

Monitoring the Progress of North Carolina Graduates Entering Primary Care Careers in North Carolina

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Submitted by the University of
North Carolina Board Of Governors in response to General Statute 143-613 as
amended by Chapter 507 of the 1995 Session Laws (House Bill 230) of the
North Carolina General Assembly

Monitoring the Progress of Graduates Entering Primary Care

Introduction

This report, which is submitted by the University Of North Carolina Board Of Governors to the General Assembly, presents information on the ongoing progress of entry into primary care careers by graduates of the four schools of medicine in the state.

Background

During its 1993 session, the North Carolina General Assembly expressed its interest in expanding the pool of generalist physicians for the state. In Senate Bill 27, as amended by House Bill 729, the General Assembly required that each of the state's four schools of medicine develop a plan with the goal for an expanded percentage of medical school graduates choosing residency positions in primary care. Primary care was defined as family practice, internal medicine, pediatrics, and obstetrics-gynecology. It set the goal for the East Carolina University (ECU) and UNC Schools of Medicine at 60 percent of graduates entering primary care. For the Wake Forest University and Duke University Schools of Medicine, it set the goal at 50 percent.

The Data

This report provides information from the Wake Forest University School of Medicine, the Brody School of Medicine at East Carolina University, Duke University School of Medicine and the University of North Carolina at Chapel Hill School of Medicine. Each of the four schools of medicine has committed to developing a common database to track medical students. At the request of the four schools, the AHEC Program has assumed responsibility for developing and managing the common database in association with the Sheps Center for Health Services Research at UNC-CH. The development of a common database to track medical students has required a complex process of merging two national data sets, a state data set, and files in alumni and student affairs offices of the four medical schools. The national data sets include the graduate medical education tracking file of the Association of American Medical Colleges and the physician master file maintained by the American Medical Association. The state data set used is the North Carolina Medical Board's file for physicians licensed in North Carolina. 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." The term "primary care" includes family medicine, general pediatric medicine, general internal medicine, internal medicine/pediatrics, and obstetrics/gynecology. In addition, because of their importance in the care of rural and underserved communities, we have included data on general surgery and psychiatry.

While the original mandate of this report was specific to the four NC medical schools, new programs need to be monitored. Our intent is to include Campbell University School of Osteopathic Medicine as its graduates enter residencies in 2017. Given that residency placement is a major driver of practice placement, and that AHEC residencies preferentially keep graduates in state, we will also begin to track placement in residencies in North Carolina as a key outcome of North Carolina medical schools.

The Entry of Medical School Graduates into Careers in Primary Care

The General Assembly established goals for each of the four schools of medicine for entry of their graduates into primary care careers. For the UNC School of Medicine and the Brody School of Medicine at East Carolina University, the General Assembly established a target of 60 percent of the graduates to enter careers in primary care. For the Duke and Wake Forest University Schools of Medicine, the target set was 50 percent of graduates in primary care. Our major emphasis is retention in primary care after completion of residency education.

Retention of Graduates in Primary Care: Class of 2008

The most valuable measure of the choice of primary care careers is retention of graduates in primary care after residency. Table I-1 shows the graduates and the percentage that remained in primary care five years (in 2013) after graduation.

The total number of medical graduates in 2008 was 424. Of the 419 graduates in 2008 who are still in training or practice as of 2013, 155 (or 37 percent) remained in one of the four primary care specialties.

Figure 1 shows the trend in the percentage of physicians who graduated from NC medical schools practicing in primary care five years after graduation from 1990 - 2008. While the percentage of graduates who remained in primary care gradually increased for all NC medical schools during the 1990's, there was a decline starting with 2003 graduates; however, 2008 graduates showed a small increase from 2007 graduates in remaining in primary care. Currently, 50 percent of ECU 2008 graduates have remained in primary care, 42 percent for UNC, and 35 percent for WFU. Only Duke 2008 graduates showed a decline in primary care from the previous year, currently at 19% (25% for 2007 graduates).

Table I-2 shows comparable data for state-supported graduates from Duke and Wake Forest who were in primary care training or practice five years after graduation.

Retention of Graduates in North Carolina

Beginning in 2012 this report included a new Table I-3 which reflects medical school graduates remaining in North Carolina. The number of 2008 graduates remaining in NC five years later continues to decline from 144 graduates in 2012 to 137 graduates in 2013 (from 35 to 33 percent), but the number of 2008 graduates in primary care training or practice in NC in 2013 increased 56 to 69 (or from 14 to 16 percent).

