

Health Workforce Trends and Challenges in the Carolinas and the United States

Julie Spero, MSPH & Erin Fraher, PhD MPP

Program on Health Workforce Research & Policy
Cecil G. Sheps Center for Health Services Research, UNC-CH

**Rural Hospital Conference of the Carolinas,
November 9, 2017**



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FOR HEALTH SERVICES RESEARCH

Who we are and what we do



North Carolina Health Professions Data System (HPDS)

Mission: to provide timely, objective data and analysis to inform health workforce policy in North Carolina and the United States

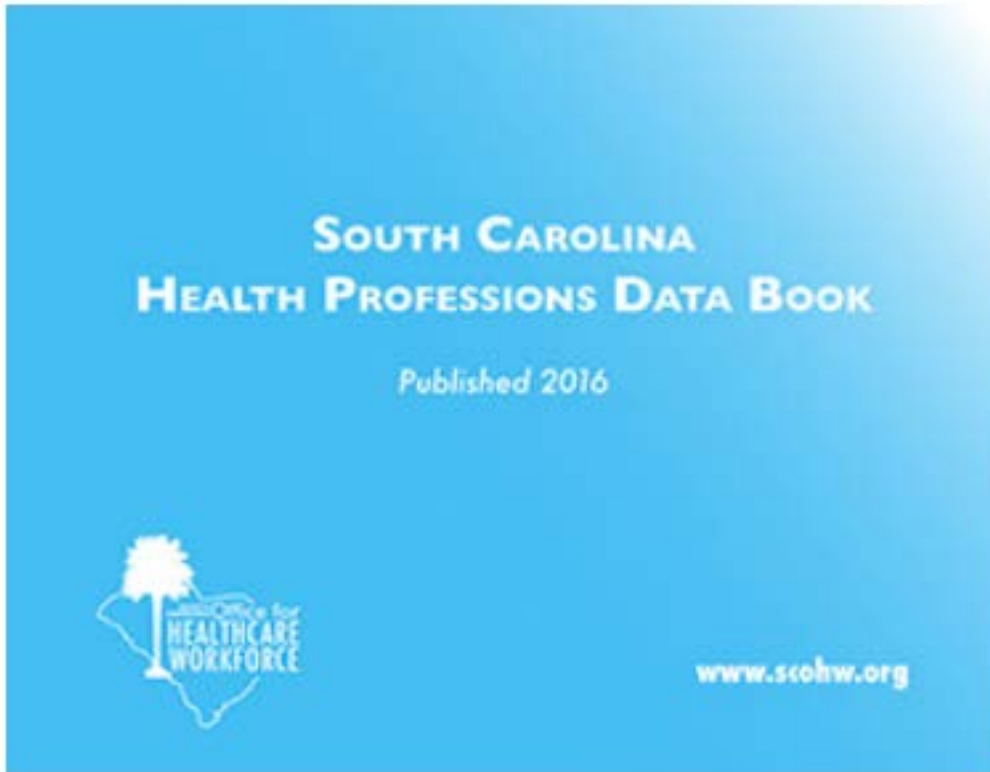
- Based at Cecil G. Sheps Center for Health Services Research at UNC-CH, but mission is statewide
- A collaboration between the Sheps Center, NC AHEC and the health professions licensing boards
- System is independent of government and health care professionals

North Carolina Health Professions Data System (HPDS)

- 37 years of continuous, complete licensure (*not survey*) data on 19 health professions from 11 boards
- Data are provided *voluntarily* by the boards—there is no legislation that requires this, there is no appropriation
- Data housed at Sheps but remain property of licensing board, permission sought for each “new” use

**System would not exist without data
and support of licensure boards**

South Carolina has a Health Professions Data System too



This Presentation:

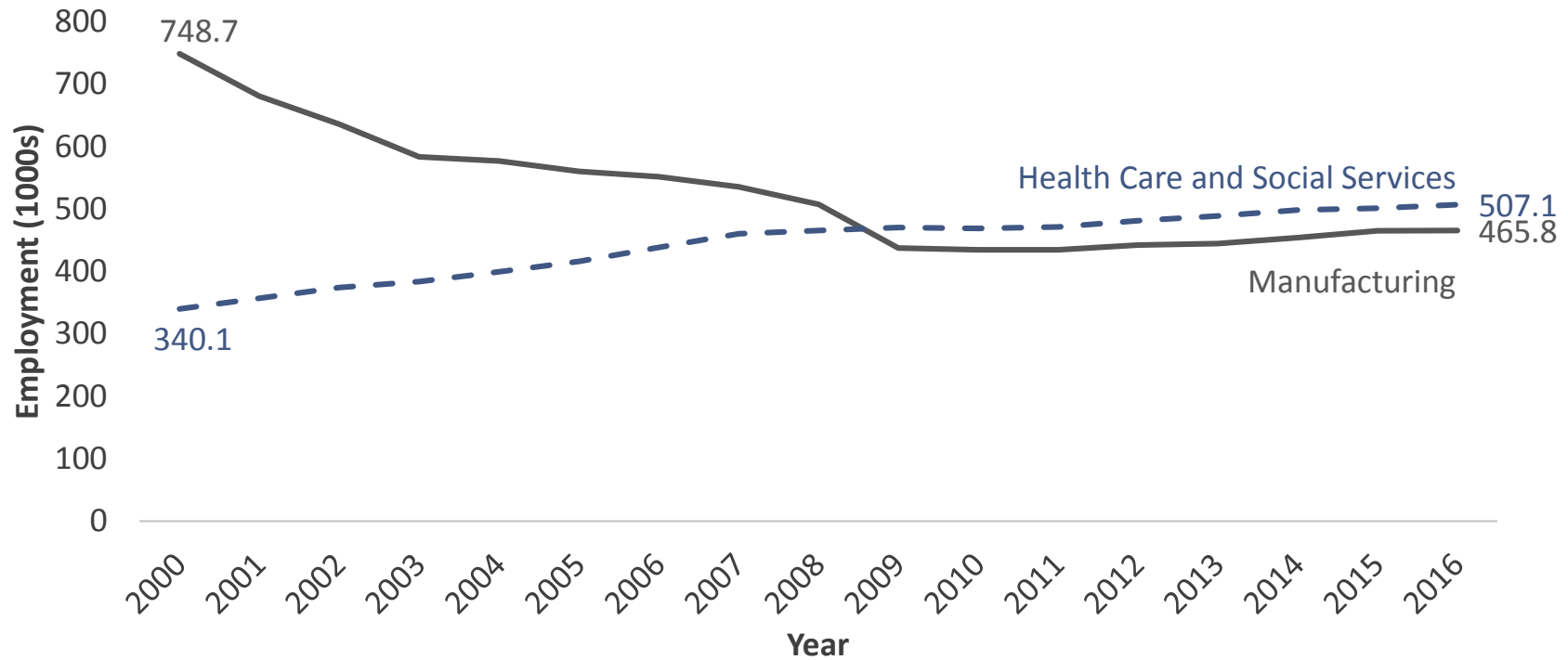
- Current workforce trends in the US & Carolinas
- Nurse Education
- Obstetric care in rural NC
- Medical School and Residency
- Big picture health system change:
What does it mean for the workforce?

Current Health Workforce Trends



In 2009, health care jobs surpassed manufacturing jobs

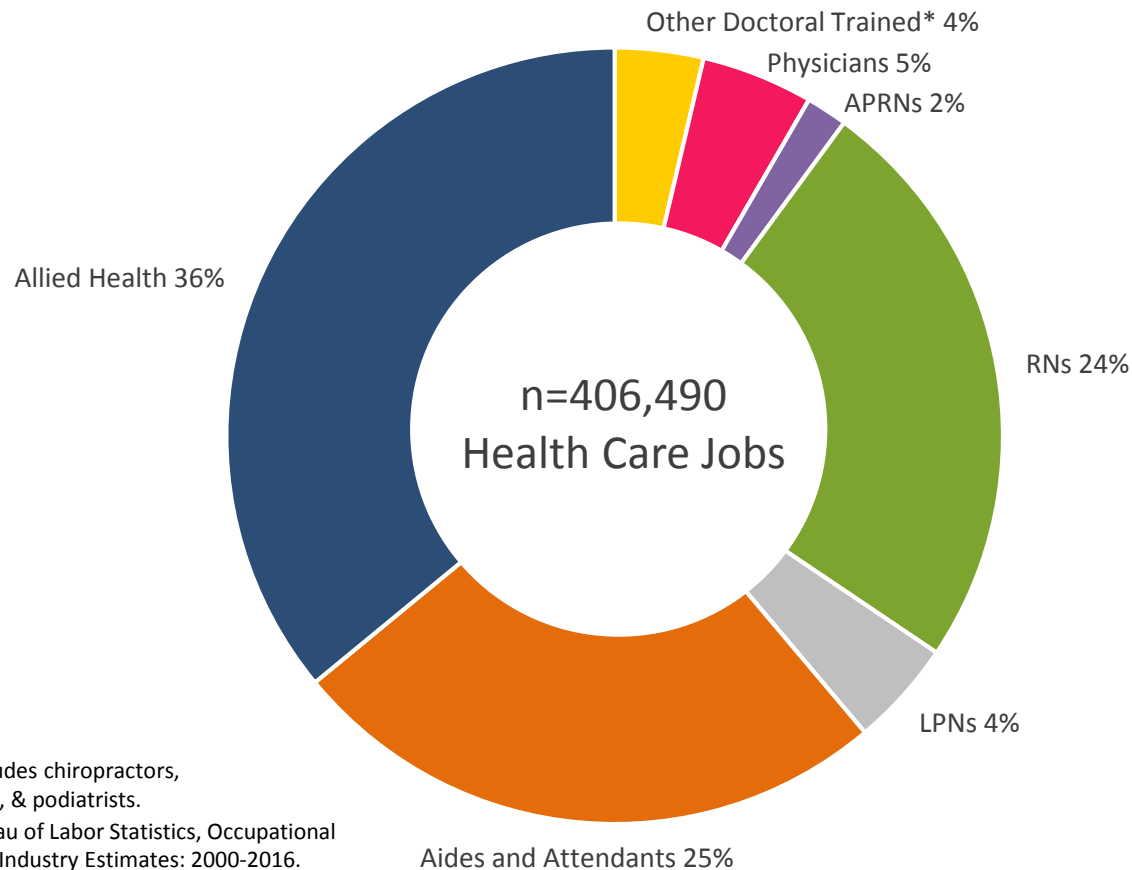
Total Employment in Manufacturing and Health Care and Social Assistance Employment in NC, 2000-2016



Source: North Carolina Health Professions Data System with data derived from the North Carolina Department of Commerce Labor and Economic Analysis Division, Current Employment Statistics (CES), 2000-2016. Data include unadjusted employment as of October of the given year. Downloaded on April 12, 2017 from: <http://d4.nccommerce.com/CesSelection.aspx>.
Produced By: Program on Health Workforce Research & Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Two of every three health care jobs is in allied health or nursing

