

Medical Education in North Carolina: Using Data to Inform Public Policy Decisions

**Thomas Bacon, DrPH; Erin Fraher, PhD, MPP;
Julie Spero, MSPH**

*Program on Health Workforce Research & Policy
Cecil G. Sheps Center for Health Services Research*

AAMC Health Workforce Research Conference

May 6, 2016



UNC

THE CECIL G. SHEPS CENTER
FOR HEALTH SERVICES RESEARCH

Presentation Overview

- Describe effort to establish a new medical school in Charlotte, NC; use as case study to show power of data to inform policy
- Present results of a new report done on the physician workforce in North Carolina
- Describe policy levers most likely to achieve the physician workforce to meet the needs of NC communities

Proposal for New Medical School in Charlotte: A Case Study

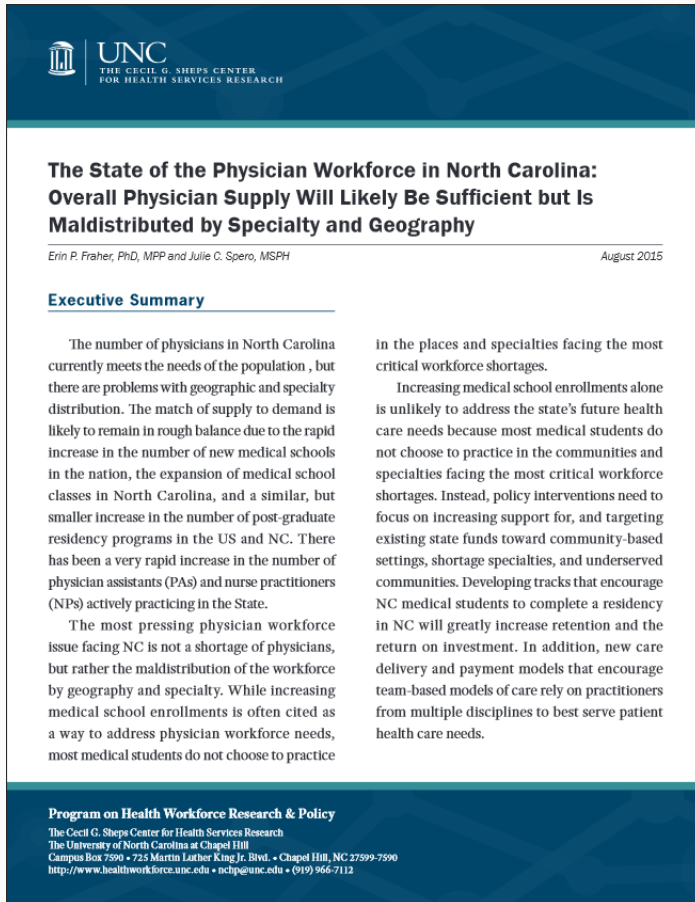
- 2014-2015 group of business leaders proposed a new medical school for Charlotte
- Charlotte is largest city in U.S. without a medical school; viewed by leaders as major driver of economic development and point of prestige
- Private consultant hired in 2015 to do study of needs for more MDs in the state and in Charlotte region
- Consultant used Sheps data to show the value of new med school to produce the physicians needed, especially in primary care; drew conclusions not supported by data

Proposal for New Medical School (Cont.)

- Already major medical education presence in Charlotte
- Carolinas Medical Center is major teaching hospital and site of regional campus of UNC School of Medicine; over 250 residents and equal number of full-time faculty
- Proposed new medical school viewed by UNC and CMC as unnecessary and a drain on state resources
- Anticipating an active policy debate, Sheps quickly produced report on the state of the physician workforce in NC, and the role of UME and GME

The State of the Physician Workforce in North Carolina:

Overall Physician Supply Will Likely Be Sufficient but Is Maldistributed by Specialty and Geography



The cover of the report features the UNC logo at the top left, which includes the text 'UNC THE CECIL G. SHEPS CENTER FOR HEALTH SERVICES RESEARCH'. The title of the report is centered in a bold, black font. Below the title, the authors' names 'Erin P. Fraher, PhD, MPP and Julie C. Spero, MSPH' and the date 'August 2015' are listed. The section 'Executive Summary' is highlighted with a blue underline. The main body of the cover contains two columns of text. The left column discusses the current physician supply in North Carolina and the challenges of geographic and specialty distribution. The right column discusses the need for policy interventions to address workforce shortages. At the bottom, there is a blue box with white text providing contact information for the Program on Health Workforce Research & Policy.

The State of the Physician Workforce in North Carolina: Overall Physician Supply Will Likely Be Sufficient but Is Maldistributed by Specialty and Geography

Erin P. Fraher, PhD, MPP and Julie C. Spero, MSPH August 2015

Executive Summary

The number of physicians in North Carolina currently meets the needs of the population, but there are problems with geographic and specialty distribution. The match of supply to demand is likely to remain in rough balance due to the rapid increase in the number of new medical schools in the nation, the expansion of medical school classes in North Carolina, and a similar, but smaller increase in the number of post-graduate residency programs in the US and NC. There has been a very rapid increase in the number of physician assistants (PAs) and nurse practitioners (NPs) actively practicing in the State.

The most pressing physician workforce issue facing NC is not a shortage of physicians, but rather the maldistribution of the workforce by geography and specialty. While increasing medical school enrollments is often cited as a way to address physician workforce needs, most medical students do not choose to practice

in the places and specialties facing the most critical workforce shortages.

Increasing medical school enrollments alone is unlikely to address the state's future health care needs because most medical students do not choose to practice in the communities and specialties facing the most critical workforce shortages. Instead, policy interventions need to focus on increasing support for, and targeting existing state funds toward community-based settings, shortage specialties, and underserved communities. Developing tracks that encourage NC medical students to complete a residency in NC will greatly increase retention and the return on investment. In addition, new care delivery and payment models that encourage team-based models of care rely on practitioners from multiple disciplines to best serve patient health care needs.

