescent, Pediatric-Sports Medicine); Internal Medicine-Pediatrics (Internal Medicine-Pediatrics, Internal Medicine-Adolescent Medicine); OBGYN (Obstetrics & Gynecology, Obstetrics, Gynecology).

***"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

Sources:

Association of American Medical Colleges

NC Medical Board

Compiled by:

NC AHEC Program

Cecil G. Sheps Center for Health Services Research

TABLE 3
North Carolina Medical Students – Initial Choice of Primary Care Residency
2011 Graduates

School *Primary Care* Residency Specialty*	Total Number of 2011 Graduates	Number of 2011 Graduates in Training or Practice with an Initial Residency Choice of Primary Care*	Percent of 2011 Graduates in Training or Practice with an Initial Residency Choice of Primary Care*
Duke	96	47	49%
Family Medicine		*4*	*4%*
Internal Medicine		*28*	*29%*
Pediatrics		*8*	*8%*
IM/ Peds		*5*	*5%*
OBGYN		*2*	*2%*
ECU	69	42	61%
Family Medicine		*14*	*20%*
Internal Medicine		*7*	*10%*
Pediatrics		*12*	*17%*
IM/ Peds		*6*	*9%*
OBGYN		*3*	*4%*
UNC-CH	151	88	58%
Family Medicine		*16*	*11%*
Internal Medicine		*35*	*23%*
Pediatrics		*17*	*11%*
IM/ Peds		*6*	*4%*
OBGYN		*14*	*9%*
Wake Forest	117	74	63%
Family Medicine		*13*	*11%*
Internal Medicine		*29*	*25%*
Pediatrics		*25*	*21%*
IM/ Peds		*1*	*1%*
OBGYN		*6*	*5%*
Total	**433**	**251**	**58%**
Family Medicine		*47*	*11%*
Internal Medicine		*99*	*23%*
Pediatrics		*62*	*14%*
IM/ Peds		*18*	*4%*
OBGYN		*25*	*6%*

*2011 Primary Care Residency Specialty includes Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology. Source: Association of American Medical Colleges (AAMC). Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

Sources:

NC Medical Board

Compiled by:

NC AHEC Program

Cecil G. Sheps Center for Health Services Research

TABLE 4
North Carolina Medical Students – Retention in Primary Care in NC 10 Years After Graduation
2011 Graduates

School *Primary Care** *Residency Specialty*	Total Number of 2011 Graduates	Number of 2011 Graduates in Training or Practice in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice with an Initial Residency Choice of Primary Care*	Percent of 2011 Graduates in Training or Practice with an Initial Residency Choice of Primary Care*	Number of 2011 Graduates in Training or Practice in Primary Care** in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in Primary Care** in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in Primary Care** in Rural*** Counties in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in Primary Care** in Rural*** Counties North Carolina as of 2021
Duke	96	10	10%	47	49%	0	0%	0	0%
Family Medicine				*4*	*4%*	*0*	*0%*	*0*	*0%*
Internal Medicine				*28*	*29%*	*0*	*0%*	*0*	*0%*
Pediatrics				*8*	*8%*	*0*	*0%*	*0*	*0%*
IM/ Peds				*5*	*5%*	*0*	*0%*	*0*	*0%*
OBGYN				*2*	*2%*	*0*	*0%*	*0*	*0%*
ECU	69	32	46%	42	61%	18	26%	5	7%
Family Medicine				*14*	*20%*	*9*	*13%*	*4*	*6%*
Internal Medicine				*7*	*10%*	*2*	*3%*	*0*	*0%*
Pediatrics				*12*	*17%*	*3*	*4%*	*0*	*0%*
IM/ Peds				*6*	*9%*	*1*	*1%*	*0*	*0%*
OBGYN				*3*	*4%*	*3*	*4%*	*1*	*1%*
UNC-CH	151	62	41%	88	58%	21	14%	2	1%
Family Medicine				*16*	*11%*	*4*	*3%*	*2*	*1%*
Internal Medicine				*35*	*23%*	*4*	*3%*	*0*	*0%*
Pediatrics				*17*	*11%*	*7*	*5%*	*0*	*0%*
IM/ Peds				*6*	*4%*	*2*	*1%*	*0*	*0%*
OBGYN				*14*	*9%*	*4*	*3%*	*0*	*0%*
Wake Forest	117	41	35%	74	63%	14	12%	2	2%
Family Medicine				*13*	*11%*	*9*	*8%*	*1*	*1%*
Internal Medicine				*29*	*25%*	*1*	*1%*	*0*	*0%*
Pediatrics				*25*	*21%*	*3*	*3%*	*1*	*1%*
IM/ Peds				*1*	*1%*	*0*	*0%*	*0*	*0%*
OBGYN				*6*	*5%*	*1*	*1%*	*0*	*0%*
Total	**433**	**145**	**33%**	**251**	**58%**	**53**	**12%**	**9**	**2%**
Family Medicine				*47*	*11%*	*22*	*5%*	*7*	*2%*
Internal Medicine				*99*	*23%*	*7*	*2%*	*0*	*0%*
Pediatrics				*62*	*14%*	*13*	*3%*	*1*	*0%*
IM/ Peds				*18*	*4%*	*3*	*1%*	*0*	*0%*
OBGYN				*25*	*6%*	*8*	*2%*	*1*	*0%*