Health Care Jobs in North Carolina, 2016



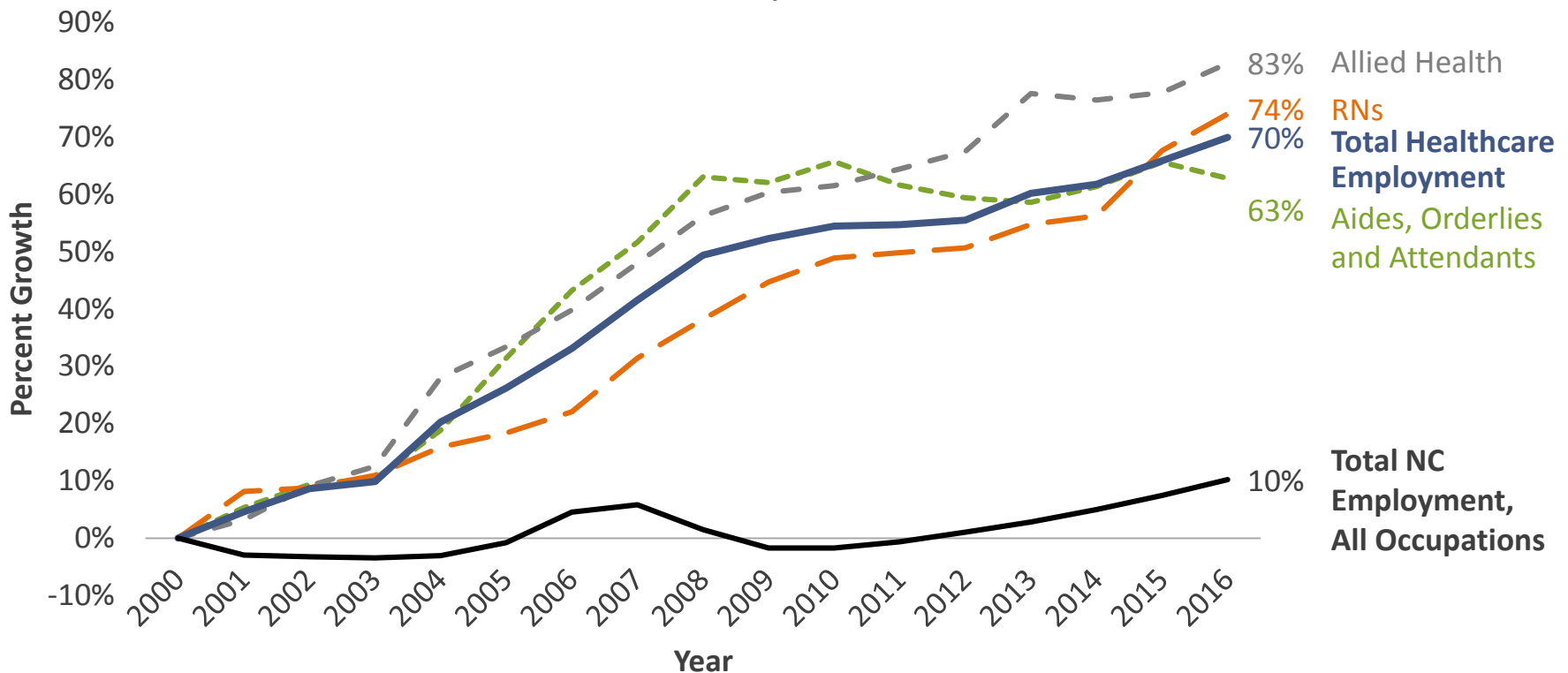
*Note: Other Doctoral Trained includes chiropractors, dentists, optometrists, pharmacists, & podiatrists.

Source: Data derived from US Bureau of Labor Statistics, Occupational Employment Statistics, State Cross-Industry Estimates: 2000-2016.

URL: http://www.bls.gov/oes/oes_dl.html. Accessed 12 April 2017

Nursing and allied health jobs have grown rapidly

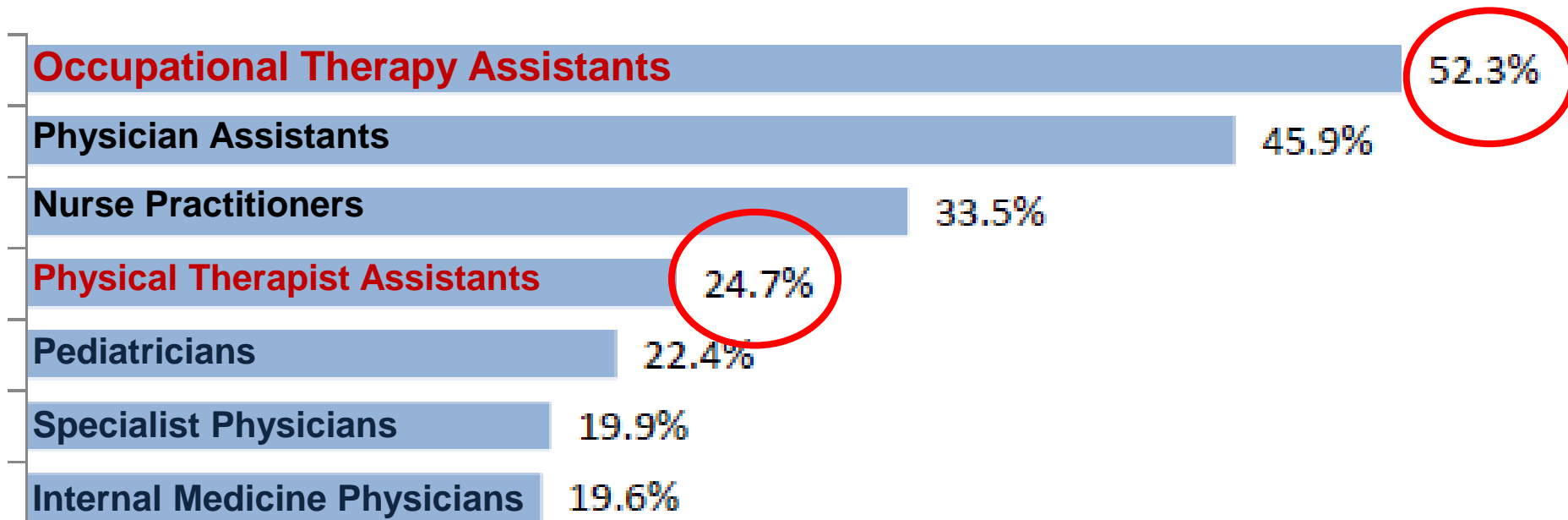
Percent Growth Since 2000, Health Care Fields vs. All Occupations, North Carolina, 2000-2016



Source: North Carolina Health Professions Data System with Data derived from US Bureau of Labor Statistics, Occupational Employment Statistics, State Cross-Industry Estimates: 2000-2016. URL: http://www.bls.gov/oes/oes_dl.html. Accessed 12 April 2017.
Produced By: Program on Health Workforce Research & Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

South Carolina's OTA workforce grew 52% in 5 years

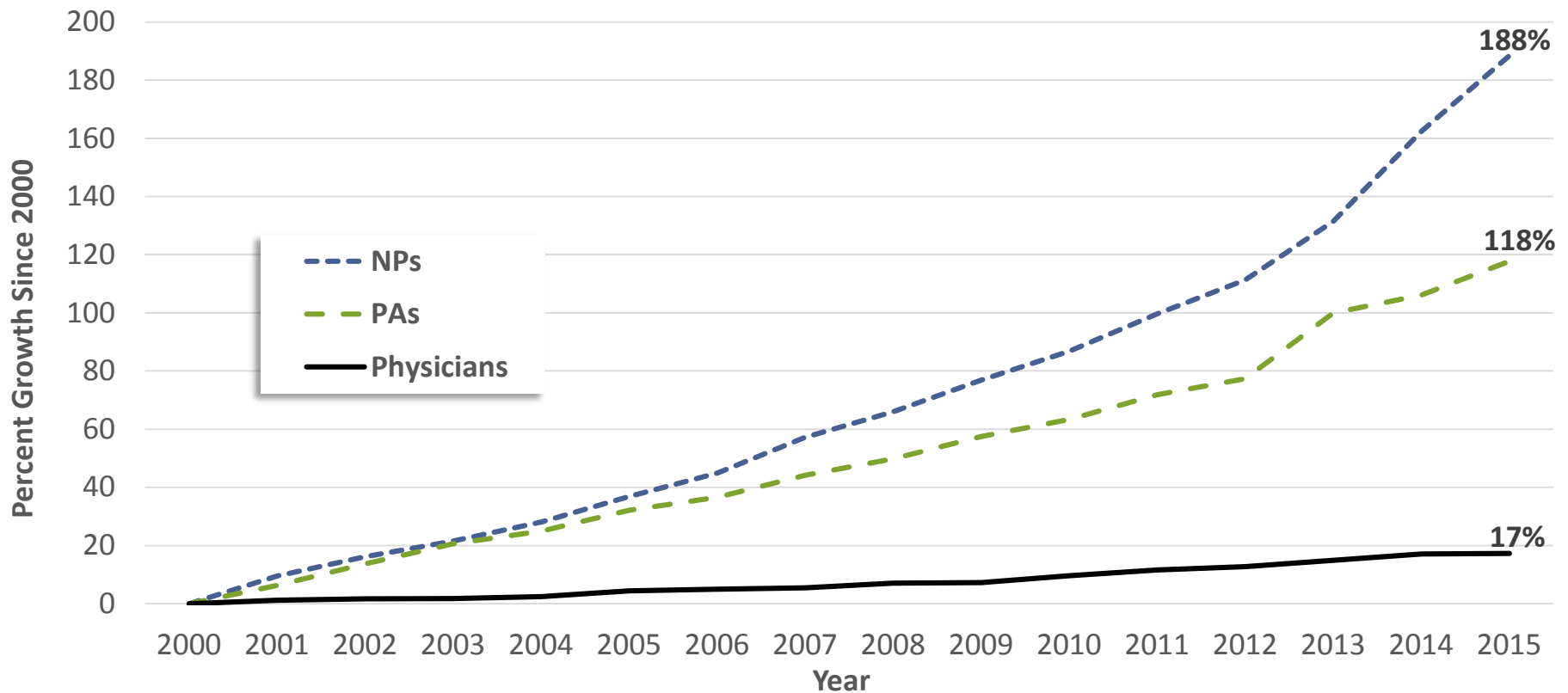
Percentage change in the size of selected occupations in the healthcare workforce in South Carolina 2010 - 2015



South Carolina Office for Healthcare Workforce. (2016). South Carolina Health Professions Data Book. Charleston: South Carolina Area Health Education Consortium. Retrieved 9 Oct 2017 from: <https://www.scohw.org/projects/databook/>

Over the past 15 years, NC has seen fast growth in the NP and PA workforce

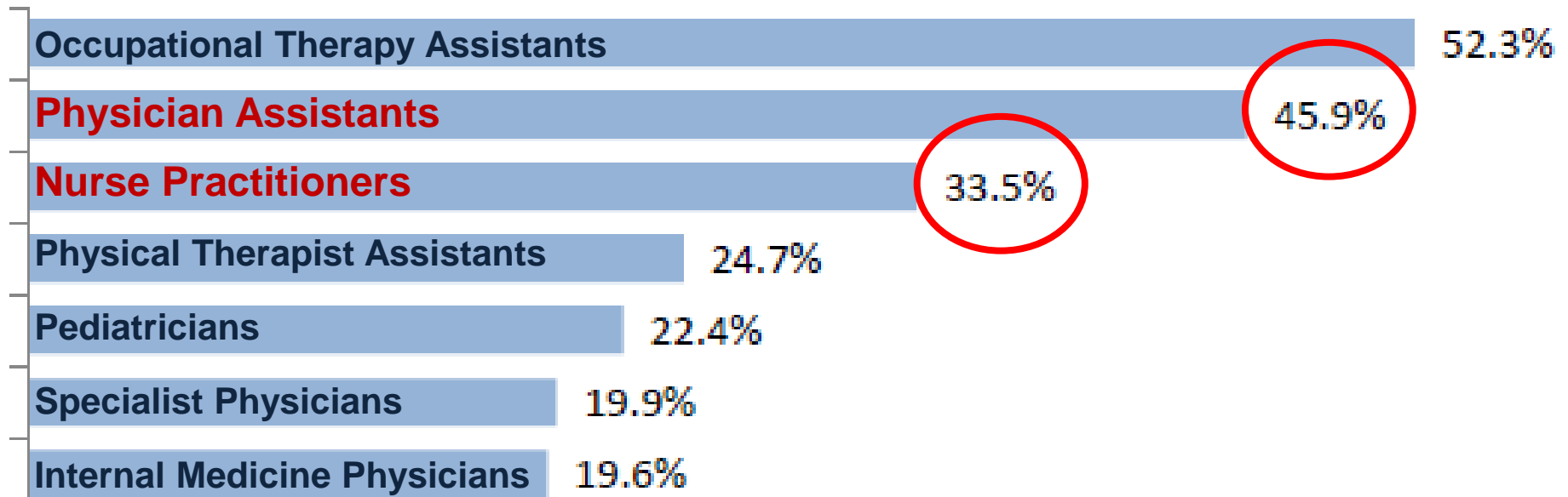
**Cumulative rate of growth per 10,000 population since 2000:
Physicians, Nurse Practitioners and Physician Assistants in North Carolina**



Sources: North Carolina Health Professions Data System with data derived from the North Carolina Medical Board and North Carolina Board of Nursing, 2000 to 2015. Figures include all active, in-state, non-federal, non-resident-in-training physicians, and all active, in-state PAs and NPs licensed as of October 31 of the respective year. Produced by: Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

NP and PA workforce is growing quickly in SC, too

Percentage change in the size of selected occupations in the healthcare workforce in South Carolina 2010 - 2015



South Carolina Office for Healthcare Workforce. (2016). South Carolina Health Professions Data Book. Charleston: South Carolina Area Health Education Consortium. Retrieved 9 Oct 2017 from: <https://www.scohw.org/projects/databook/>

**Increased workforce supply...
but what's this I hear about
“physician shortage?”**



News of physician shortages grabs headlines

The New York Times

Tuesday, April 22, 2014 | Today's Paper | Personalize Your Weather | f | t

Doctor shortage, increased demand could crash health care system

By Jen Christensen, CNN
updated 5:37 PM EDT, Wed October 2, 2013



Some doctors worry patients who can't get in to see primary care physicians will clog up hospital emergency rooms.

