

# **Monitoring the Progress of North Carolina Graduates Entering Primary Care Careers**

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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.

## **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.

## **Retention of Graduates in Primary Care: Class of 2006**

Although initial choice of residency is important, a more important indication of practice in primary care is reflected in data on graduates five years after graduation. Table I-1 shows the percentage of 2006 graduates of each of the four schools who made an initial choice of primary care. Table 1-2 shows the same graduates and the percentage that remained in primary care five years (in 2011) after graduation.

The total number of medical graduates in 2006 was 416. Of the 413 graduates in 2006 who are still in training or practice as of 2011, 129 (or 31 percent) remained in one of the four primary care specialties. This is down from a year ago where the comparable number was 155 (or 38 percent).

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 - 2006. While the percentage of graduates who remained in primary care gradually increased for all NC medical schools during the 1990's, only ECU continues to show high percentages since 2000 (52 percent for 2006 graduates). The other three schools are more reflective of the national trend away from primary care, with UNC at 33 percent, WFU at 32 percent, and Duke at 15 percent.

Table I-3 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 last year the report included a new Table (I-4) which reflects medical school graduates remaining in North Carolina. The number of 2006 graduates remaining in NC is up slightly from last year, from 160 to 172 (or 39 percent to 42 percent); however, the number of 2006 graduates in primary care training or practice in NC in 2011 decreased from 86 to 61 (or from 21 to 15 percent).

ECU's Brody School of Medicine graduates showed the highest rate of retention in North Carolina overall (60 percent) and in primary care in the state (33 percent).

## **Initial Choice of Residency in Primary Care: Classes of 2012**

The percentage of most recent graduates entering primary care is also reported for the four schools in order to give an early indication of primary care career trends. Table I-5 shows the percentage of the graduates of the class of 2012 for each of the four schools of medicine who chose residency programs in one of the four primary care specialties of family medicine, pediatrics, internal medicine, and obstetrics and gynecology. In 2012, 203 out of the 428 total graduates (47 percent) entered primary care residency training, slightly lower than last year (49 percent). ECU and UNC had the highest percentages at 69 percent and 51 percent, respectively.

Figure 2 shows the trends in initial residency choice of primary care. Both ECU and Duke Graduates showed an increase in the selection of primary care in 2012 (ECU at 69 percent and Duke at 42 percent). UNC-CH and Wake Forest showed decreases, 51 percent and 33 percent respectively.

Although the four schools continue to offer a variety of curricular and community experiences to interest students in a primary care career, 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 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, particularly family medicine. These national trends are reflected in the choices being made by students at the schools of medicine in North Carolina as well.

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.

## **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 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. Nevertheless, it will be important to monitor these trends in the coming years to assure that there still remains a steady supply of primary care providers to meet the needs of North Carolina communities.

Table I-1  
North Carolina Medical School Graduates: Initial Choice of Primary Care\*  
2006 Graduates

| School      | Total Number of<br>2006 Graduates | Number of 2006<br>Graduates not in Training<br>or Practice as of 2011 | Number of 2006<br>Graduates in Training or<br>Practice as of 2011 | Number of 2006 Graduates in<br>Training or Practice with an<br>Initial Residency Choice of<br>Primary Care | Percent of 2006 Graduates in<br>Training or Practice with an<br>Initial Residency Choice of<br>Primary Care |
|-------------|-----------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Duke        | 109                               | 1                                                                     | 108                                                               | 61                                                                                                         | 56%                                                                                                         |
| ECU         | 67                                | 0                                                                     | 67                                                                | 47                                                                                                         | 70%                                                                                                         |
| UNC-CH      | 142                               | 1                                                                     | 141                                                               | 82                                                                                                         | 58%                                                                                                         |
| Wake Forest | 98                                | 1                                                                     | 97                                                                | 56                                                                                                         | 58%                                                                                                         |
| Totals      | 416                               | 3                                                                     | 413                                                               | 246                                                                                                        | 60%                                                                                                         |

\*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 Forest University SOM Office of Student Affairs  
Association of American Medical Colleges  
N.C. Medical Board