Program on Health Workforce Research & Policy
The Cecil G. Sheps Center for Health Services Research
The University of North Carolina at Chapel Hill
Campus Box 7590 • 725 Martin Luther King Jr. Blvd. • Chapel Hill, NC 27599-7590
<http://www.healthworkforce.unc.edu> • ncipg.unc.edu • (919) 966-7112

August 2015

Policy Issue: whether state faces physician shortage and needs new medical school

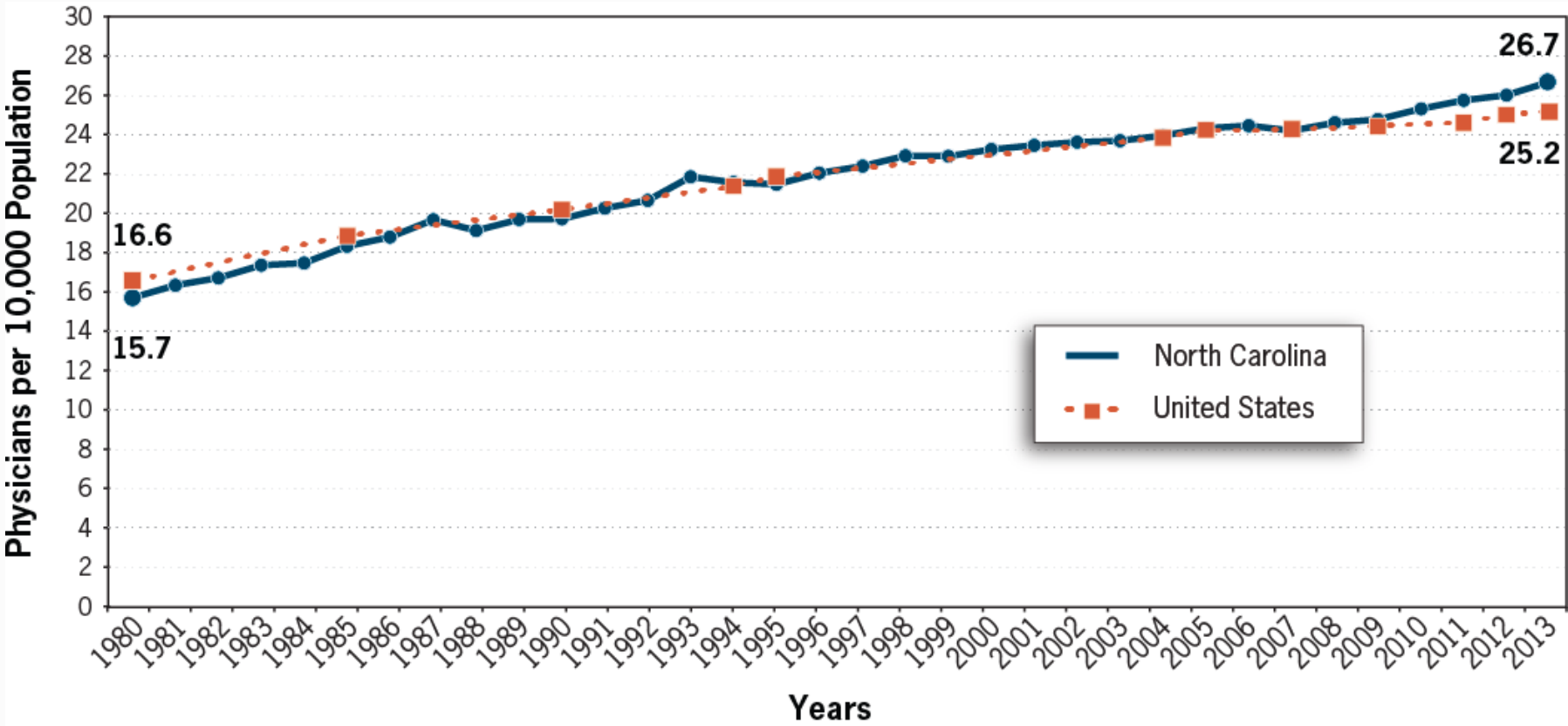
Key Findings:

- NC growth in physician supply outpacing national average
- Physician supply is maldistributed by location and specialty
- Physicians who complete medical school and residency in NC are more likely to stay in NC
- The supply of non-physician clinicians (NPs, PAs, pharmacists, etc.) is growing and taking on new roles

Policy Response: Pending.

Fears of physician shortages create headlines but we see steady increase in supply