Success of health reform hinges on hiring 30,000 primary care doctors by 2015



The Washington Post

...in the U.S., Put More On Exhausted Physicians



DOCTOR

Lots

By DANI

Gasp!



THE AMERICAN DOCTOR SHORTAGE

IT'S COMING. IT MATTERS. IT'S TIME TO ACT.

SEE THE FUTURE



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Experts disagree about whether the United States will face a shortage

- AAMC projects shortfalls of between 12,500 and 31,000 primary care physicians and 46,100 and 90,400 total physicians by 2025¹
- Federal government (HRSA) forecasts shortage of 6,400 primary care physicians in 2020² with increased use of NPs and PAs
- We released model in July 2014 that suggests overall supply will be adequate, more pressing issue is maldistribution

<https://www2.shepscenter.unc.edu/workforce>

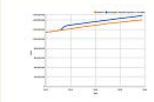
FutureDocs Forecasting Tool

HOME ABOUT THE PROJECT THE MODEL HELP CONTACT



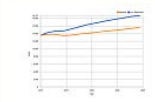
VISUALIZE DATA AT STATE AND SUB-STATE LEVELS

Use the tool to view physician supply, healthcare service use, and shortages/surpluses at the national, state, and sub-state levels.



PROJECT THE EFFECT OF MEDICAID EXPANSION

Use the tool to project how the utilization of health care services will change under different assumptions about Medicaid expansion.



UTILIZATION, SUPPLY, SHORTAGE/SURPLUS TO 2030

Use the tool to examine how physician supply, healthcare service use, and shortages/surpluses will change between 2011-2030 under different scenarios.

BUILD YOUR MODEL

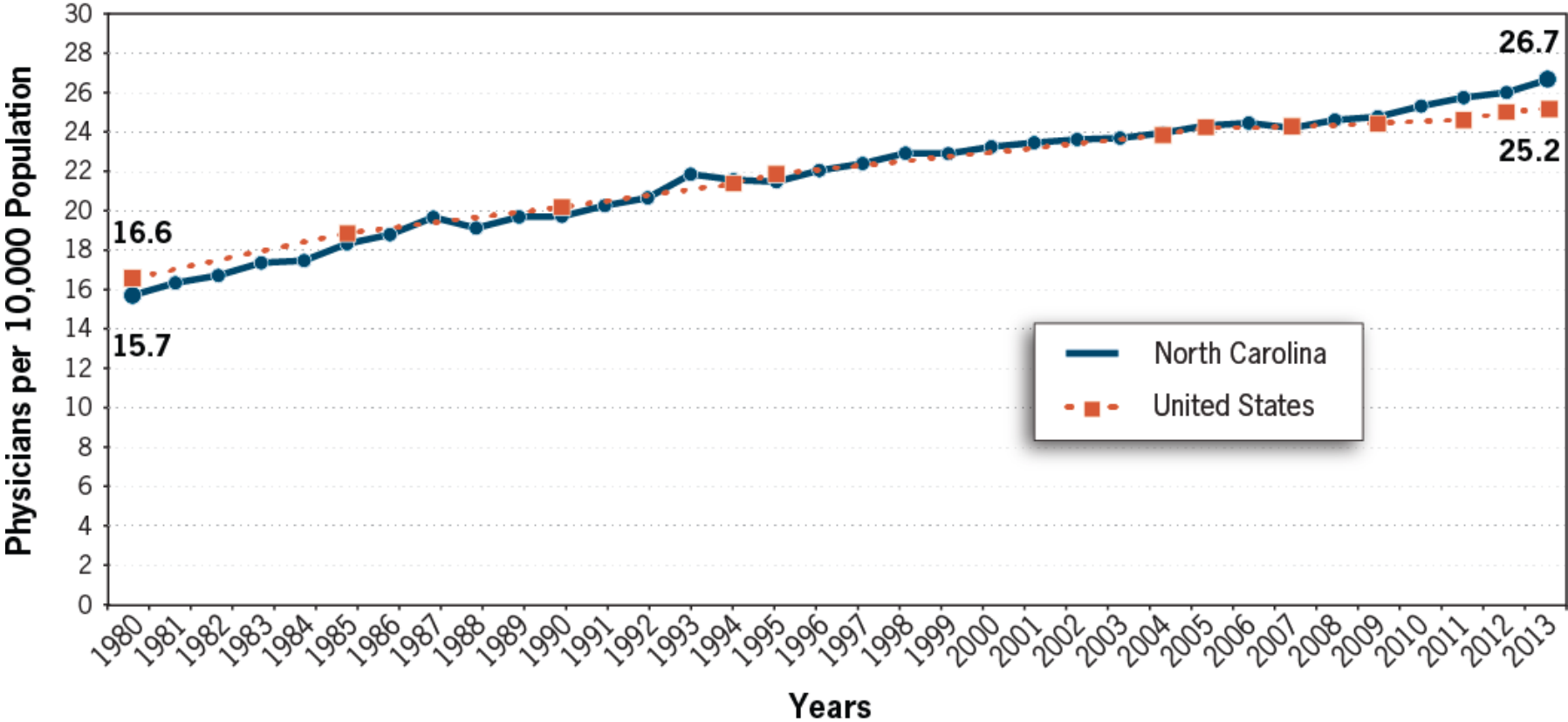
¹ AAMC, https://www.aamc.org/download/426242/data/ihsreportdownload.pdf?cm_mmc=AAMC_-_ScientificAffairs_-_PDF_-_ihsreport

² HRSA, <http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/primarycare/projectingprimarycare.pdf>



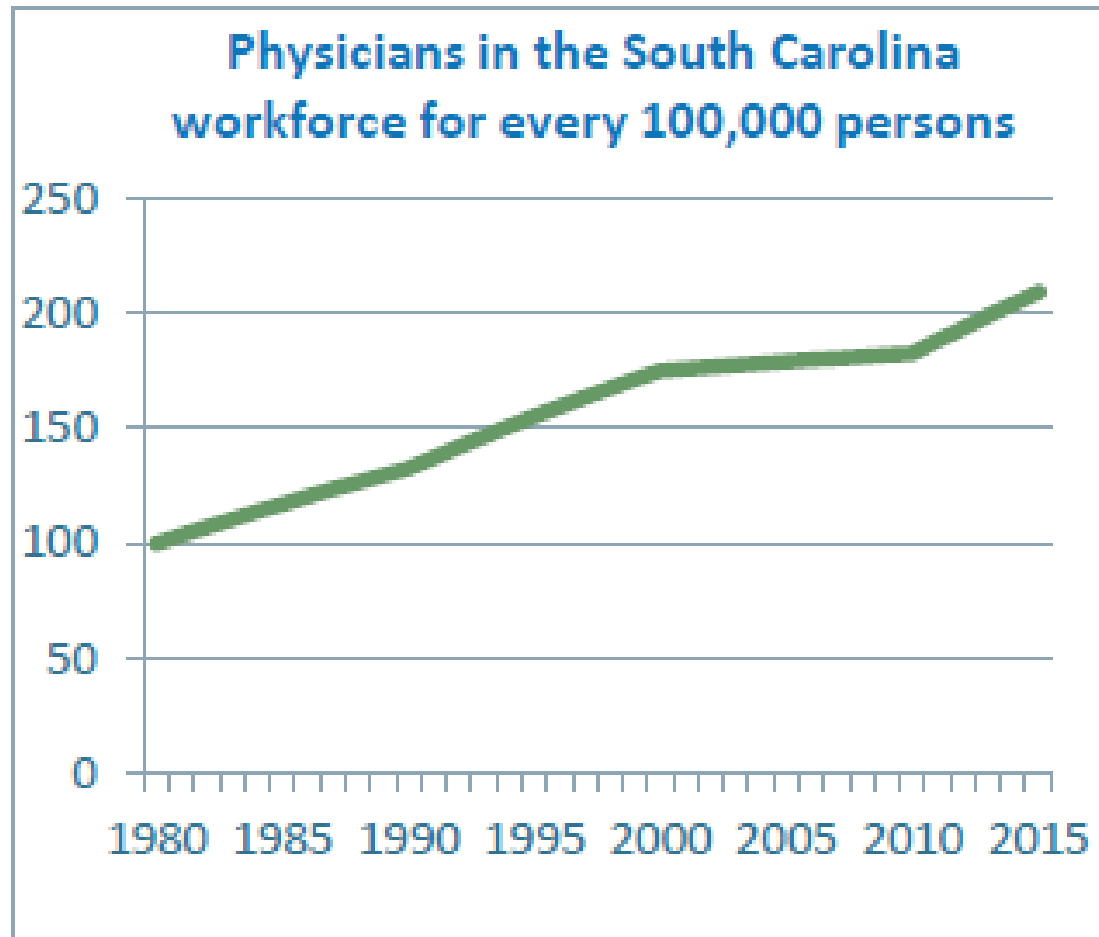
Fears of physician shortages create headlines but we see steady increase in supply in NC...

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 imputed.

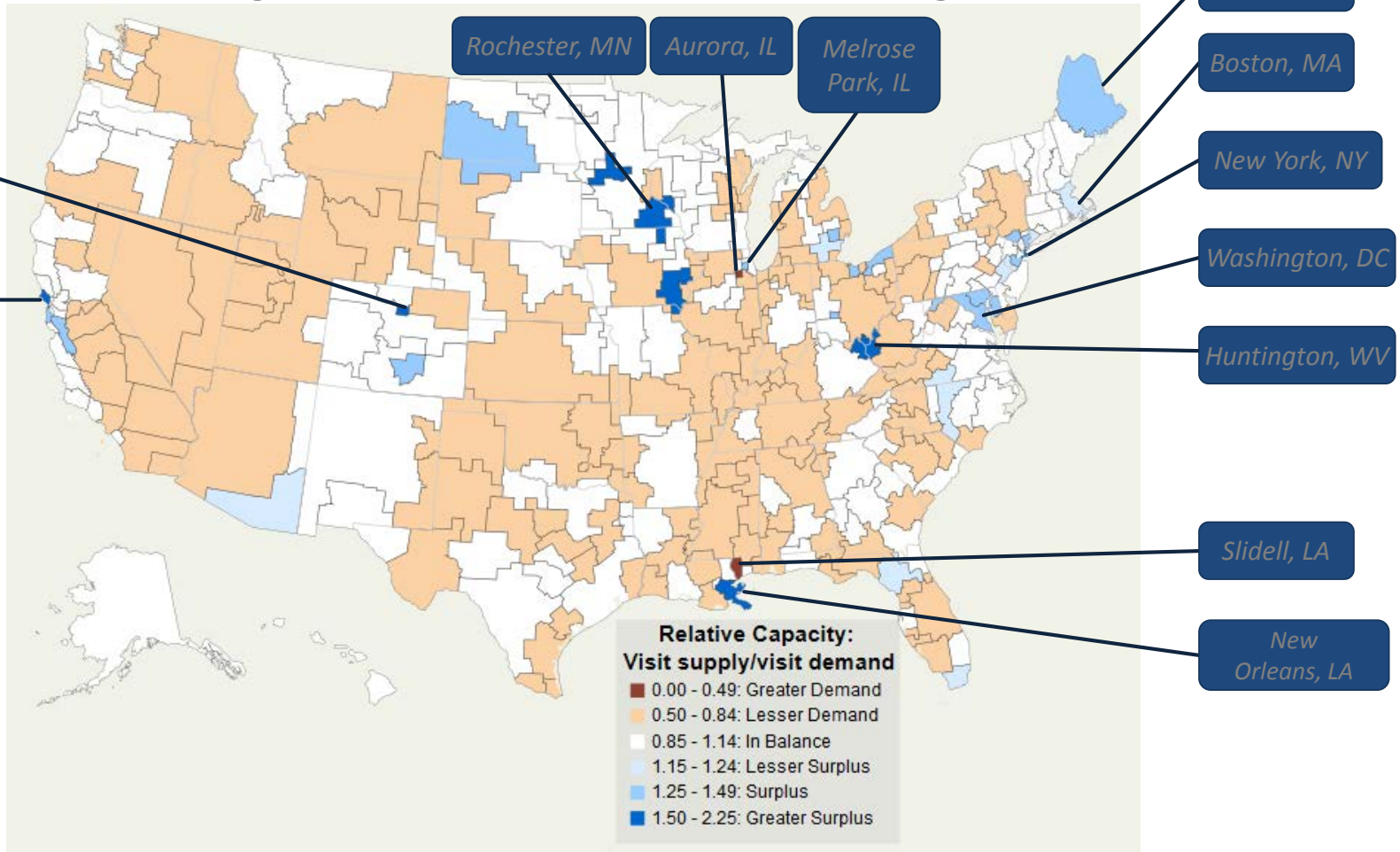
...and in South Carolina



South Carolina Office for Healthcare Workforce. (May 2017). *Changes in the Physician Workforce in South Carolina: 2009 - 2015*. Charleston: South Carolina Area Health Education Consortium. Retrieved from <https://www.officeforhealthcareworkforce.org/reports/107>