*2011 Primary Care Residency Specialty includes Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology. Source: Association of American Medical Colleges (AAMC). Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

** As of 2017, primary care definitions are based on NC Medical Board licensure data (for NC physicians) and AAMC data (for non-NC physicians) and include Family Medicine (Family Medicine, Family Medicine-Adolescent Medicine, Family Medicine-Geriatric, Family Medicine-Sports Medicine, General Practice; Internal Medicine (Internal Medicine, Internal Medicine-Geriatric); Pediatrics (Pediatrics, Pediatrics-Adolescent, Pediatric-Sports Medicine); Internal Medicine-Pediatrics (Internal Medicine-Pediatrics, Internal Medicine-Adolescent Medicine); OBGYN (Obstetrics & Gynecology, Obstetrics, Gynecology).

***"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

Sources:

Association of American Medical Colleges

NC Medical Board

Compiled by:

NC AHEC Program

Cecil G. Sheps Center for Health Services Research

TABLE 5
North Carolina Medical Students-Retention in NC and in Rural NC
2011 Graduates

School *Primary Care** *Residency Specialty*	Total Number of 2011 Graduates	Number of 2011 Graduates in Training or Practice in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in Rural*** Counties in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in Rural*** Counties in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in Primary Care** in Rural*** Counties in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in Primary Care** in Rural*** Counties North Carolina as of 2021
Duke	96	10	10%	0	0%	0	0%
Family Medicine						*0*	*0%*
Internal Medicine						*0*	*0%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*0*	*0%*
ECU	69	32	46%	7	10%	5	7%
Family Medicine						*4*	*6%*
Internal Medicine						*0*	*0%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*1*	*1%*
UNC-CH	151	62	41%	4	3%	2	1%
Family Medicine						*2*	*1%*
Internal Medicine						*0*	*0%*
Pediatrics						*0*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*0*	*0%*
Wake Forest	117	41	35%	2	2%	2	2%
Family Medicine						*1*	*1%*
Internal Medicine						*0*	*0%*
Pediatrics						*1*	*1%*
IM/ Peds						*0*	*0%*
OBGYN						*0*	*0%*
Total	**433**	**145**	**33%**	**13**	**3%**	**9**	**2%**
Family Medicine						*7*	*1.6%*
Internal Medicine						*0*	*0%*
Pediatrics						*1*	*0%*
IM/ Peds						*0*	*0%*
OBGYN						*1*	*0.2%*

*2011 Primary Care Residency Specialty includes Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology. Source: Association of American Medical Colleges (AAMC). Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

** As of 2017, primary care definitions are based on NC Medical Board licensure data (for NC physicians) and AAMC data (for non-NC physicians) and include Family Medicine (Family Medicine, Family Medicine-Adolescent Medicine, Family Medicine-Geriatric, Family Medicine-Sports Medicine, General Practice; Internal Medicine (Internal Medicine, Internal Medicine-Geriatric); Pediatrics (Pediatrics, Pediatrics-Adolescent, Pediatric-Sports Medicine); Internal Medicine-Pediatrics (Internal Medicine-Pediatrics, Internal Medicine-Adolescent Medicine); OBGYN (Obstetrics & Gynecology, Obstetrics, Gynecology).