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

Table I-2  
North Carolina Medical School Graduates - Retention in Primary Care After Five Years  
2006

| School      | Total Number of 2006 Graduates in Training or Practice as of 2011 | Number of 2006 Graduates in Training or Practice with an Initial Residency Choice of Primary Care | Percent of 2006 Graduates in Training or Practice with an Initial Residency Choice of Primary Care | Number of 2006 Graduates in Training or Practice in Primary Care Patient Practice as of 2011 | Percent of 2006 Graduates in Training or Practice in Primary Care Patient Practice as of 2011 |
|-------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Duke        | 108                                                               | 61                                                                                                | 56%                                                                                                | 16                                                                                           | 15%                                                                                           |
| ECU         | 67                                                                | 47                                                                                                | 70%                                                                                                | 35                                                                                           | 52%                                                                                           |
| UNC-CH      | 141                                                               | 82                                                                                                | 58%                                                                                                | 47                                                                                           | 33%                                                                                           |
| Wake Forest | 97                                                                | 56                                                                                                | 58%                                                                                                | 31                                                                                           | 32%                                                                                           |
| Totals      | 413                                                               | 246                                                                                               | 60%                                                                                                | 129                                                                                          | 31%                                                                                           |

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

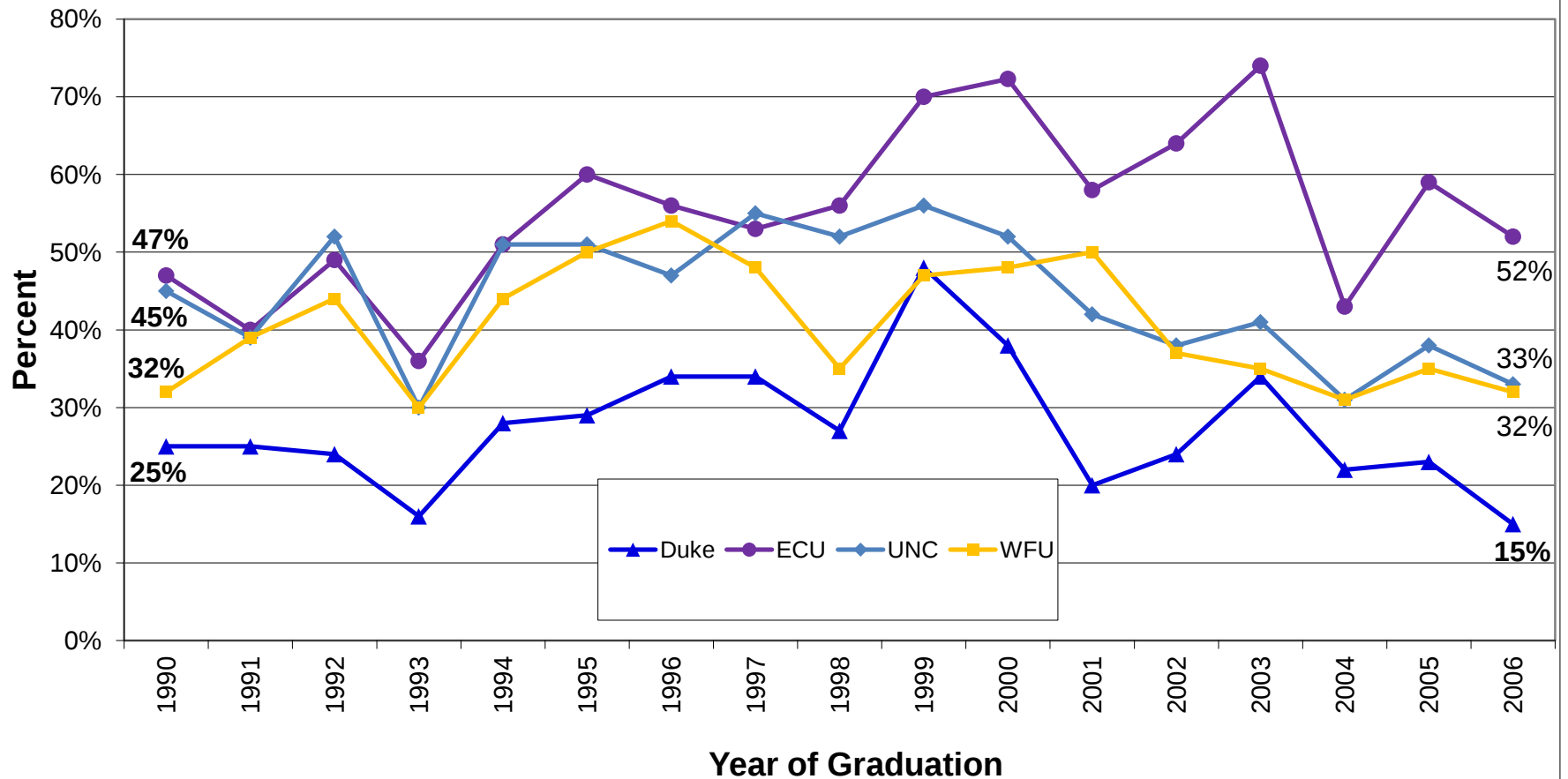
Sources:

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

Wake Forest University SOM Office of Student Affairs  
Association of American Medical Colleges  
N.C. Medical Board

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

**Figure 1**  
**Percentage of North Carolina Medical Graduates**  
**(Classes 1990-2006) Practicing in Primary Care**  
**Five Years After Graduation**



Sources: NC Health Professions Data System and NC AHEC with data derived from Duke, UNC-CH, ECU, Wake Forest, NC Medical Board, and AAMC.

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

The NC Medical Board changed the way the collect specialties, and these specialty data are used for physicians practicing within the state. This may partially explain the drop in primary care.

Table I-3  
State Supported North Carolinians Attending  
the Duke and Wake Forest Schools of Medicine - Choice and Retention in Primary Care Specialties\*  
2006 Graduates

|             | Number of 2006 Graduates in Training or Practice as of 2011 |                    | Number of 2006Graduates in Training or Practice in Primary Care* as of 2011 |              | Number of 2006 <i>State-Supported</i> Graduates in Training or Practice as of 2011 |                                    | Number of 2006 <i>State-Supported</i> Graduates in Training or Practice in Primary Care* as of 2011 |              |
|-------------|-------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------|--------------|
| School      | <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        | 108                                                         | 37(34%)            | 16(15%)                                                                     | 7(6%)        | 13(12%)                                                                            | 8(62%)                             | 2(15%)                                                                                              | 2(15%)       |
| Wake Forest | 97                                                          | 29(30%)            | 31(32%)                                                                     | 9(9%)        | 28(29%)                                                                            | 16(57%)                            | 6(21%)                                                                                              | 4(14%)       |
| Total       | 205                                                         | 66(32%)            | 47(23%)                                                                     | 16(8%)       | 41(20%)                                                                            | 24(59%)                            | 8(20%)                                                                                              | 6(15%)       |
|             |                                                             | (% of total grads) |                                                                             |              |                                                                                    | (% of total state-supported grads) |                                                                                                     |              |

Table I-4  
North Carolina Medical Students-Retention in the State\*  
2006 Graduates

| School       | Total Number of 2006 Graduates in Training or Practice as of 2011 | Number of 2006 Graduates in Training or Practice in North Carolina as of 2011 | Percent of 2006 Graduates in Training or Practice in North Carolina as of 2011 | Number of 2006 Graduates in Training or Practice in Primary Care in North Carolina as of 2011 | Percent of 2006 Graduates in Training or Practice in Primary Care in North Carolina as of 2011 |
|--------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Duke         | 108                                                               | 37                                                                            | 34                                                                             | 7                                                                                             | 6%                                                                                             |
| ECU          | 67                                                                | 40                                                                            | 60 %                                                                           | 22                                                                                            | 33%                                                                                            |
| UNC-CH       | 141                                                               | 66                                                                            | 47 %                                                                           | 23                                                                                            | 16%                                                                                            |
| Wake Forest  | 97                                                                | 29                                                                            | 30 %                                                                           | 9                                                                                             | 9 %                                                                                            |
| <b>Total</b> | <b>413</b>                                                        | <b>172</b>                                                                    | <b>42 %</b>                                                                    | <b>61</b>                                                                                     | <b>15%</b>                                                                                     |