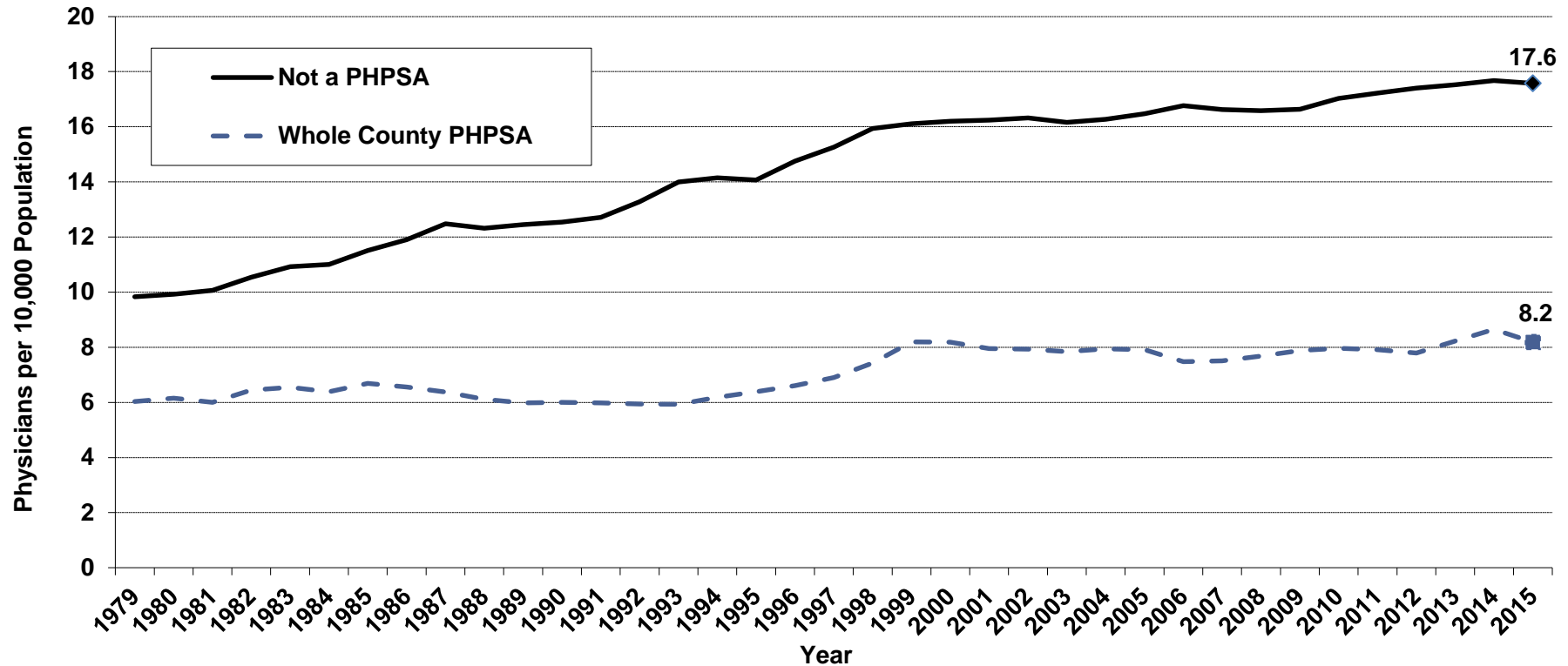
Our FutureDocs model highlights that we are a nation of “haves” and “have-nots”

Shortage/Surplus for All Visits, All Settings, 2014



The real issue is maldistribution

Physicians per 10,000 population by Persistent Health Professional Shortage Area (PHPSA) Status, North Carolina, 1980 - 2015



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. Persistent HPSAs are those designated as HPSAs by HRSA in the Area Health Resource File using most recent 7 HPSA designations (2008-2013, 2015). **Sources:** North Carolina Health Professions Data System, 1980 to 2015; 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.

SC is losing primary care physicians in rural areas

SC Primary Care Physician Workforce per 100,000 population, 2009 vs. 2015

	Primary Care Physicians per 100,000 Population		Growth %
	2009	2015	
Metropolitan	94.5	103.1	9.1%
Micropolitan	80.1	91.0	13.6%
Non-Metro (Rural)	50.5	46.0	-9.0%

South Carolina Office for Healthcare Workforce. (May 2017). *Changes in the Physician Workforce in South Carolina: 2009 - 2015*. Charleston: South Carolina Area Health Education Consortium. Retrieved from <https://www.officeforhealthcareworkforce.org/reports/107>

The questions we need to be asking:

Where are there shortages?

How does this affect care delivery?

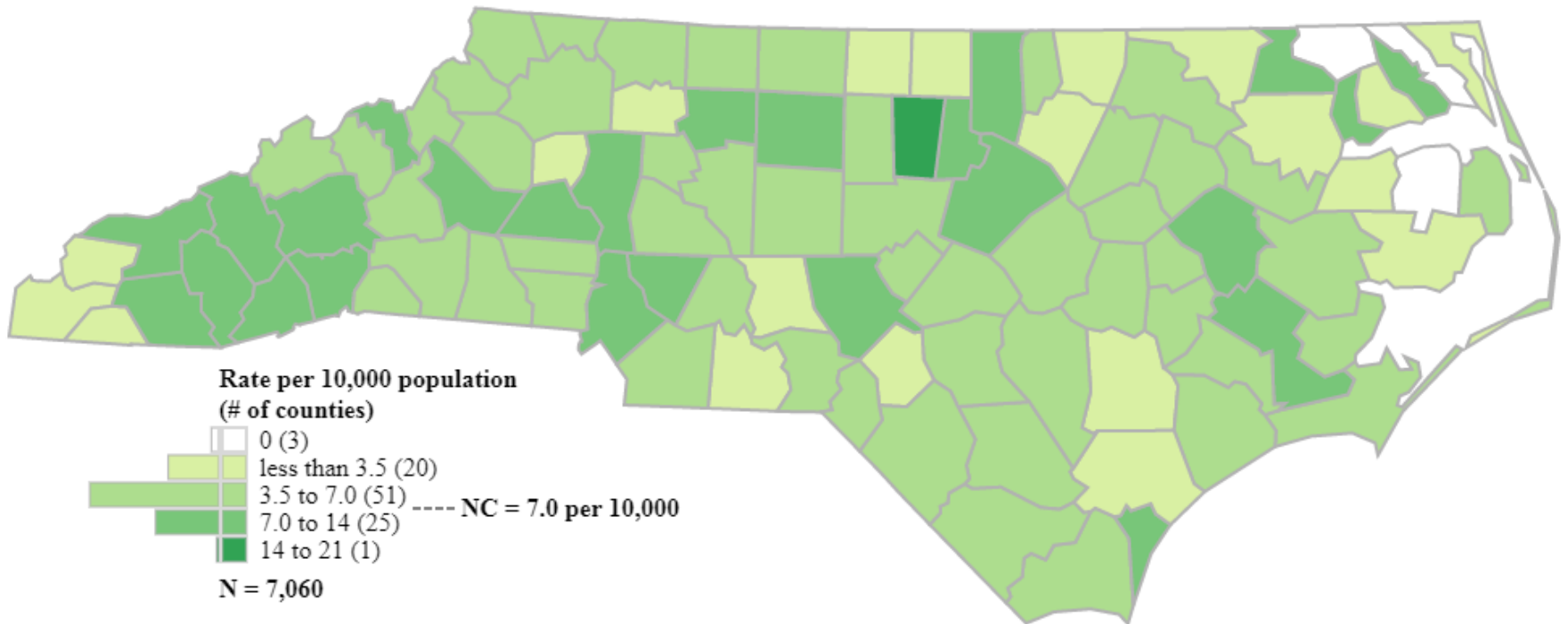


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20 counties have comparatively few primary care physicians; 3 counties have none

Physicians with a Primary Area of Practice of Primary Care per 10,000 Population in 2016



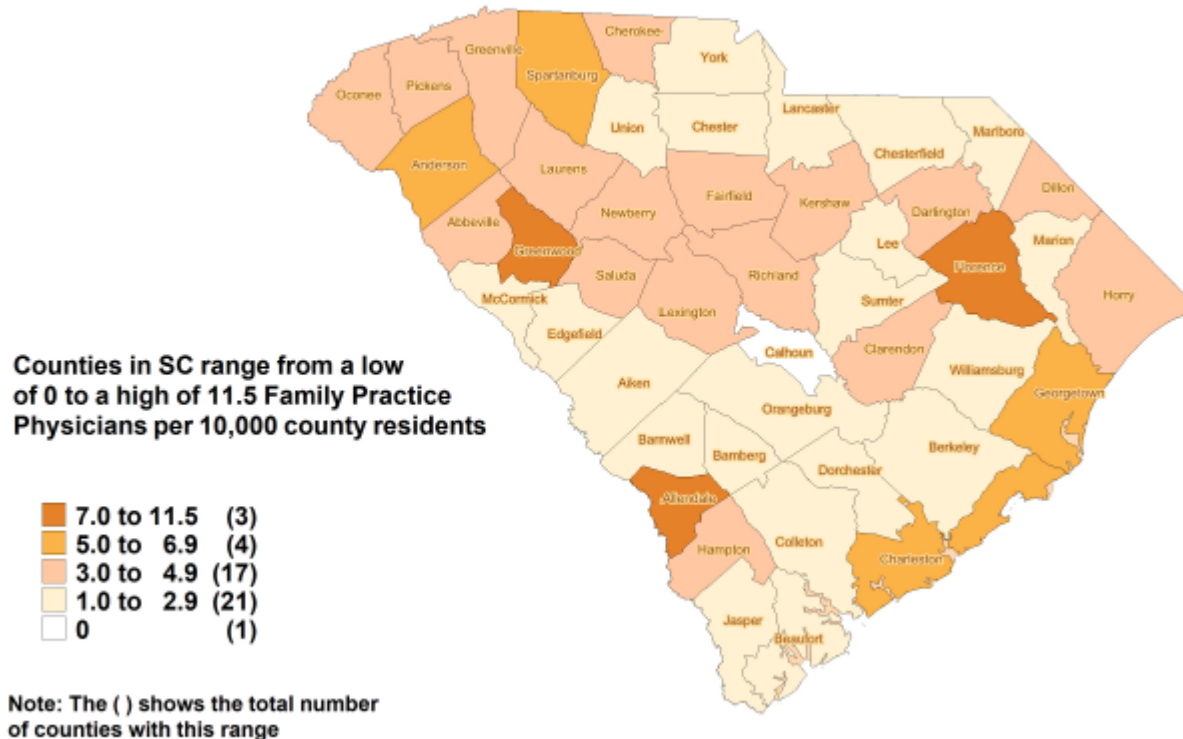
Notes: Data include active, licensed physicians in practice in North Carolina as of October 31 of each year who are not residents-in-training and are not employed by the Federal government. Physician data are derived from the North Carolina Board of Medicine. County estimates are based on primary practice location. Population census data and estimates are downloaded from the North Carolina Office of State Budget and Management via NC LINC and are based on US Census data. Source: North Carolina Health Professions Data System, Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Created October 05, 2017 at <https://hpds.sirsdemo.unc.edu/>.