ECU's Brody School of Medicine graduates continue to show the highest rate of retention in North Carolina overall (46 percent) and in primary care in the state (30 percent).

NC Medical Students – Retention in Rural Areas

While “retention in rural areas” is not required in this report, Table I-8 shows the retention of 2008 graduates in rural counties, primary care, and in/out of NC as of 2013. Out of 74 graduates practicing in primary care in NC in 2013, only 16 of these were in rural counties (though an increase from 7 graduates in 2012).

Although the four schools continue to offer a variety of curricular and community experiences to interest students in a primary care career, including new tracks emphasizing longitudinal curricula in community settings at both UNC and Duke, there is a strong national trend away from primary care that is also influencing the medical students in North Carolina. Factors that deter choices of primary care careers include the high levels of debt being incurred by many students, particularly in private schools; lower salary levels associated with primary care careers; and lifestyle choices being made by the current generation of medical students. Students are increasingly gravitating to specialties that are lucrative and also allow them to control their hours and have less call on nights and weekends. As a result, there has been a clear trend away from choosing primary care. These national trends are reflected in the choices being made by students at the schools of medicine in North Carolina as well. In addition, the threat to CCNC and the role of primary care providers in Medicaid has concerned many students.

An additional trend that further exacerbates the loss of primary care physicians is the declining percentages of internists and pediatricians remaining in primary care careers. Ten years ago over 50 percent of residents choosing internal medicine and pediatrics practiced as generalists. Today only 10 percent of internists and less than 20 percent of pediatricians remain as generalists, with the remainder going on for fellowship training as sub-specialists. This trend further depletes the pool of generalists physicians needed to serve North Carolina's growing population; this is particularly acute for adults.

General surgeons and psychiatrists are critical members of the health care community in rural and underserved communities. Yet, as Tables I-4 through I-7 demonstrate, low numbers of students choose these disciplines for residencies and then go on to practice in these disciplines in North Carolina (no significant difference from last year's report).

Conclusion

This report responds to the mandate of the 1993 and 1995 sessions of the General Assembly to monitor the progress of graduates of the schools of medicine into primary care. With the exception of East Carolina University medical graduates, the interest in primary care has seen declined among medical school graduates in the state. This decline matches a national trend, but needs to be monitored since a number of counties, particularly in rural and economically depressed areas of the state, are reporting increasing shortages of primary care physicians over the last several years. Combined with the loss of generalists in internal medicine and pediatrics, these trends do not bode well for meeting future primary care physician needs for the state.

Because of the work of the medical and other health science schools, the North Carolina AHEC Program, the State Office of Rural Health, and related programs, North Carolina's rural areas continue to have a higher supply of physicians than comparable rural areas elsewhere in the country. In addition, three of NC's medical schools showed modest improvement in this current report. Given the burgeoning need for primary care and population health, however, there will be need for both increased supply and especially better distribution to meet the goal of improving the health of North Carolinians.

It is important also to underscore several contextual issues. First, the supply of community

preceptor sites has become very tight in the last year; these community sites play a key role in attracting medical students into primary care. Second, in addition to Campbell, there have been many new training programs for PAs and DNP, which may help with the need for primary care providers. Third, over the last several years, there has been rapid consolidation of hospitals and practices into clinically integrated health care systems. Beyond acquisition of practices, most of these new health care systems have not developed workforce strategies which will support a primary care and population health infrastructure.

Section I: Medical Students

Table I-1

North Carolina Medical Students - Retention in Primary Care*
2008 Graduates

School	Total Number of 2008 Graduates in Training or Practice as of 2013	Number of 2008 Graduates in Training or Practice with an Initial Residency Choice of Primary Care**	Percent of 2008 Graduates in Training or Practice with an Initial Residency Choice of Primary Care	Number of 2008 Graduates in Training or Practice in Primary Care as of 2013*	Percent of 2008 Graduates in Training or Practice in Primary Care as of 2013*
Duke	84	48	57%	16	19%
ECU	70	46	66%	35	50%
UNC-CH	163	101	62%	68	42%
Wake Forest	102	62	61%	36	35%
Total	419	257	61%	155	37%

*Primary Care = Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology.