\*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 Forest University SOM Office of Student Affairs  
Association of American Medical Colleges  
N.C. Medical Board

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

**Table I-5**  
**North Carolina Medical Students-Initial Choice of Primary Care\***  
**2012 Graduates**

| School       | Total Number of 2012 Graduates | Number of 2012 Graduates not Entering Residency Training | Number of 2012 Graduates Entering Residency Training | Number of 2012 Graduates Entering Residency Training Who Chose A Primary Care Residency | Percent of 2012 Graduates Entering Residency Training Who Chose A Primary Care Residency |
|--------------|--------------------------------|----------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Duke         | 91                             | 6                                                        | 85                                                   | 36                                                                                      | 42 %                                                                                     |
| ECU          | 73                             | 2                                                        | 71                                                   | 49                                                                                      | 69 %                                                                                     |
| UNC-CH       | 165                            | 6                                                        | 159                                                  | 81                                                                                      | 51 %                                                                                     |
| Wake Forest  | 113                            | 0                                                        | 113                                                  | 37                                                                                      | 33 %                                                                                     |
| <b>Total</b> | <b>442</b>                     | <b>14</b>                                                | <b>428</b>                                           | <b>203</b>                                                                              | <b>47 %</b>                                                                              |

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

\*\*Source: Residency match lists from the individual medical schools. Students indicating a choice of "medicine - preliminary" are not included as primary care.

Sources:

Duke Office of Medical Education

UNC-CH Office of Student Affairs

ECU Office of Medical Education

Barzansky B, Etzel SI. 2010. Medical Schools in the United States, 2010-2011. *JAMA*. 2011;306(9):1007-1014.

Wake Forest University SOM Office of Student Affairs

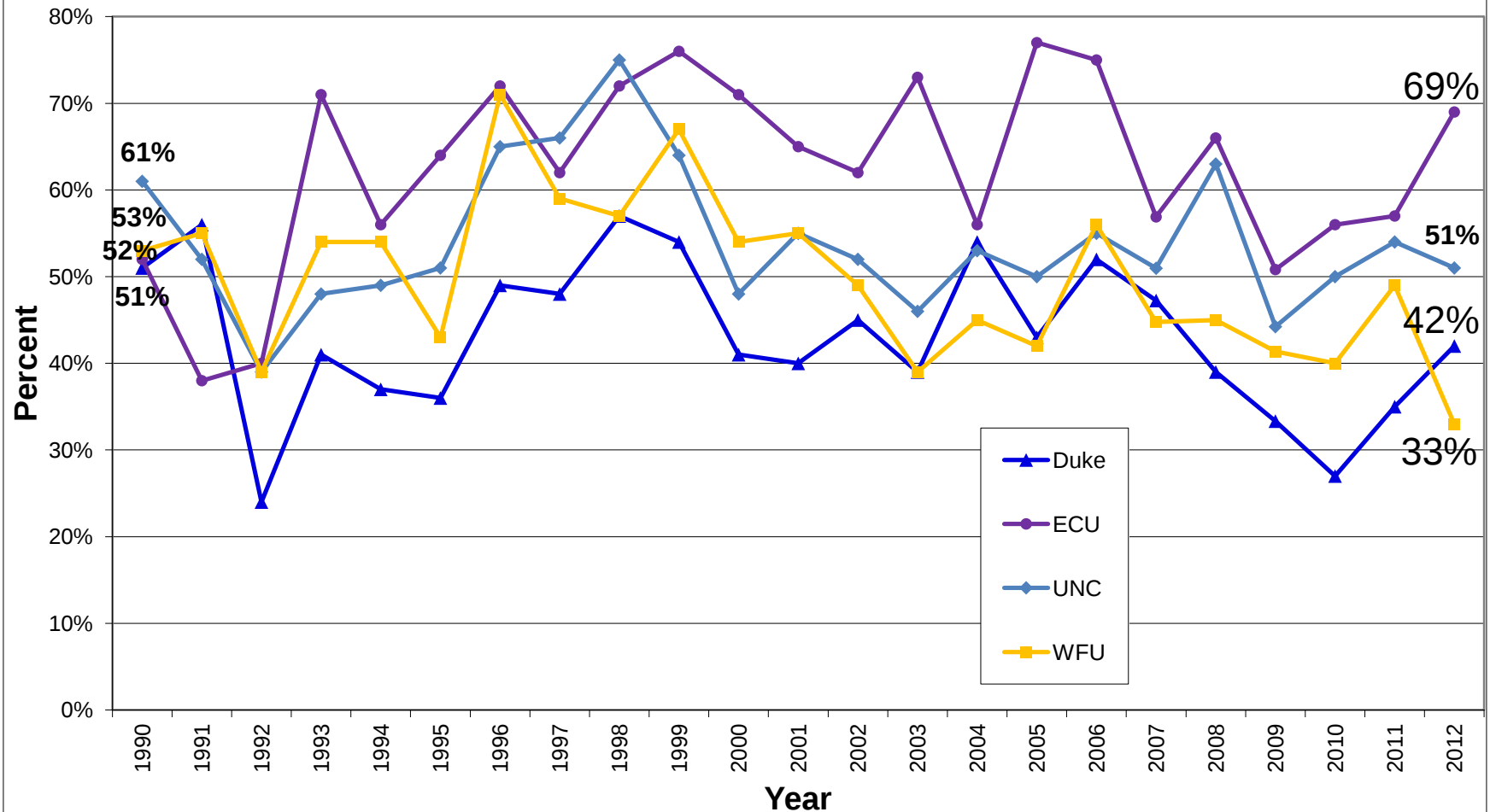
Association of American Medical Colleges