***"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

Sources:

Association of American Medical Colleges

NC Medical Board

Compiled by:

NC AHEC Program

Cecil G. Sheps Center for Health Services Research

TABLE 6
North Carolina Medical Students – Initial Choice of Psychiatry Residency
2011 Graduates

School	Total Number of 2011 Graduates	Number of 2011 Graduates in Training or Practice with an Initial Residency Choice of Psychiatry	Percent of 2011 Graduates in Training or Practice with an Initial Residency Choice of Psychiatry	Number of 2011 Graduates in Training or Practice in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in Psychiatry* in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in Psychiatry* in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in Psychiatry* in Rural** Counties in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in Psychiatry* in Rural** Counties North Carolina as of 2021
Duke	96	2	2%	10	10%	0	0%	0	0%
Psychiatry						*0*	*0%*	*0*	0%
ECU	69	3	4%	32	46%	1	1%	0	0%
Psychiatry						*1*	*1%*	*0*	*0%*
UNC-CH	151	8	5%	62	41%	4	3%	0	0%
Psychiatry						*3*	*2%*	*0*	0%
Child & Adolescent Psychiatry						*1*	*1%*	*0*	0%
Wake Forest	117	1	1%	41	35%	1	1%	0	0%
Child & Adolescent Psychiatry						*1*	*1%*	*0*	0%
Total	**433**	**14**	3%	**145**	**33%**	**6**	**1%**	**0**	**0%**
Psychiatry						*4*	*1%*	*0*	*0%*
Child & Adolescent Psychiatry						*2*	*0.5%*	*0*	*0%*

*Psychiatry definitions are based on NC Medical Board licensure data (for NC physicians) and AAMC data (for non-NC physicians) and include Psychiatry, Child and Adolescent Psychiatry, Psychoanalysis, Forensic Psychiatry, Psychosomatic Medicine, Psychiatry/Geriatric, Family Medicine-Psychiatry, Internal Medicine-Psychiatry, and Pediatrics-Psychiatry.
**"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

Sources:
Association of American Medical Colleges
NC Medical Board

Compiled by:
NC AHEC Program
Cecil G. Sheps Center for Health Services Research

TABLE 7

North Carolina Medical Students – Initial Choice of General Surgery Residency

2011 Graduates

School	Total Number of 2011 Graduates	Number of 2011 Graduates in Training or Practice with an Initial Residency Choice of General Surgery	Percent of 2011 Graduates in Training or Practice with an Initial Residency Choice of General Surgery	Number of 2011 Graduates in Training or Practice in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in General Surgery* in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in General Surgery* in North Carolina as of 2021	Number of 2011 Graduates in Training or Practice in General Surgery* in Rural** Counties in North Carolina as of 2021	Percent of 2011 Graduates in Training or Practice in General Surgery* in Rural** Counties North Carolina as of 2021
Duke	96	**7**	7%	10	10%	0	0%	0	0%
General Surgery						*0*	*0%*	*0*	*0%*
ECU	69	11	16%	32	46%	2	3%	0	0%
General Surgery						*1*	*1%*	*0*	*0%*
Critical Care Surgery						*1*	*1%*	*0*	*0%*
UNC-CH	151	16	11%	62	41%	6	4%	1	1%
General Surgery						*3*	*2%*	*1*	*1%*
Critical Care Surgery						*1*	*1%*	*0*	*0%*
Head & Neck Surgery						*1*	*1%*	*0*	*0%*
Vascular Surgery						*1*	*1%*	*0*	*0%*
Wake Forest	117	12	10%	41	35%	4	3%	0	0%
General Surgery						*1*	*1%*	*0*	*0%*
Abdominal Surgery						*1*	*1%*	*0*	*0%*
Oncology Surgery						*2*	*2%*	*0*	*0%*
Total	**433**	**46**	11%	**145**	**33%**	**12**	**3%**	**1**	**0%**
General Surgery						*5*	*1%*	*1*	*0.2%*
Critical Care Surgery						*2*	*0.5%*	*0*	*0%*
Head & Neck Surgery						*1*	*0.2%*	*0*	*0%*
Vascular Surgery						*1*	*0.2%*	*0*	*0%*
Abdominal Surgery						*1*	*0.2%*	*0*	*0%*
Oncology Surgery						*2*	*0.5%*	*0*	*0%*

* General Surgery definitions are based on NC Medical Board licensure data (for NC physicians) and AAMC data (for non-NC physicians) and include General Surgery, Abdominal Surgery, Colon & Rectal Surgery, Critical Care Surgery, Head and Neck Surgery, Oncology Surgery, Pediatric Surgery, Transplant Surgery, Trauma Surgery, and Vascular Surgery.