**Source: AAMC. Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

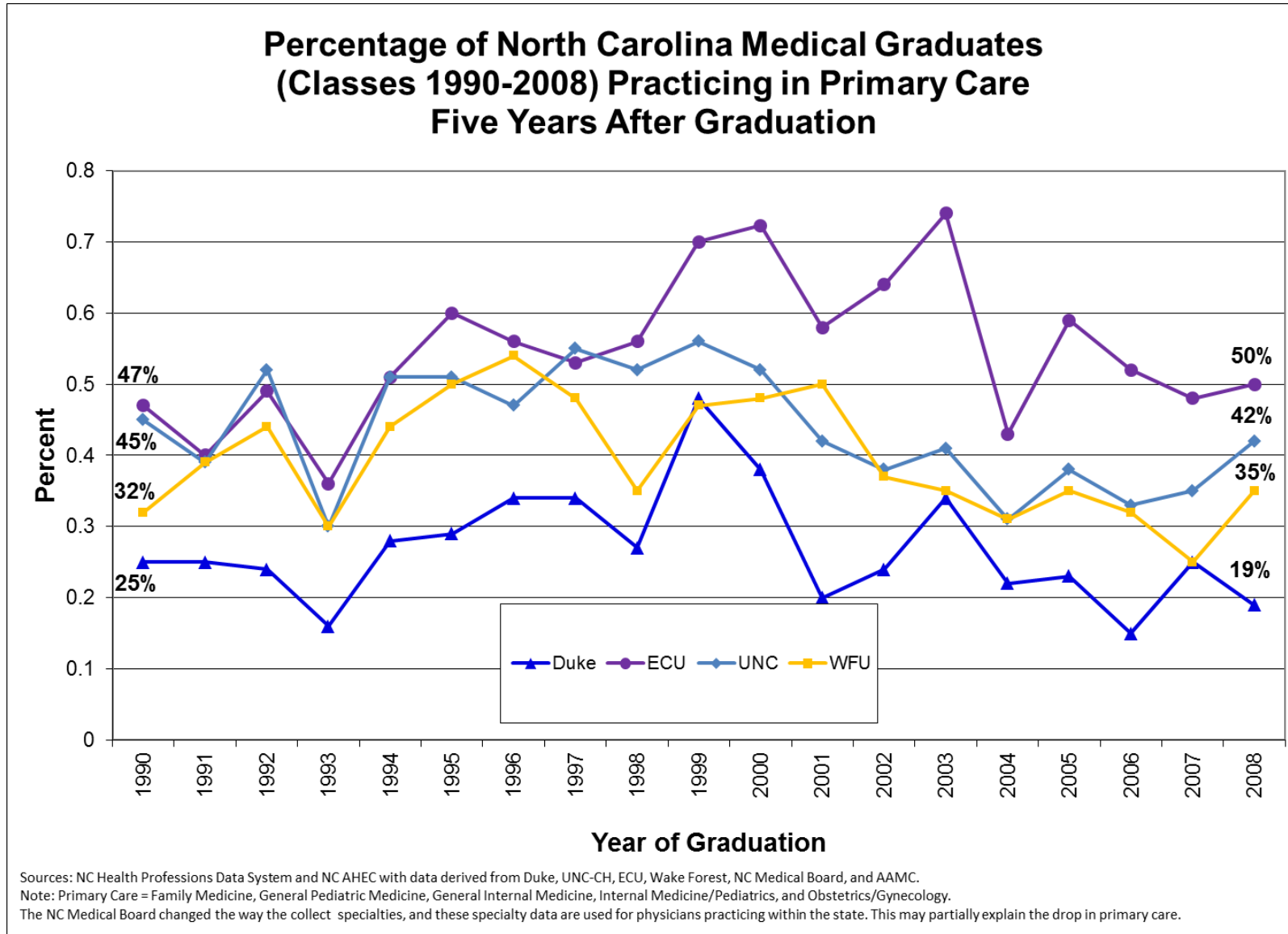
Sources:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education

Wake Forest University SOM Office of Student Affairs
Association of American Medical Colleges
North Carolina Medical Board

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

Figure 1



Section I: Medical Students

Table I-2
State Supported North Carolinians Attending the Duke and Wake Forest Schools of Medicine
Choice and Retention in Primary Care Specialties*
2008 Graduates