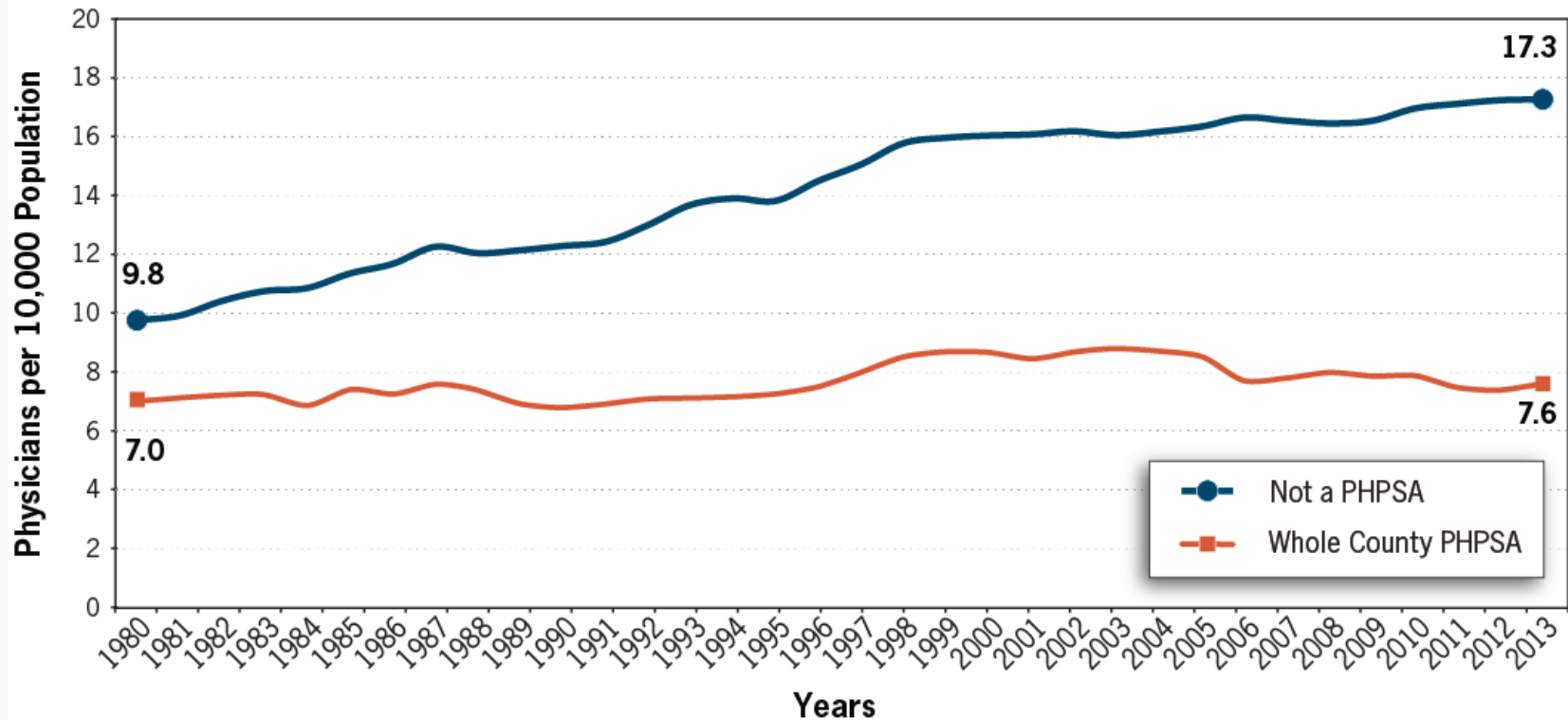
Physicians per 10,000 population, North Carolina and United States, 1980 - 2013



Sources: North Carolina Health Professions Data System, 1979 to 2013; American Medical Association Physician Databook, selected years; US Census Bureau; North Carolina Office of State Planning. North Carolina physician data include all licensed, active, physicians practicing in-state, inclusive of residents in-training and federally employed physicians, US data includes total physicians in patient care, which is inclusive of residents-in-training and federally employed physicians. US physician data shown for 1980, 1985, 1990, 1994, 1995, 2004, 2005, 2007, 2009, 2011, 2012, 2013; all other years inputed.

The real issue is maldistribution

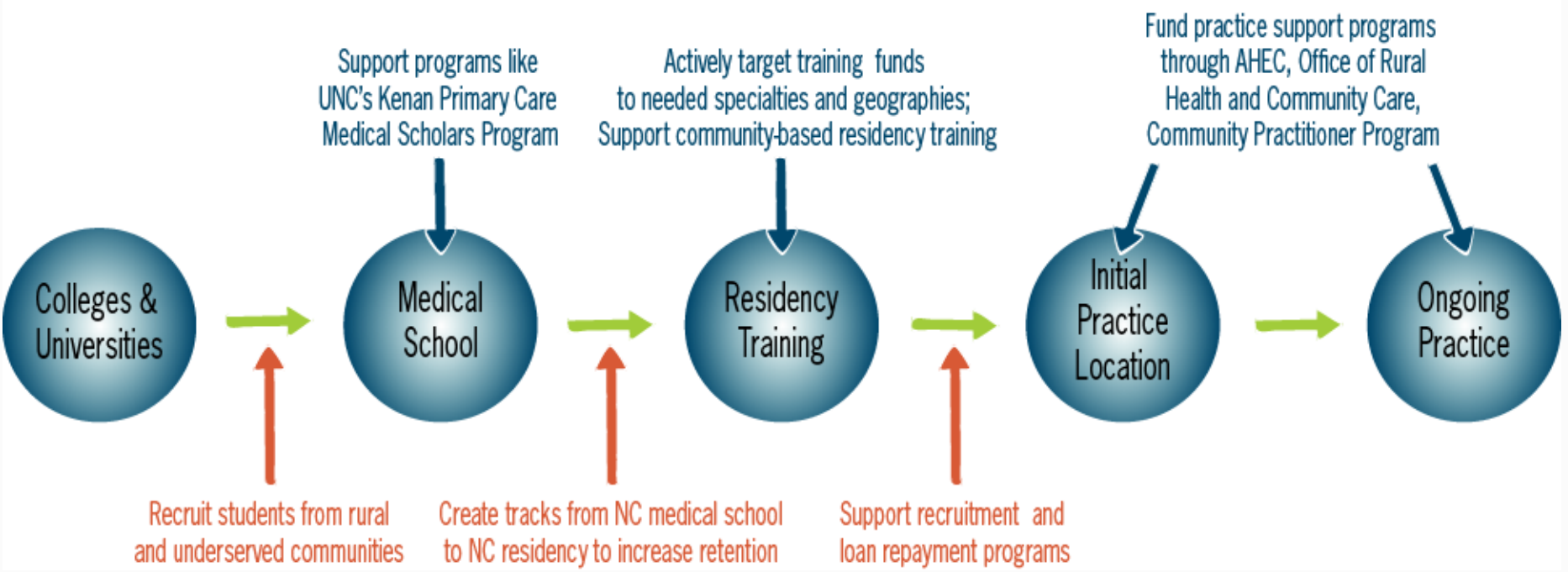
Physicians per 10,000 population by Persistent Health Professional Shortage Area (PHPSA) Status, North Carolina, 1980 - 2013



Notes: Figures include active, in-state, nonfederal, non-resident-in-training physicians licensed as of October 31st of the respective year. North Carolina population data are smoothed figures based on 1980, 1990, 2000 and 2010 Censuses. As of 2012, Primary Care PHPSA calculations updated with data from most recent AHRF release. Persistent HPSAs are those designated as HPSAs by HRSA using most recent 7 HPSA designations (2004, 2007-2012). **Sources:** North Carolina Health Professions Data System, 1980 to 2013; North Carolina Office of State Planning; North Carolina State Data Center, Office of State Budget and Management; Area Health Resource File, HRSA, Department of Health and Human Services.