**"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

Sources:

Association of American Medical Colleges

NC Medical Board

Compiled by:

NC AHEC Program

Cecil G. Sheps Center for Health Services Research

TABLE 8
North Carolina Medical Students – Retention by Medical Specialty in NC
2011 Graduates

	Physician Specialty						
	Family Medicine	**Internal Medicine**	**Pediatrics**	**IM/ Peds**	**OBGYN**	**General Surgery**	**Psychiatry**
Number of 2011 Graduates by Initial Specialty Match*	47	99	62	18	25	46	14
Number *(Percent)* of 2011 Graduates in Training or Practice as Generalist** in Specialty in North Carolina as of 2021	22 *(47%)*	7 *(7%)*	13 *(21%)*	3 *(17%)*	8 *(32%)*	12 *(26%)*	4 *(29%)*
Number *(Percent)* of 2011 Graduates in Training or Practice As Generalist** in Specialty in Rural*** Counties in North Carolina as of 2021	7 *(15%)*	0 *(0%)*	1 *(2%)*	0 *(0%)*	1 *(4%)*	1 *(2%)*	0 *(0%)*

*2011 Data Source: Association of American Medical Colleges (AAMC). Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial match to Internal Medicine.

**Practice specialty definitions are based on NC Medical Board licensure data (for NC physicians) and include Family Medicine (Family Medicine, Family Medicine-Adolescent Medicine, Family Medicine-Geriatric, Family Medicine-Sports Medicine, General Practice; Internal Medicine (Internal Medicine, Internal Medicine-Geriatric); Pediatrics (Pediatrics, Pediatrics-Adolescent, Pediatric-Sports Medicine); Internal Medicine-Pediatrics (Internal Medicine-Pediatrics, Internal Medicine-Adolescent Medicine); OBGYN (Obstetrics & Gynecology, Obstetrics, Gynecology); General Surgery (General Surgery, Abdominal Surgery, Colon & Rectal Surgery, Critical Care Surgery, Head and Neck Surgery, Oncology Surgery, Pediatric Surgery, Transplant Surgery, Trauma Surgery, and Vascular Surgery); and Psychiatry (Psychiatry, Child and Adolescent Psychiatry, Psychoanalysis, Forensic Psychiatry, Psychosomatic Medicine, Psychiatry/Geriatric, Family Medicine-Psychiatry, Internal Medicine-Psychiatry, and Pediatrics-Psychiatry.)

***"Rural" is based on 2017 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

TABLE 9
NC Medical School Graduates - Initial Residency Matches
Class of 2021

School *Residency Specialty*	Total Number of 2021 Graduates	Number of 2021 Graduates not in Training or Practice	Number of 2021 Graduates with an Initial Residency Match	Number of 2021 Graduates with an Initial Residency Match in NC (All Specialties)	Percent of 2021 Graduates with an Initial Residency Match in NC (All Specialties)	Number of 2021 Graduates with an Initial Residency Choice of Primary Care, Psychiatry, or General Surgery	Percent of 2021 Graduates with an Initial Residency Choice of Primary Care, Psychiatry, or General Surgery	Number of 2021 Graduates with an Initial Residency Choice of Primary Care, Psychiatry, or General Surgery **in NC**	Percent of 2021 Graduates with an Initial Residency Choice of Primary Care, Psychiatry, or General Surgery **in NC**
Campbell	152	1	151	38	25%	97	64%	25	17%
Family Medicine						*25*	*17%*	*7*	*5%*
Internal Medicine						*30*	*20%*	*7*	*5%*
Pediatrics						*17*	*11%*	*2*	*1%*
IM/ Peds						*4*	*3%*	*1*	*1%*
OBGYN						*5*	*3%*	*1*	*1%*
Psychiatry						*12*	*8%*	*6*	*4%*
General Surgery						*4*	*3%*	*1*	*1%*
Duke	112	3	109	30	28%	64	59%	20	18%
Family Medicine						*2*	*2%*	*1*	*1%*
Internal Medicine						*32*	*29%*	*9*	*8%*
Pediatrics						*6*	*6%*	*1*	*1%*
IM/ Peds						*5*	*5%*	*3*	*3%*
OBGYN						*9*	*8%*	*4*	*4%*
Psychiatry						*5*	*5%*	*1*	*1%*
General Surgery						*5*	*5%*	*1*	*1%*
ECU	80	0	80	27	34%	35	44%	23	29%
Family Medicine						*7*	*9%*	*7*	*9%*
Internal Medicine						*8*	*10%*	*8*	*10%*
Pediatrics						*6*	*8%*	*3*	*4%*
IM/ Peds						*1*	*1%*	*1*	*1%*
OBGYN						*4*	*5%*	*3*	*4%*
Psychiatry						*1*	*1%*	*1*	*1%*
General Surgery						*8*	*10%*	*0*	*0%*
UNC-CH	194	3	191	82	43%	115	60%	54	28%
Family Medicine						*17*	*9%*	*14*	*7%*
Internal Medicine						*29*	*15%*	*12*	*6%*
Pediatrics						*18*	*9%*	*7*	*4%*
IM/ Peds						*4*	*2%*	*3*	*2%*
OBGYN						*19*	*10%*	*9*	*5%*
Psychiatry						*15*	*8%*	*7*	*4%*
General Surgery						*13*	*7%*	*2*	*1%*
Wake Forest	143	0	143	32	22%	72	50%	17	12%
Family Medicine						*14*	*10%*	*4*	*3%*
Internal Medicine						*24*	*17%*	*8*	*6%*
Pediatrics						*12*	*8%*	*0*	*0%*
IM/ Peds						*1*	*1%*	*0*	*0%*
OBGYN						*2*	*1%*	*0*	*0%*
Psychiatry						*8*	*6%*	*5*	*3%*
General Surgery						*11*	*8%*	*0*	*0%*
Total	**681**	**7**	**674**	**209**	**31%**	**383**	**57%**	**139**	**21%**
Family Medicine						*65*	*10%*	*33*	*5%*
Internal Medicine						*123*	*18%*	*44*	*7%*
Pediatrics						*59*	*9%*	*13*	*2%*
IM/ Peds						*15*	*2%*	*8*	*1%*
OBGYN						*39*	*6%*	*17*	*3%*
Psychiatry						*41*	*6%*	*20*	*3%*
General Surgery						*41*	*6%*	*4*	*1%*