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Relative to population, physicians aren't evenly distributed

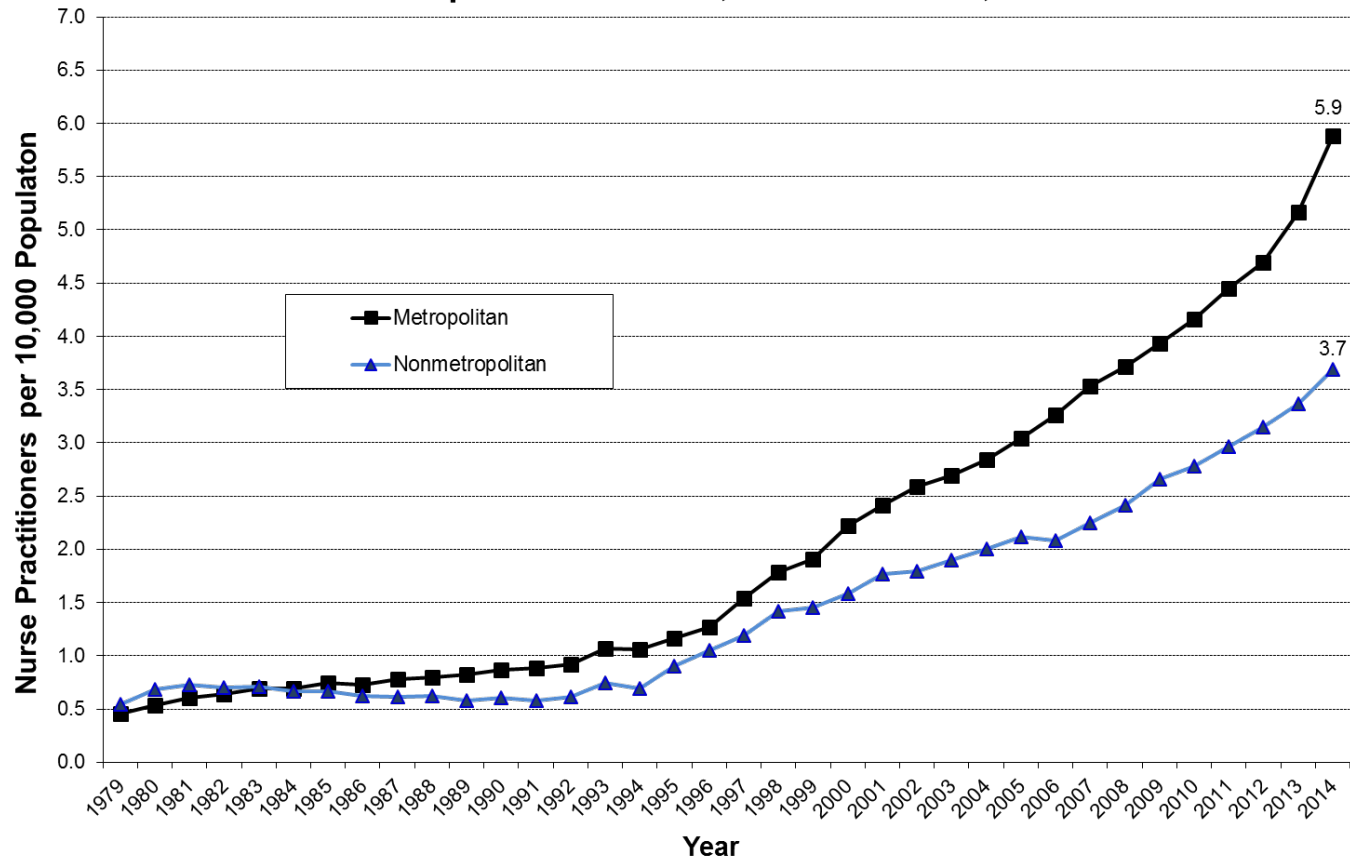
Concentration of Family Practice Physicians Per 10,000 Population



Are NPs and PAs the answer?

Maybe not. There is a widening gap between NP supply in rural and urban counties

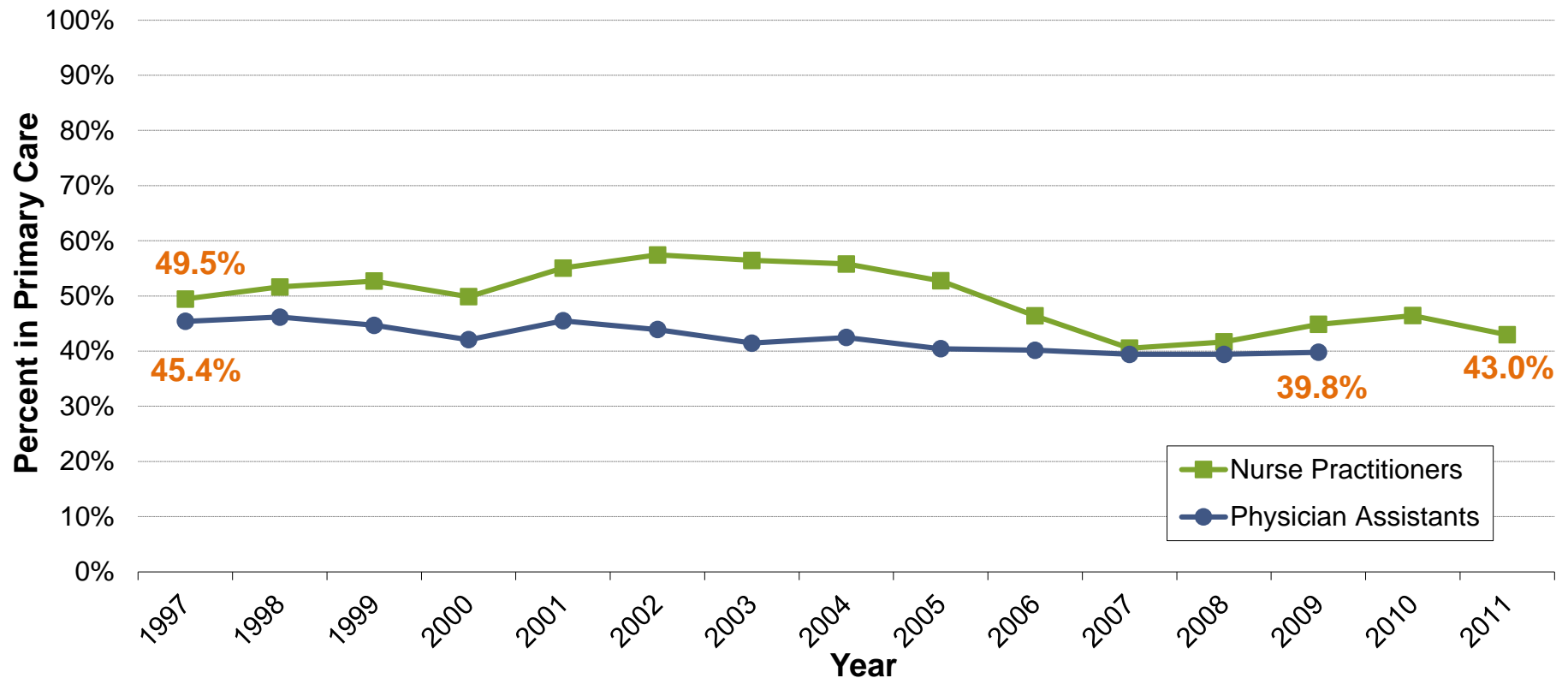
Nurse Practitioners per 10,000 Population by Metropolitan and Nonmetropolitan Counties, North Carolina, 1979 to 2014



Sources: North Carolina Health Professions Data System, 1979 to 2014; North Carolina Office of State Planning. Figures include all licensed, active, in-state nurse practitioners as of October 31 of each year. North Carolina population data are smoothed figures based on 1980, 1990, 2000 and 2010 Censuses. Source for Metropolitan-Nonmetropolitan definition: Office of Management and Budget, 2015.

And like physicians, NPs and PAs are also specializing...

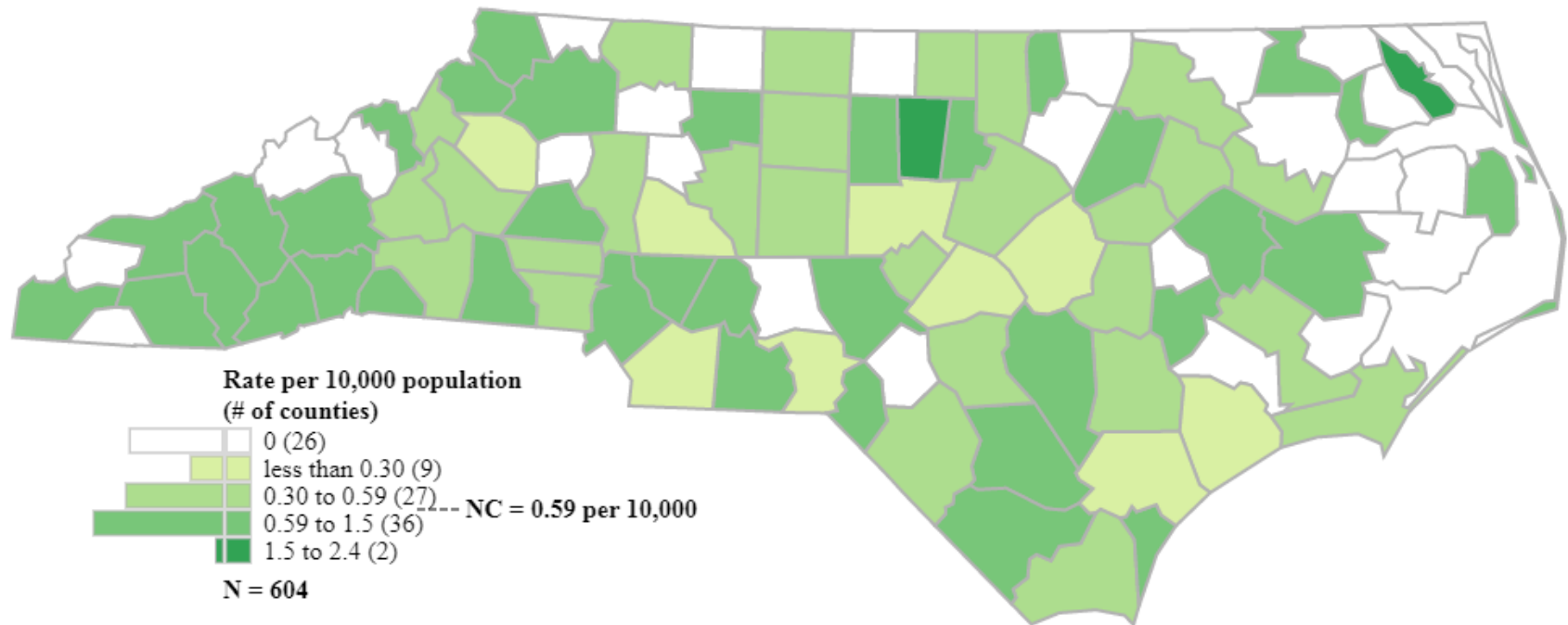
Percent of Nurse Practitioners and Physician Assistants Reporting a Primary Care Specialty, 1997-2011*, North Carolina



Notes: Data for primary specialty include active, in-state NPs indicating a primary specialty of family practice, general practice, internal medicine, Ob/Gyn, or pediatrics, who were licensed in NC as of October 31 of the respective year. Data for physician extender type include active-instate NPs indicating a physician extender type of family nurse practitioner, adult nurse practitioner, ob/gyn nurse or pediatric nurse practitioner who were licensed as of October 31 of the respective year. **Source:** North Carolina Health Professions Data System, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, with data derived from the NC Medical Board. Chart prepared on 12/07/2012.

Lots of discussion about primary care but 26 NC counties have no general surgeon

Physicians with a Primary Area of Practice of General Surgery per 10,000 Population in 2016



Notes: Data include active, licensed physicians in practice in North Carolina as of October 31 of each year who are not residents-in-training and are not employed by the Federal government. Physician data are derived from the North Carolina Board of Medicine. County estimates are based on primary practice location. Population census data and estimates are downloaded from the North Carolina Office of State Budget and Management via NC LINC and are based on US Census data. Source: North Carolina Health Professions Data System, Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. Created October 05, 2017 at <https://hpds.sirsdemo.unc.edu/>.