Where can we intervene?

Multiple points of intervention to promote a physician workforce to meet NC's population health needs



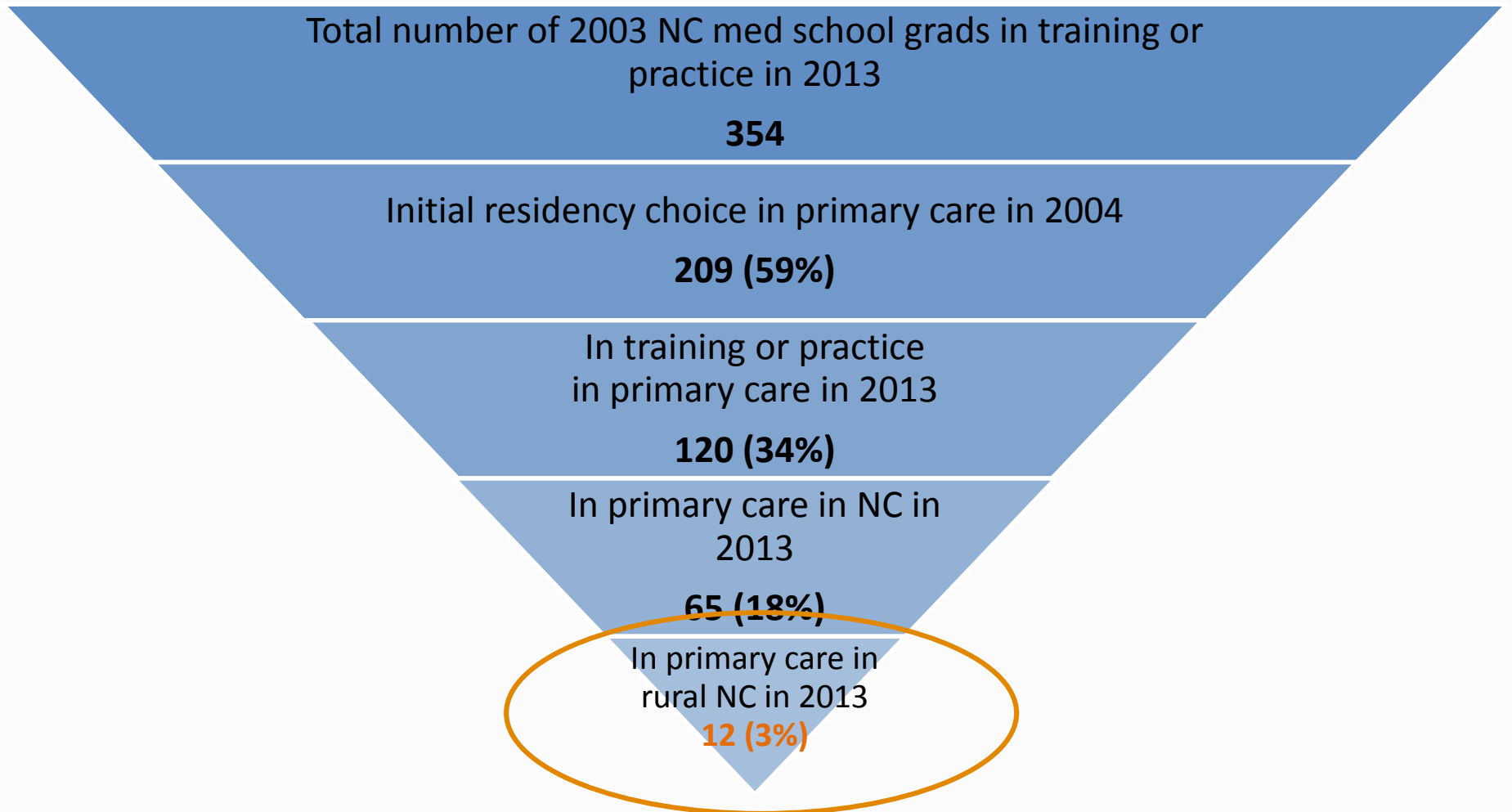
Medical School

NC has recently expanded Medical School Enrollments

- North Carolina expanded medical school enrollment
 - UNC expanded from 160 to 180 positions with regional placements in Charlotte and Asheville for 3rd and 4th year students
 - ECU expanded from 73-80 students
 - Campbell admitted first class of 160 students in September 2013; will graduate in 2017
- These expansions are not likely to improve workforce supply and distribution in the state

Why not?