School	Number of 2008 Graduates in Training or Practice as of 2013		Number of 2008 Graduates in Training or Practice in Primary Care* as of 2013		Number of 2008 State-Supported Graduates in Training or Practice as of 2013		Number of 2008 State-Supported Graduates in Training or Practice in Primary Care* as of 2013	
	Total	in NC	Total	in NC	Total	in NC	Total	in NC
Duke	84	14 (17%)	16 (19%)	1 (1%)	13 (15%)	4 (31%)	1 (8%)	0 (0%)
Wake Forest	102	30 (29%)	36 (35%)	13 (13%)	39 (38%)	20 (51%)	11 (28%)	8 (21%)
Total	186	44 (24%)	52 (28%)	14 (8%)	52 (28%)	24 (46%)	12 (23%)	8 (15%)
<i>(% of total grads)</i>						<i>(% of total state-supported grads)</i>		

*Primary Care = Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology.

**Source: AAMC. Internal medicine in this case also includes "medicine - preliminary," which likely overestimates the initial primary care figures.

Sources:

Duke Office of Medical Education
Wake Forest University SOM Office of Student Affairs
NC State Education Assistance Authority

Association of American Medical Colleges
North Carolina Medical Board

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

Section I: Medical Students

Table I-3
North Carolina Medical Students-Retention in the State*
2008 Graduates

School	Total Number of 2008 Graduates in Training or Practice as of 2013	Number of 2008 Graduates in Training or Practice in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in North Carolina as of 2013	Number of 2008 Graduates in Training or Practice in Primary Care in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in Primary Care in North Carolina as of 2013	Number of 2008 Graduates in Training or Practice in Primary Care in Rural** Counties in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in Primary Care in Rural** Counties North Carolina as of 2013
Duke	84	14	17%	1	1%	0	0%
ECU	70	32	46%	21	30%	9	13%
UNC-CH	163	61	37%	34	21%	4	2%
Wake Forest	102	30	29%	13	13%	1	1%
Total	419	137	33%	69	16%	14	3%

*Primary Care = Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology.

**"Rural" is based on 2013 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:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education
Wake Forest University SOM Office of Student Affairs

Association of American Medical Colleges
North Carolina Medical Board
US Census Bureau, Office of Management & Budget

Compiled by:

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

Section I: Medical Students

Table I-4
North Carolina Medical Students-Retention in General Surgery*
2008 Graduates

School	Total Number of 2008 Graduates in Training or Practice as of 2013	Number of 2008 Graduates in Training or Practice with an Initial Residency Choice of General Surgery	Percent of 2008 Graduates in Training or Practice with an Initial Residency Choice of General Surgery	Number of 2008 Graduates in Training or Practice in General Surgery Patient Practice as of 2013	Percent of 2008 Graduates in Training or Practice in General Surgery Patient Practice as of 2013
Duke	84	11	13%	6	7%
ECU	70	4	6%	3	4%
UNC-CH	163	21	13%	13	8%
Wake Forest	102	14	14%	5	5%
Total	419	50	12%	27	6%

*General Surgery = General Surgery, Abdominal Surgery, Critical Care Surgery, Oncology Surgery, and Trauma Surgery.

Sources:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education

Wake Forest University SOM Office of Student Affairs
Association of American Medical Colleges
North Carolina Medical Board

Compiled by:

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

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Table I-5
North Carolina Medical Students Practicing in General Surgery-Retention in the State*
2008 Graduates

School	Total Number of 2008 Graduates in Training or Practice as of 2013	Number of 2008 Graduates in Training or Practice in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in North Carolina as of 2013	Number of 2008 Graduates in Training or Practice in General Surgery in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in General Surgery in North Carolina as of 2013
Duke	84	14	17%	5	6%
ECU	70	32	46%	0	0%
UNC-CH	163	61	37%	2	1%
Wake Forest	102	30	29%	0	0%
Total	419	137	33%	7	2%

*General Surgery = General Surgery, Abdominal Surgery, Critical Care Surgery, Oncology Surgery, and Trauma Surgery.