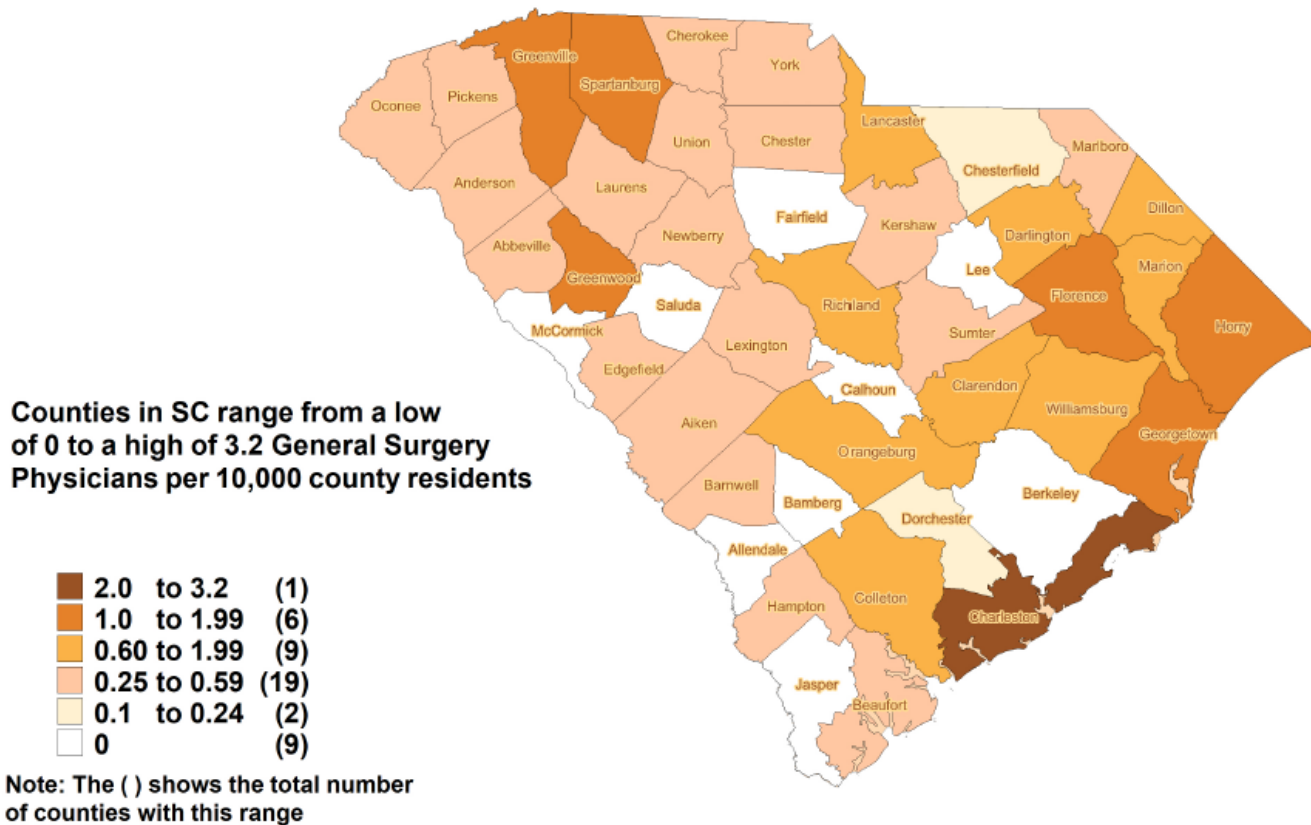
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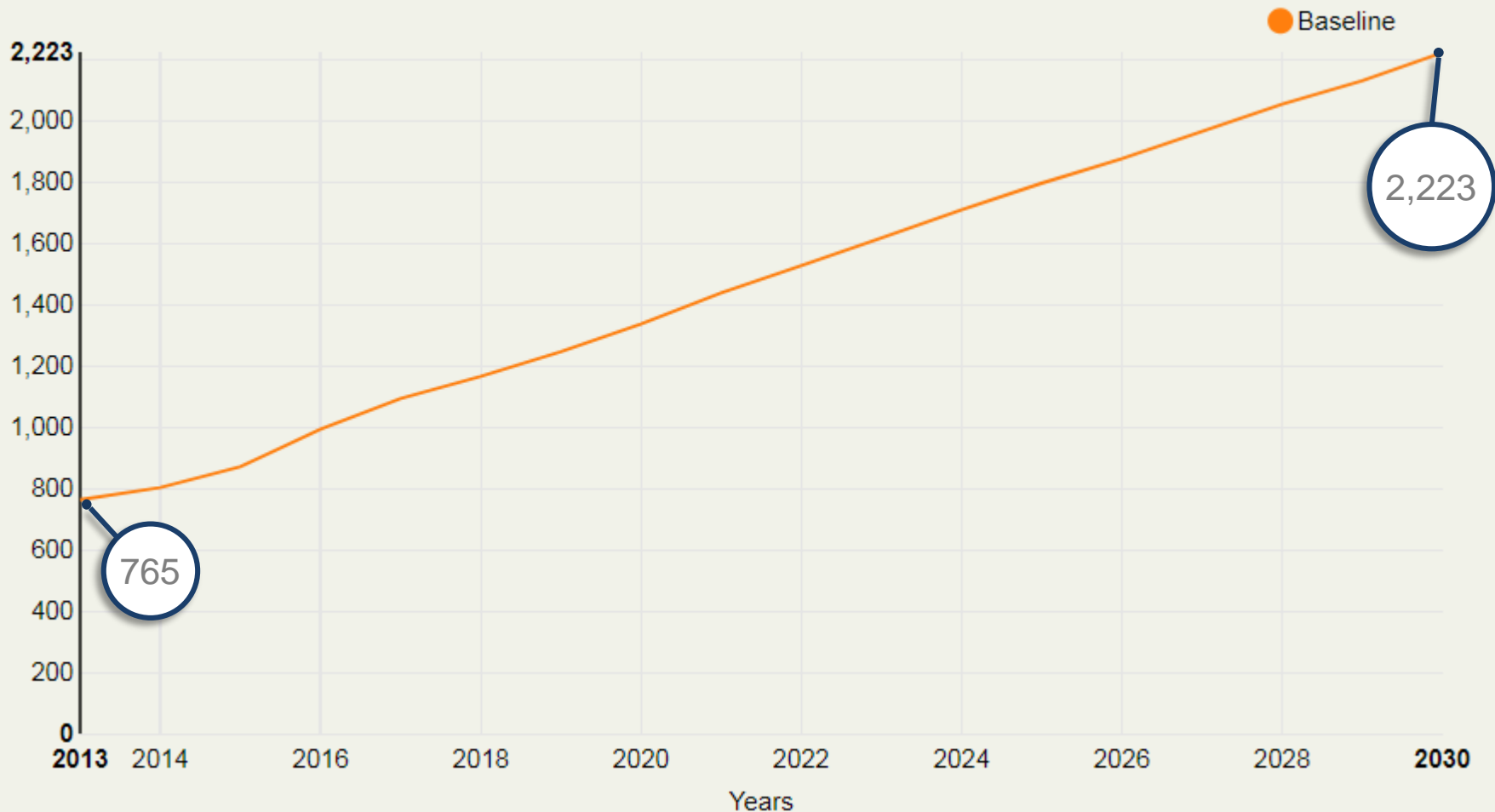
And 9 SC counties have no general surgeon

Concentration of General Surgery Physicians Per 10,000 Population

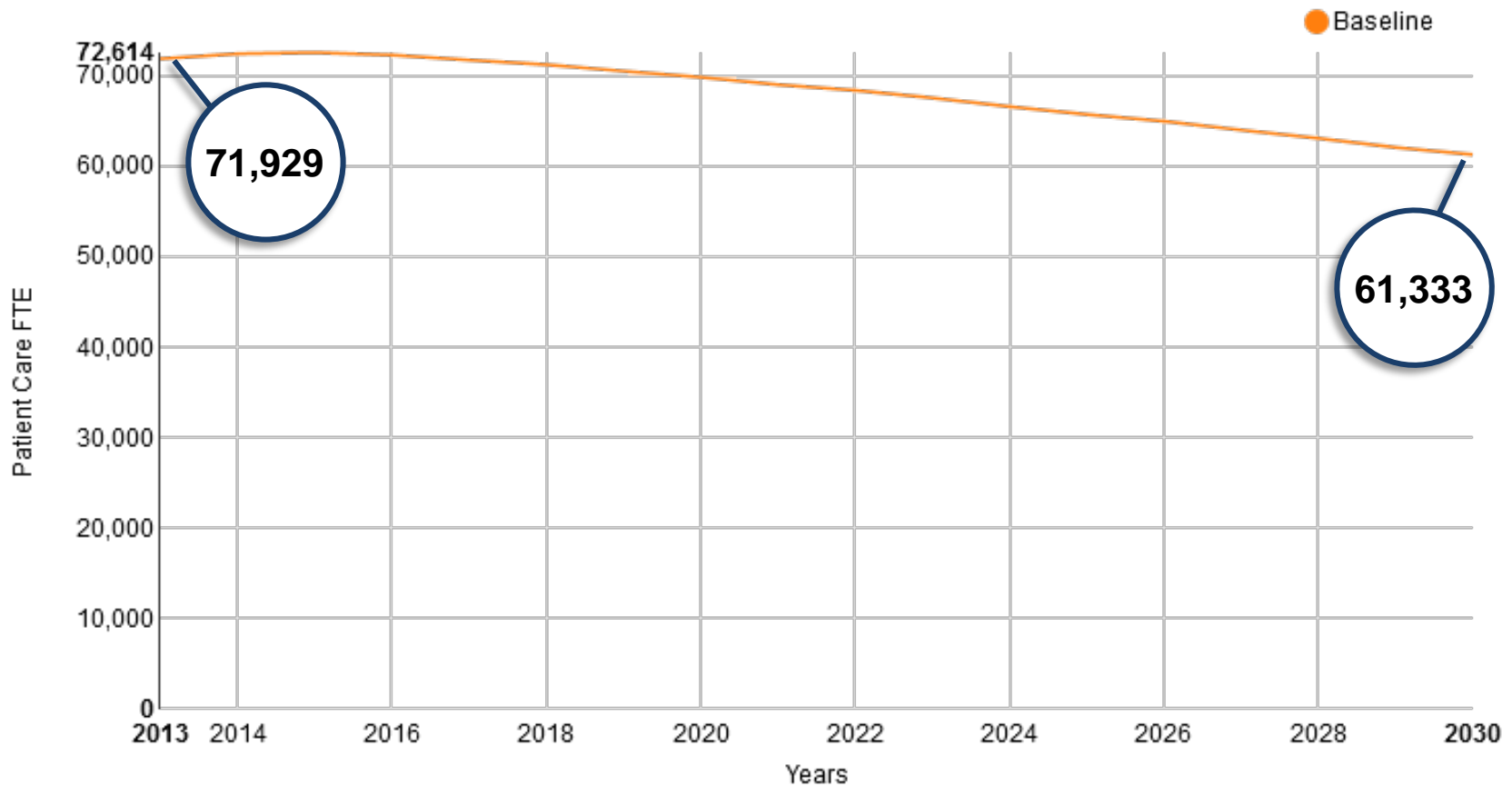


One reason is increasing specialization in surgery: Pediatric surgical FTEs double between 2013 and 2030 in US

Baseline - View: Line Chart; **Geography:** State; **Model:** Physician Supply; **State:** All States; **Unit of Measure:** Patient Care FTE; **Specialties:** Pediatric Surgical Specialties



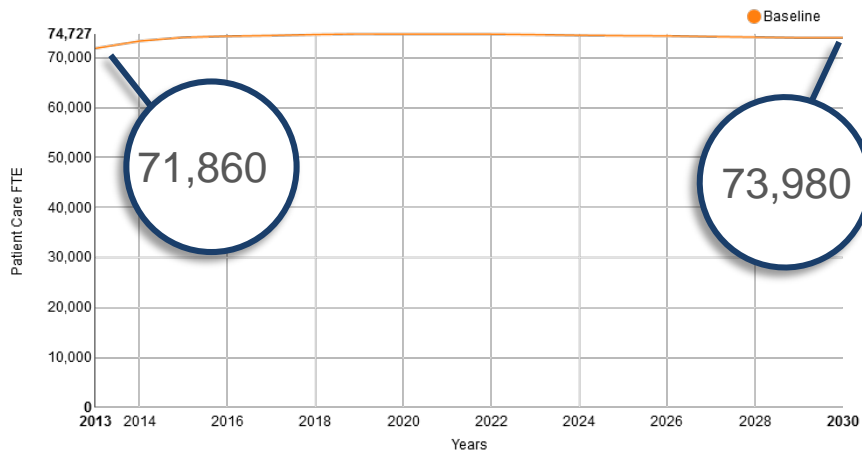
Speaking of specialization, general internal medicine will experience a 15% decline