N.C. Medical Board

Compiled by:

N.C. AHEC Program& Cecil G. Sheps Center for Health Services Research

**Figure 2**  
**Percentage of North Carolina Medical Graduates**  
**with an Initial Residency Choice of Primary Care**  
**1990-2012**



Sources: NC Health Professions Data System and NC AHEC with data derived from Duke, UNC-CH, ECU, Wake Forest, NC Medical Board, and AAMC.  
 Note: Primary Care = Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology.  
 Residency match lists from the individual medical schools. Students indicating a choice of "medicine - preliminary" are not included as primary care.

## 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. For the purpose of Table I-4, residency match lists provided by each school are used to determine initial choice of primary care. Students who specify an initial specialty of "medicine-preliminary" will begin an internal medicine residency and transition to more specialized training in fields such as cardiology or other internal medicine sub-specialties; therefore, they are not included in our primary care results for Table I-4. When calculating retention in primary care five years after graduation (Tables I-1, I-2, I-3), 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-1 through I-3 when compared to the data presented in the Class of 1999 report, submitted in 2005.

Beginning with the class of 2006 all MDs graduating in a year, regardless of month, will be counted in with that year's graduates. For the Class of 2006, those who graduated in December 2005 (and were therefore not counted in with the Class of 2005 tracking project) were NOT included in the Class of 2006. Of these, three are currently in practice or training, one in NC in family practice, one out-of-state in neurology, and the last out-of-state in pediatrics. All three completed their training at the University of North Carolina at Chapel Hill School of Medicine.

## Notes:

### *Primary Care Tables:*

*The overall decrease in the primary care specialties in these tables results from a combination of factors (1) differences in the way that the North Carolina Medical Board collected specialty data from 2010 to 2011; and (2) the use of North Carolina Medical Board data to determine current specialty for physicians included in these tables that are practicing in North Carolina. This change should not be interpreted as an actual loss of practitioners but instead as the result of these factors. This difference in the way specialty data are collected may affect the totals of graduates reported in primary care five years after graduation, but the Medical Board still believes this is a more accurate measure of practice type, and the trends going forward will be more comparable from year to year.*