Sources:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education

Wake Forest University SOM Office of Student Affairs
Association of American Medical Colleges
North Carolina Medical Board

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

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Table I-6
North Carolina Medical Students-Retention in Psychiatry*
2008 Graduates

School	Total Number of 2008 Graduates in Training or Practice as of 2013	Number of 2008 Graduates in Training or Practice with an Initial Residency Choice of Psychiatry	Percent of 2008 Graduates in Training or Practice with an Initial Residency Choice of Psychiatry	Number of 2008 Graduates in Training or Practice in Psychiatry Patient Practice as of 2013	Percent of 2008 Graduates in Training or Practice in Psychiatry Patient Practice as of 2013
Duke	84	5	6%	2	2%
ECU	70	4	6%	3	4%
UNC-CH	163	6	4%	5	3%
Wake Forest	102	2	2%	2	2%
Total	419	17	4%	12	3%

*Psychiatry = Psychiatry, Child Psychiatry, Psychoanalysis, Psychiatry/Geriatric

Sources:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education

Wake Forest University SOM Office of Student Affairs
Association of American Medical Colleges
North Carolina Medical Board

Compiled by:

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

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Table I-7
North Carolina Medical Students Practicing in Psychiatry-Retention in the State*
2008 Graduates

School	Total Number of 2008 Graduates in Training or Practice as of 2013	Number of 2008 Graduates in Training or Practice in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in North Carolina as of 2013	Number of 2008 Graduates in Training or Practice in Psychiatry in North Carolina as of 2013	Percent of 2008 Graduates in Training or Practice in Psychiatry in North Carolina as of 2013
Duke	84	14	17%	1	1%
ECU	70	32	46%	2	3%
UNC-CH	163	61	37%	0	0%
Wake Forest	102	30	29%	0	0%
Total	419	137	33%	3	1%

*Psychiatry = Psychiatry, Child Psychiatry, Psychoanalysis, Psychiatry/Geriatric

Sources:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education

Wake Forest University SOM Office of Student Affairs
Association of American Medical Colleges
North Carolina Medical Board

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

Section I: Medical Students

Table I-8
North Carolina Medical Students-Retention in Rural Areas*
2008 Graduates

School	Number of 2008 Graduates in Training or Practice as of 2013		Number of 2008 Graduates in Training or Practice in Primary Care** as of 2013		Number of 2008 Graduates in Training or Practice in <i>Rural Counties</i> as of 2013		Number of 2008 Graduates in Training or Practice in Primary Care** in Rural Counties as of 2013	
	<i>Total</i>	<i>in NC</i>	<i>Total</i>	<i>in NC</i>	<i>Total</i>	<i>in NC</i>	<i>Total</i>	<i>in NC</i>
Duke	84	14 (17%)	16 (19%)	3 (4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
ECU	70	32 (46%)	36 (51%)	21 (30%)	9 (13%)	9 (13%)	9 (13%)	9 (13%)
UNC-CH	163	61 (37%)	75 (46%)	37 (23%)	7 (4%)	5 (3%)	4 (2%)	4 (2%)
Wake Forest	102	30 (29%)	36 (35%)	13 (13%)	4 (4%)	2 (2%)	3 (3%)	1 (1%)
Total	419	137 (33%)	144 (34%)	74 (18%)	20 (5%)	16 (4%)	16 (4%)	14 (3%)
<i>(% of total grads)</i>								

*"Rural" is based on 2013 Core-Based Statistical Area (CBSA) definitions, and includes counties that are "micropolitan" and "outside of CBSAs." Using this definition, NC has 54 rural counties.

**Primary Care = Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology.

Sources:

Duke Office of Medical Education
UNC-CH Office of Student Affairs
ECU Office of Medical Education
Wake Forrester University SOM Office of Student Affairs

Association of American Medical Colleges
North Carolina Medical Board
US Census Bureau, Office of Management & Budget

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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 (Tables I-1, I-2), data from the AAMC are used to determine initial choice of residency and current practice or training area. 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 for Tables I-2 through I-3 when compared to the data presented in the Class of 1999 report, submitted in 2005. In addition, we are unable to track roles as hospitalists with reliability. As a consequence, the estimates of practice in primary care roles represent upper bounds.

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

Notes:

Primary Care Tables:

The primary care coding scheme was revised in 2014 to reflect a more accurate aggregation of AMA specialty codes into primary care categories. This resulted in the removal of 15 physicians practicing in pediatric sub-specialties who prior to this year would have been included in counts of general pediatricians.

General Surgery Tables:

For tables calculating retention in general surgery five years after graduation (Tables I-4, I-5), 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.