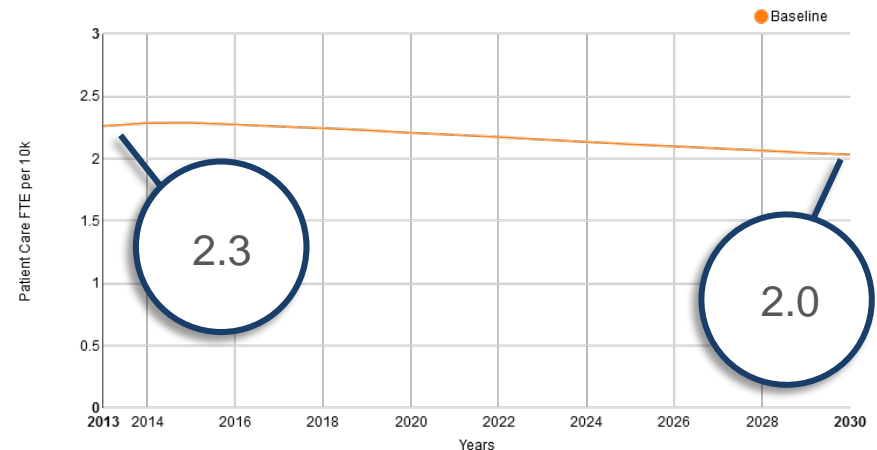
Family Medicine FTEs forecast to be steady but per capita supply will decline

Family Medicine

Physician FTEs,
2013-2030

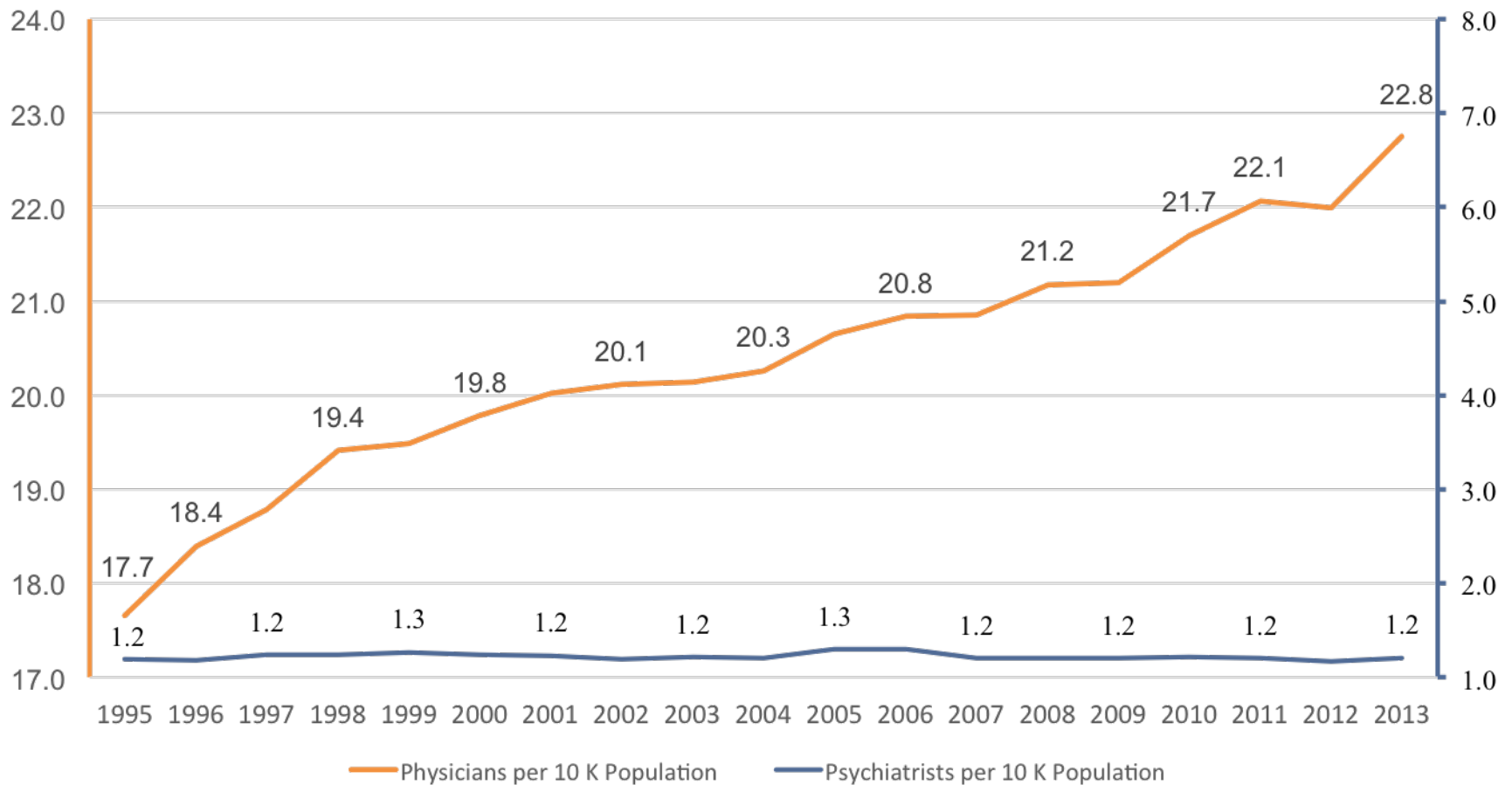


Physician FTEs per 10,000
Population, 2013-2030



Why doesn't anyone want to become a psychiatrist?

Physicians and Psychiatrists per 10,000 Population, North Carolina, 1995-2013



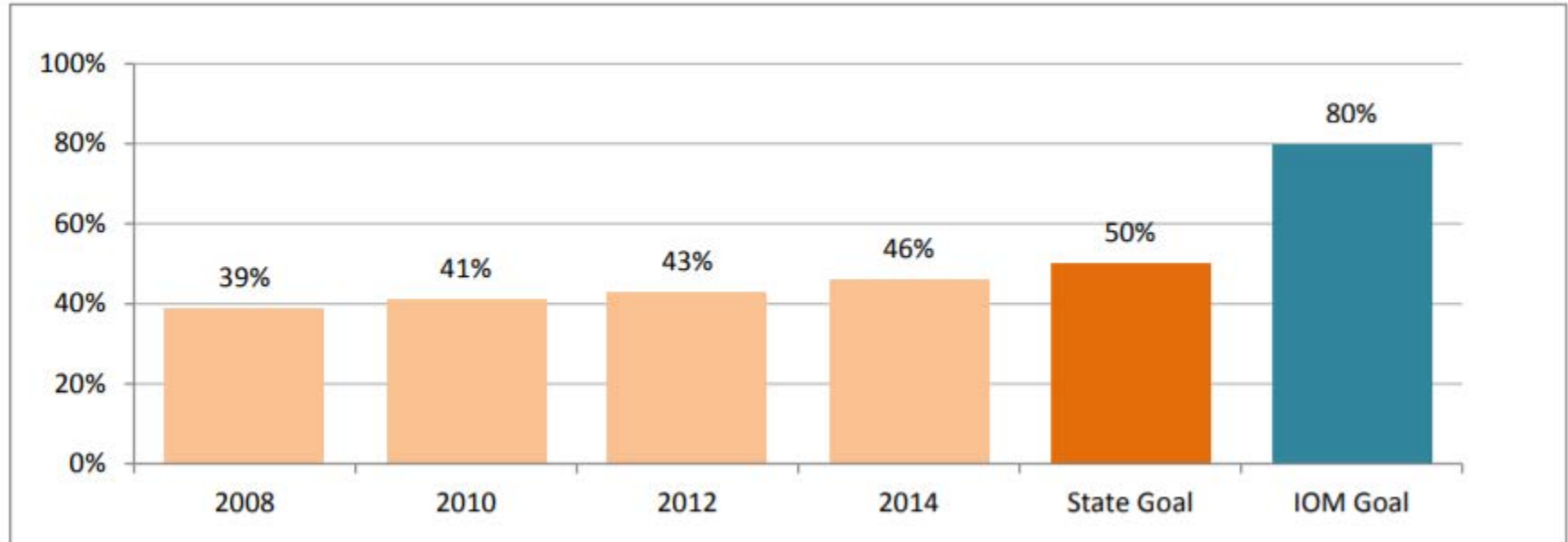
Nursing Education



There is a national push to move to a BSN+ trained nursing workforce.

What does this mean for rural areas?

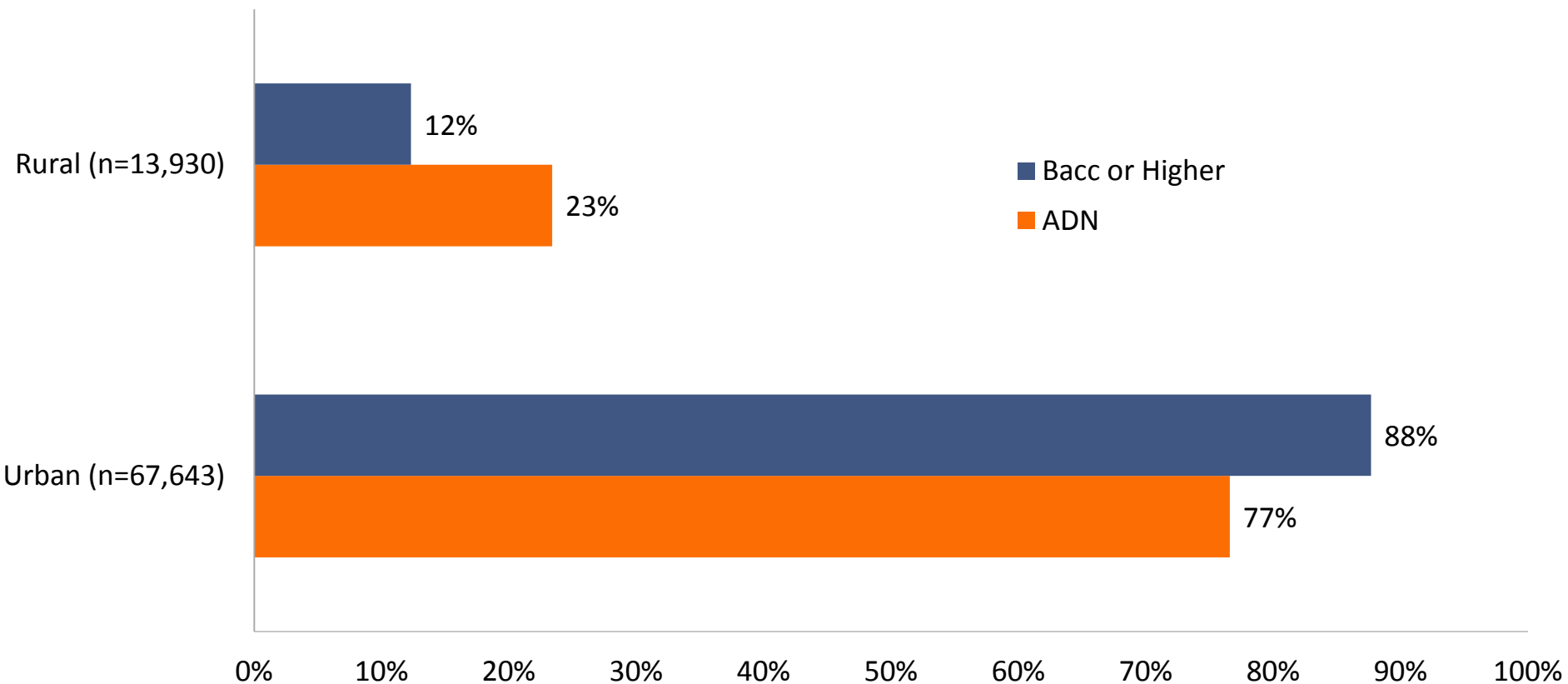
Percent of SC RN's with a Bachelor's Degree or Higher, 2008-2014



South Carolina Office for Healthcare Workforce. (2016). *The Registered Nurse Workforce in South Carolina- 2014*. Charleston: South Carolina Area Health Education Consortium. Retrieved from <https://www.scohw.org/docs/2016/RN-Workforce-in%20SC-2014.pdf>