2003 Medical School Graduates: Retention in Primary Care in NC's Rural Areas 10 years later



Produced by the Program on Health Workforce Research and Policy, Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

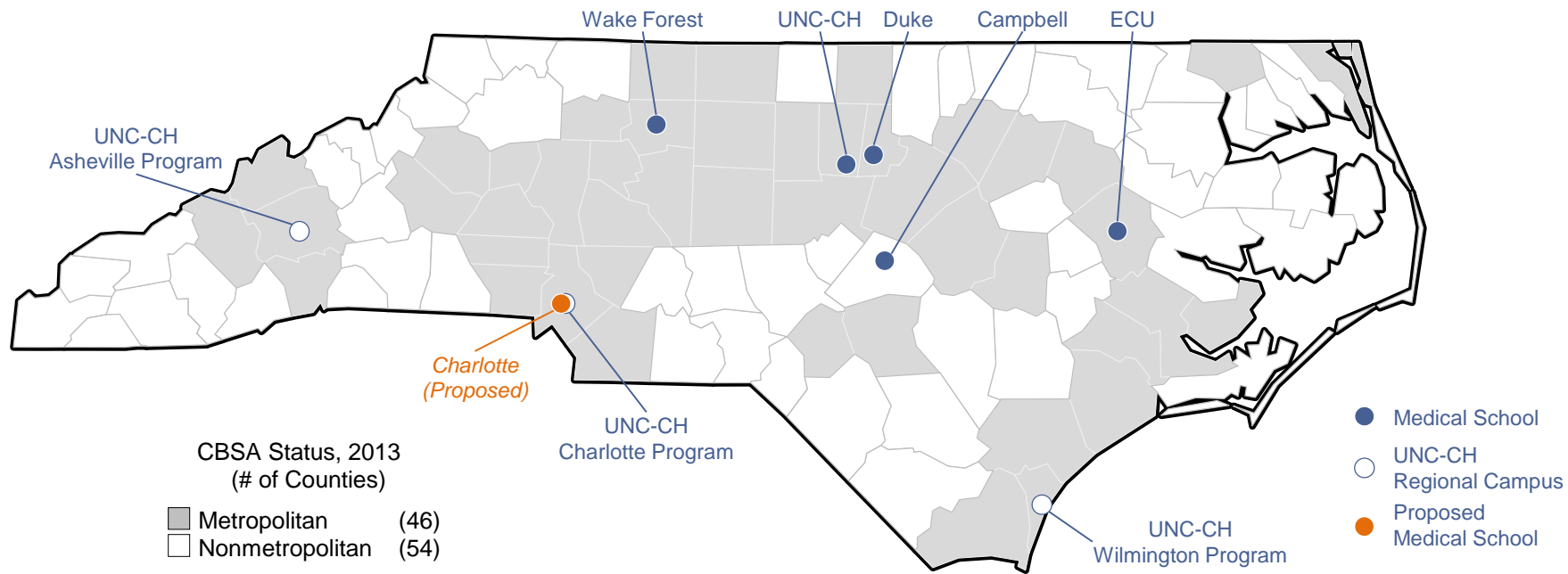
Source: North Carolina Health Professions Data System with data derived from the Association of American Medical Colleges, and the NC Medical Board, 2015.

Rural source: US Census Bureau and Office of Management and Budget, March 2013. "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.



Our rural definition: OMB's Core Based Statistical Areas

Metropolitan Status* North Carolina, 2013



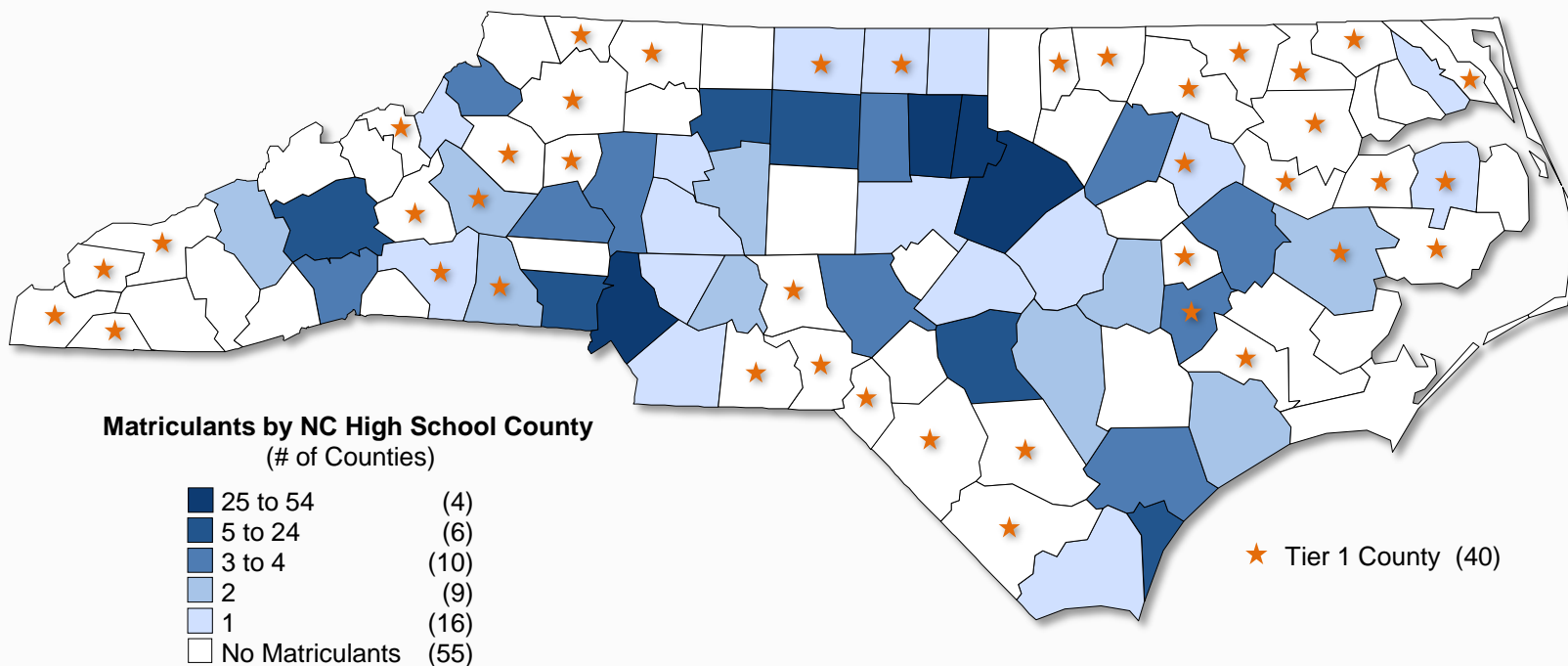
Source: US Census Bureau and Office of Management and Budget, March 2013.