Sources: Timmery Frey, MPH, Project Manager, Student Affairs, Bowman Gray Center for Medical Education, Wake Forest School of Medicine; Gaye Tennison, Associate Registrar, Brody School of Medicine, East Carolina University; Sheba Hall, Staff Assistant, Office of Student Affairs, Duke University School of Medicine; Matthew Huff, MHA, Associate DIO and Director of Post-Graduate Affairs, Campbell University Jerry M. Wallace School of Osteopathic Medicine; Elizabeth Steadman, PhD, MA, Senior Director of Medical Student Education, Office of Medical Education, University of North Carolina School of Medicine.

Notes

Limitations: The information used in this analysis to determine a medical graduate's initial specialty choice for residency and to determine retention in primary care comes from different sources. When calculating retention in primary care five years after graduation, data from the AAMC are used to determine initial choice of residency. AAMC does not differentiate between internal medicine and medicine-preliminary, so the data may appear to be inflated for initial residency choice of primary care. Two data sources are used to determine current practice or training area. For physicians practicing in North Carolina, NC Medical Board (NCMB) data are used to determine the physician's current self-reported primary area of practice. For physicians practicing outside of North Carolina, AAMC data are used to determine current practice or training area.

Beginning with the class of 2014, Sheps no longer received AMA Masterfile data matched to AAMC GMETrack data as in prior years. This change was the result of a renegotiated data use agreement between AMA and AAMC that took effect in 2020. Without the AMA Masterfile data, it is not possible to track workforce outcomes for NC medical school graduates in practice or training outside of NC. In addition, Sheps no longer has access to variables from the AMA Masterfile indicating whether a physician is dead or has left active practice.

Beginning with the class of 2006, all MDs graduating in a year, regardless of month, are counted with that year's graduates.

Primary Care Tables: Primary care coding was revised in 2014 to reflect more accurate aggregation of AMA minor codes to AMA major codes. Primary care residency specialties are defined by legislation passed by the NC General Assembly in 1993 (Senate Bill 27/ House Bill 729) and include family medicine, general internal medicine, general pediatric medicine, internal medicine-pediatrics, and obstetrics and gynecology. Specialties included under the definitions of current practice specialties for primary care, psychiatry, and general surgery were revised in 2014 and reviewed by practicing clinicians for accuracy.

"Primary Care" is defined for both initial specialty of residency training (identified using AAMC data and denoted by the use of one asterisk) and for current practice or training area (identified using either NCMB data for physicians in NC or AAMC data for physicians practicing out of state and denoted by the use of two asterisks). More specialties are included under the definition of "primary care" for current practice or training area than for specialty of residency training because physicians may specialize within their primary care area of practice following training. For example, a physician who entered residency training in "pediatrics," and following completion of training reported a current practice area of "adolescent medicine" would be counted as a primary care physician.

General Surgery Tables: For tables calculating retention in general surgery five years after graduation, it is important to note that surgical residencies are currently a minimum of five years, and students who select an initial specialty of general surgery often transition to more specialized surgical training.

State-Supported Students at Duke and Wake Forest Medical Schools: Prior analyses tracked outcomes just for the subgroup of students that received the state IMEO funds (roughly 35% of the Wake Forest Students and 20% of the Duke students). Students were identified using data from NCSEAA. The IMEO grant program was repealed in 2009 legislation (see Senate Bill 202) and tracking for those students is no longer a component of this analysis.