*Note: "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.

Produced By: Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Only 45 NC counties represented in 3 UNC-CH medical school classes, average class drawn from just 27 counties

Matriculants by North Carolina High School County UNC-CH Medical School Classes 2010, 2011 and 2012



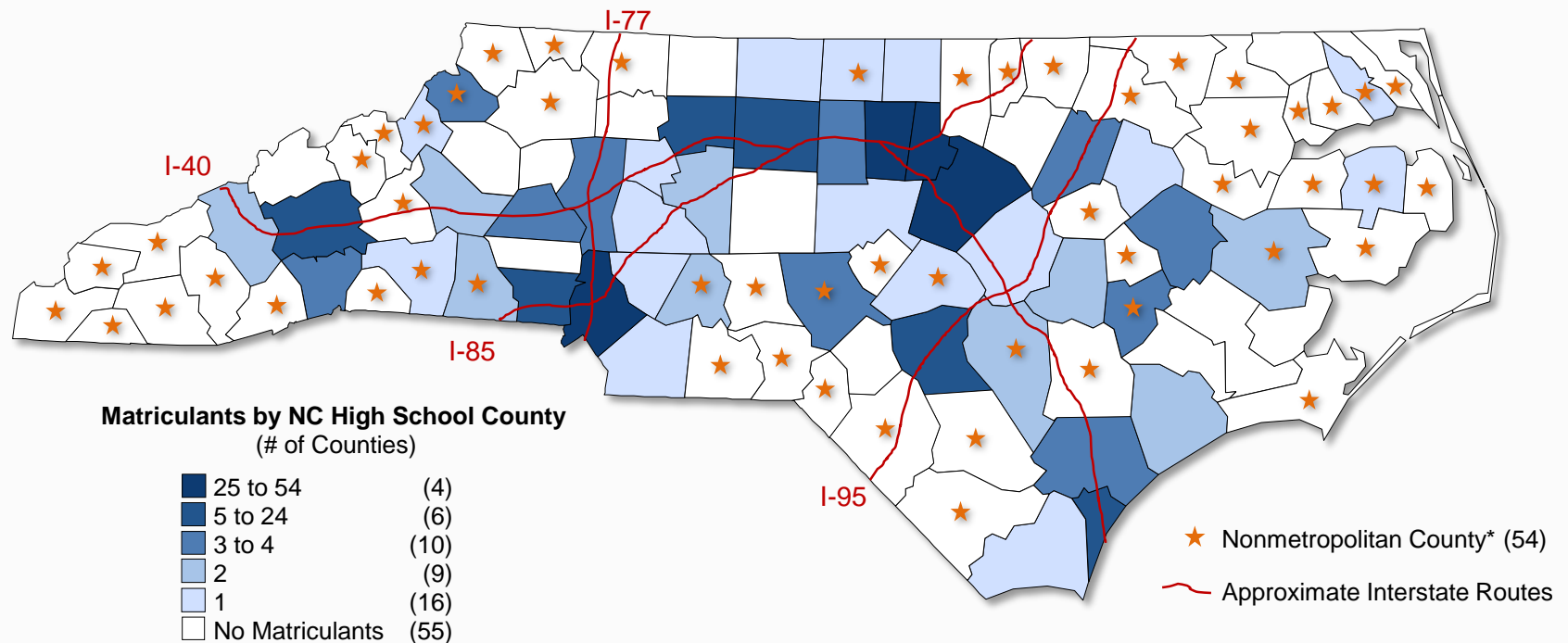
N = 331

Source: OME, UNC-CH SOM.

Produced By: Program on Health Workforce Research & Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Which means you go to UNC-CH medical school if you live near an interstate

Matriculants by North Carolina High School County UNC-CH Medical School Classes 2010, 2011 and 2012



N = 331

Source: OME, UNC-CH SOM.

Produced By: Program on Health Workforce Research & Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Only 14 matriculants attended high school in a Tier 1 (most economically distressed) county

Matriculants by Economic Tier of High School County

Tier	2010		2011		2102		Total
	#	%	#	%	#	%	
1	7	7%	1	1%	6	5%	14
2	16	15%	20	18%	10	9%	46
3	81	78%	89	81%	101	86%	271
Total	104	100%	110	100%	117	100%	331

Note: Used 2011 definitions. Tier 1 is most distressed.

NC Tier 1 Counties Represented in Classes of 2010, 2011, 2012

County	# matriculants
Beaufort	2
Burke	2
Caswell	1
Cleveland	2
Edgecombe	1
Lenoir	3
Rockingham	1
Rutherford	1
Tyrrell	1
Total	14

Source: OME, UNC-CH SOM.

Produced By: Program on Health Workforce Research & Policy,
Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Only 7% of incoming classes from rural counties

Students who attended a North Carolina High School by Rural/Urban Status

Status	#	%
Urban	307	93%
Rural	23	7%
Total	330	100%

Note: 35 students missing high school state.

Rural counties represented in 2010, 2011 and 2012 classes

County	# matriculants
Avery	1
Beaufort	2
Caswell	1
Cleveland	2
Harnett	1
Lenoir	3
Moore	3
Rutherford	1
Sampson	2
Stanly	2
Tyrrell	1
Watauga	4
Total	23

Source: OME, UNC-CH SOM.

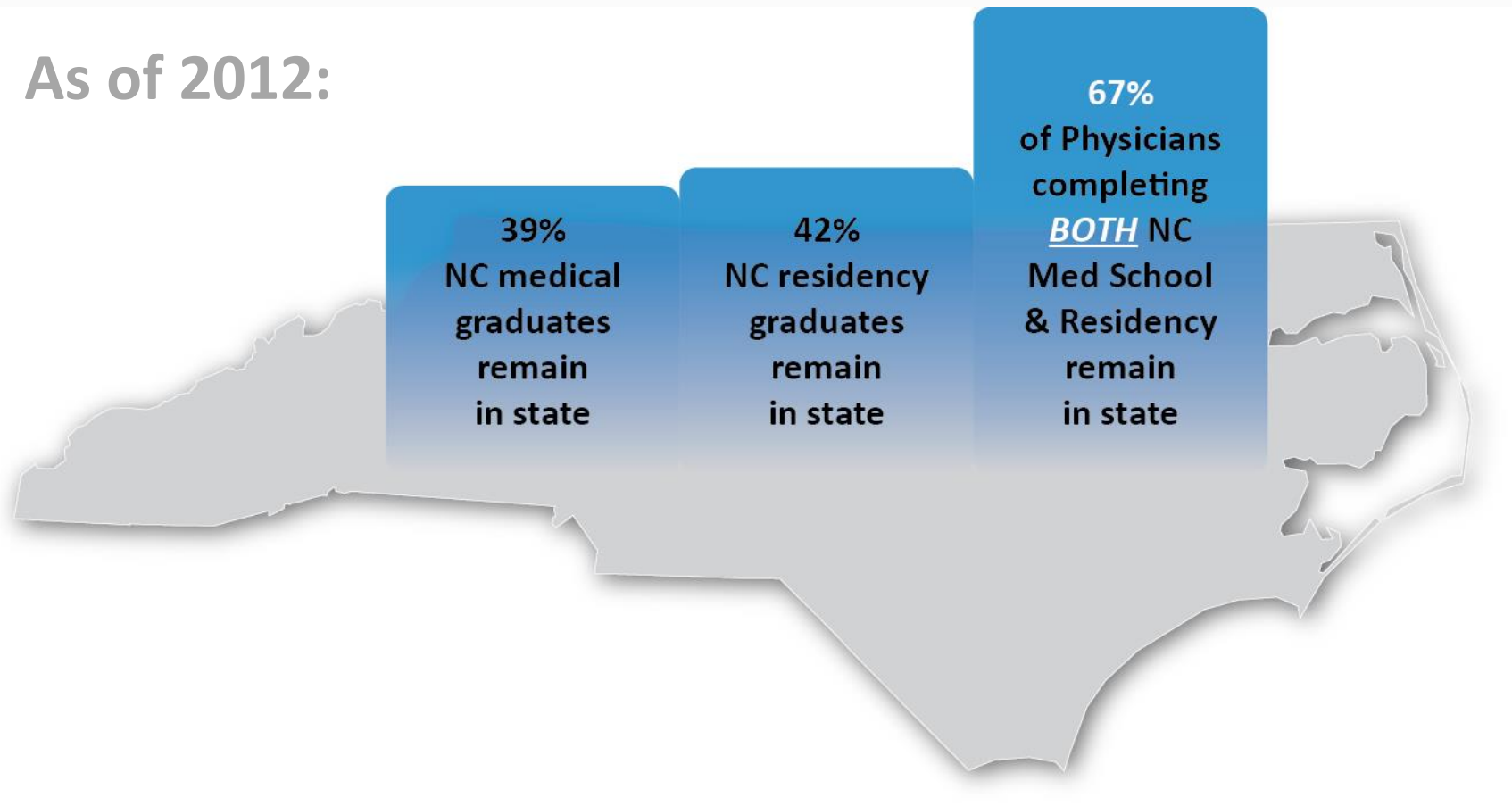
Produced By: Program on Health Workforce Research & Policy,
Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Residency



Need to develop NC training tracks: Retention much higher for physicians completing both UME and GME instate

As of 2012:



**Need to target expansions to
community-based and AHEC
residencies**

Completing an AHEC residency increases in-state retention



AHEC

➤ **50% (n=1,420) of physicians who complete an NC AHEC residency stay in North Carolina to practice**



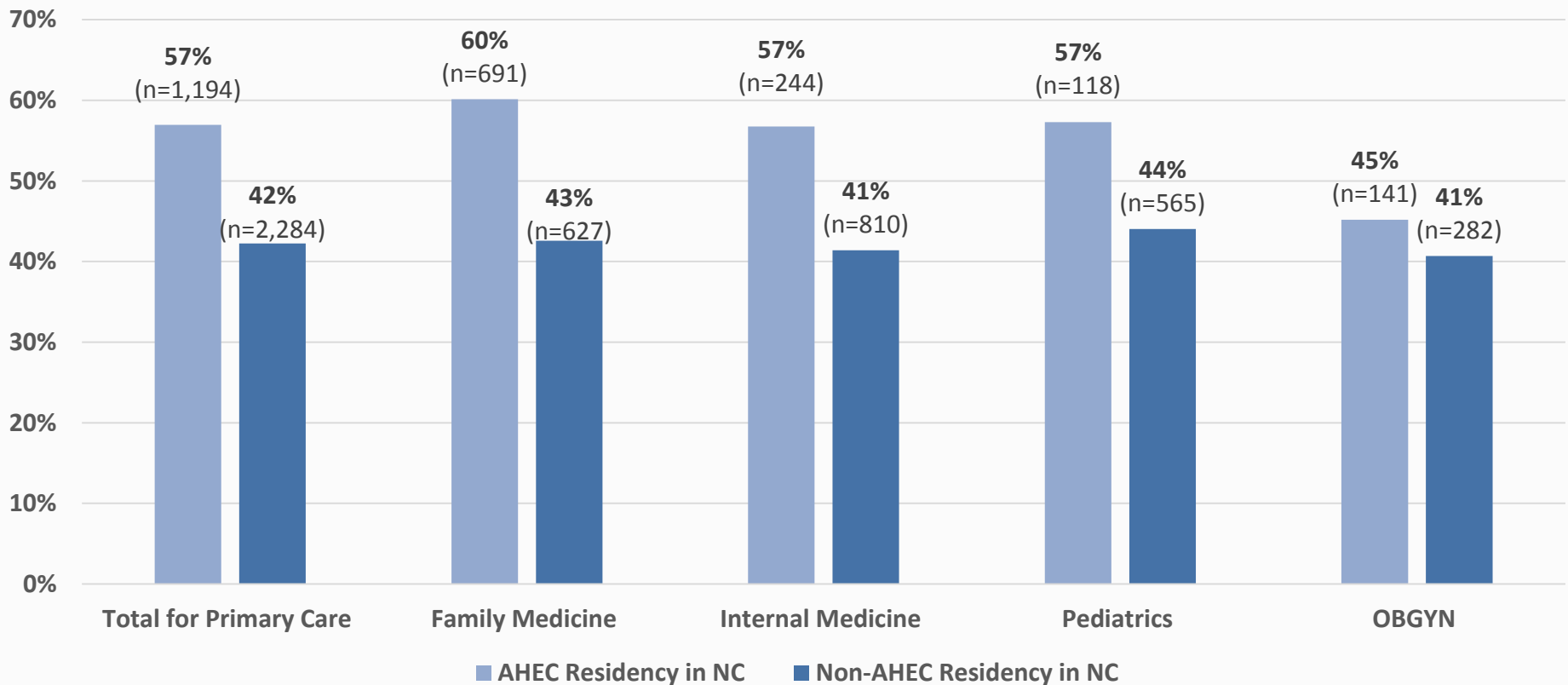
Non-AHEC

compared to

➤ **38% (n=5,879) of physicians who complete a non-AHEC residency stay in North Carolina to practice**

For primary care physicians, in-state retention of AHEC residents is greater than non-AHEC residents

Primary Care Physicians Practicing in NC who Completed an NC Residency, AHEC vs. Non-AHEC Residency, 2013



81 residents in 2012 NC physician workforce trained in community-based residencies

	Not community-based	Community-based	Total
CMC	664	0	664
Cabarrus	0	64	64
Cone	283	0	283
Duke	1,753	0	1,753
ECU	714	0	714
Hendersonville	0	13	13
Lejeune	4	0	4
MAHEC	166	0	166
Monroe	0	4	4
SEAHEC	158	0	158
SR-AHEC	68	0	68
UNC	1,756	0	1,756
Wake	1,491	0	1,491
Womack	18	0	18
Total	7,075	81	7,156

Note: 1 resident missing data.

Residents trained in community-based settings more likely to practice in rural counties

Urban versus rural location for community-based vs. non-community-based residents

	<i>Number</i>		
	Urban	Rural	Total
Not Community - Based	6,363	711	7,074
Community -Based	68	14	82
Total	6,431	725	7,156

	<i>Percent</i>		
	Urban	Rural	Total
Not Community - Based	90%	10%	100%
Community -Based	83%	17%	100%
Total	90%	10%	100%

Note: 2 residents missing information. Pearson $\chi^2(1)=4.3902$, $Pf=0.036$

Medical School Plans in Charlotte: Next Steps

Task Force with broad representation formed to study educational, financial and economic development issues associated with new med school


- Contracting with Sheps to do analysis of supply, demand, and distribution of physicians in Charlotte region
- Report will focus on primary care, general surgery, psychiatry and geriatrics
- Sheps will also develop physician projection model to simulate the impact of a new medical school on the supply of physicians in the Charlotte region, based on a set of assumptions
- Study will also look at potential growth for residency training

Conclusions:

Medical School Plans in Charlotte

- Sheps' report on medical education in NC has had major impact on thinking regarding a new med school in Charlotte
- Having timely and accurate data forced the city leaders to step back and take more comprehensive look at the costs and benefits of new med school
- Sheps researchers now fully engaged in the policy discussions regarding potential school and will be able to continue to inform the policy discussions going forward

Questions?



The State of the Physician Workforce in North Carolina: Overall Physician Supply Will Likely Be Sufficient but Is Maldistributed by Specialty and Geography

Erin P. Fraher, PhD, MPP and Julie C. Spero, MSPH *August 2015*

Executive Summary

The number of physicians in North Carolina currently meets the needs of the population, but there are problems with geographic and specialty distribution. The match of supply to demand is likely to remain in rough balance due to the rapid increase in the number of new medical schools in the nation, the expansion of medical school classes in North Carolina, and a similar, but smaller increase in the number of post-graduate residency programs in the US and NC. There has been a very rapid increase in the number of physician assistants (PAs) and nurse practitioners (NPs) actively practicing in the State.

The most pressing physician workforce issue facing NC is not a shortage of physicians, but rather the maldistribution of the workforce by geography and specialty. While increasing medical school enrollments is often cited as a way to address physician workforce needs, most medical students do not choose to practice

in the places and specialties facing the most critical workforce shortages.

Increasing medical school enrollments alone is unlikely to address the state's future health care needs because most medical students do not choose to practice in the communities and specialties facing the most critical workforce shortages. Instead, policy interventions need to focus on increasing support for, and targeting existing state funds toward community-based settings, shortage specialties, and underserved communities. Developing tracks that encourage NC medical students to complete a residency in NC will greatly increase retention and the return on investment. In addition, new care delivery and payment models that encourage team-based models of care rely on practitioners from multiple disciplines to best serve patient health care needs.

Program on Health Workforce Research & Policy
The Cecil G. Sheps Center for Health Services Research
The University of North Carolina at Chapel Hill
Campus Box 7590 • 725 Martin Luther King Jr. Blvd. • Chapel Hill, NC 27599-7590
<http://www.healthworkforce.unc.edu> • ncrhp@unc.edu • (919) 966-7112

Tom Bacon
tom_bacon@med.unc.edu

Program on Health Workforce
Research & Policy
<http://www.healthworkforce.unc.edu>



UNC
THE CECIL G. SHEPS CENTER
FOR HEALTH SERVICES RESEARCH

August 2015