In NC, ADN nurses nearly twice as likely to work in rural counties

North Carolina Nursing Workforce by Rural Status and Highest Degree, 2012



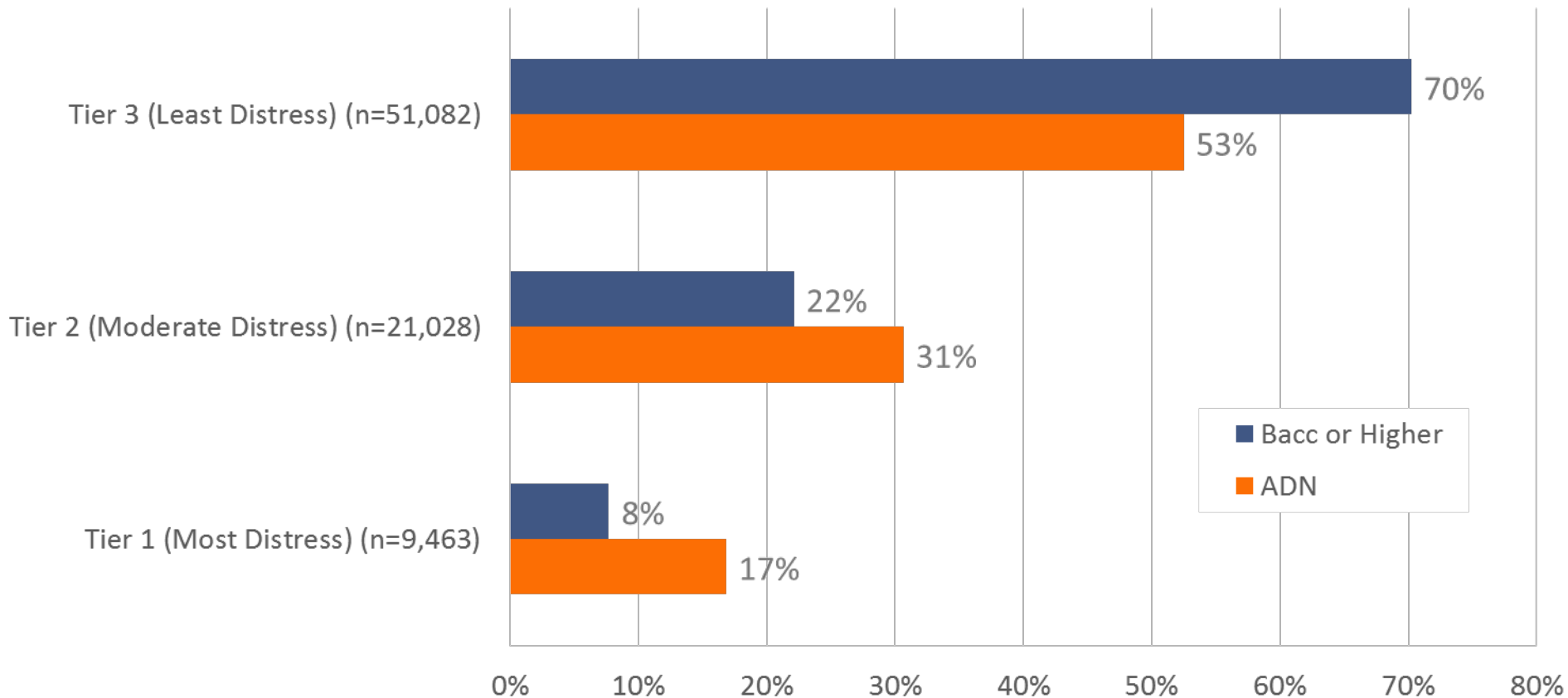
Rural source: US Census Bureau and Office of Management and Budget, March 2013. "Core Based Statistical Area" (CBSA) is the OMB's collective term for Metropolitan and Micropolitan Statistical areas. Here, nonmetropolitan counties include micropolitan and counties outside of CBSAs.

Note: Data include RNs who were actively practicing in North Carolina as of October 31, 2012. **Source:** North Carolina Health Professions Data System, with data derived from the NC Board of Nursing, 2012. **Produced by:** Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, UNC-CH.



In NC, ADN nurses twice as likely to work in most economically distressed (Tier 1) counties

North Carolina Nursing Workforce by Economic Tier and Highest Degree, 2012

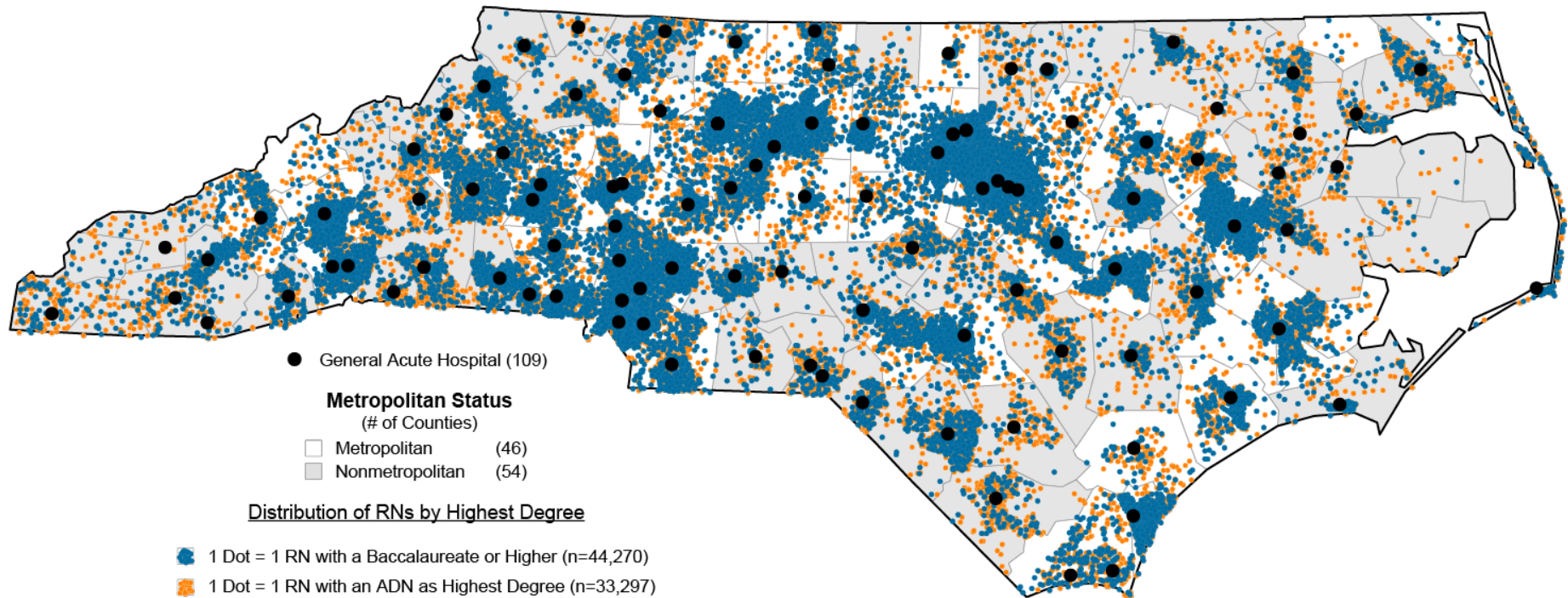


Source for economic tiers: <http://www.nccommerce.com/research-publications/incentive-reports/county-tier-designations>. Retrieved 5/12/14.

Note: Data include RNs who were actively practicing in North Carolina as of October 31, 2012. **Source:** North Carolina Health Professions Data System, with data derived from the NC Board of Nursing, 2012. **Produced by:** Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, UNC-CH.

ADNs are better distributed across state while baccalaureate+ nurses cluster around hospitals

Distribution of ADNs and Baccalaureate or Higher RNs Actively Practicing in North Carolina in 2012



Note: Dots are scattered randomly within ZIP code areas. Data include RNs who were actively practicing in North Carolina who have an ADN as their highest degree or who have a BSN or higher as their highest degree. Data exclude 377 RNs with inadequate zip codes for mapping purposes.

Source: North Carolina Health Professions Data System, with data derived from the North Carolina Board of Nursing, 2012. Hospital locations derived from NC DHHS as of January 1, 2015 at <http://www.ncdhhs.gov/dhsr/data/hllist.pdf> and NCHA member hospital list at <https://www.ncha.org/about/member-hospitals>, retrieved 1/7/14.

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

Do mobility nurses behave more like ADNs or baccalaureate+ nurses? It depends

After seeking additional education, mobility nurses behave:

More like BSN+ nurses in terms of specialty and setting

- Less likely to practice in home care, hospice, long-term care and geriatrics

More like ADN nurses in terms of geographic dispersion.

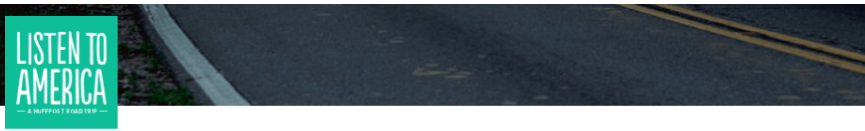
Compared to BSN entry nurses:

- Twice as likely to practice in rural
- Three times more likely to practice in NC's Tier 1 counties

A rural health access issue: Obstetric Care in NC



Closures of obstetric delivery units in rural NC have made state and national headlines



A partnership between **Carolina Public Press** and **HuffPost**

Rural Maternity Wards Are Closing, Women's Lives Are On The Line

In the mountains of western North Carolina, pregnant women don't know where to deliver.

By Catherine Pearson and Frank Taylor | 09/25/2017 05:45 am ET | Updated Sep 25, 2017

Blue Ridge Regional Hospital delivered 1,000 babies last year, but hospitals forced to close their birth units.

376 Shares

Madeleine Hackett Reporter

Pregnant women face shortage

Julie Ball, jball@citizen-tim



Rural Hospitals Are Dying and Pregnant Women Are Paying the Price

Heavily reliant on Medicaid dollars, small hospitals shut down maternity wards just to stay afloat.

By LISA RAB | October 03, 2017

f t g+

BOOONE, N.C.—Three years ago, Lucia Parker gave birth to her first child surrounded by people she loved. Her mother, sister, and husband were by her side at Blue Ridge Regional Hospital, and the nurses attending her were family friends. Each of them took turns massaging her back. They lifted her out of a

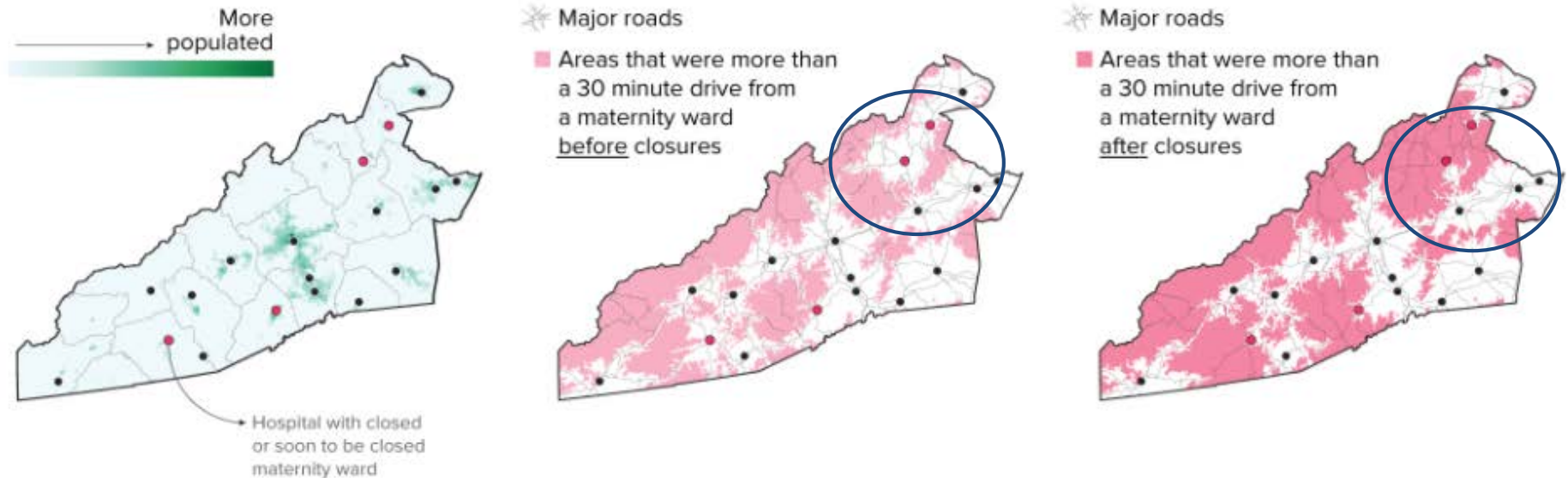


Lack of rural obstetric services is a national problem

“It is an issue facing rural communities nationwide: From 2004 to 2014, 9 percent of all rural counties lost access to hospital obstetric services, and **more than half of all rural counties** in this country are now without a single local hospital where women can get prenatal care and deliver babies.”

Pearson C & Taylor F. Mountain maternity wards closing, WNC women’s lives on the line. *Carolina Public Press*. 25 September 2017. Accessed 10 Oct 2017 at: <https://carolinapublicpress.org/27485/mountain-maternity-wards-closing/>

Maternity ward closures in NC have increased drive times for deliveries



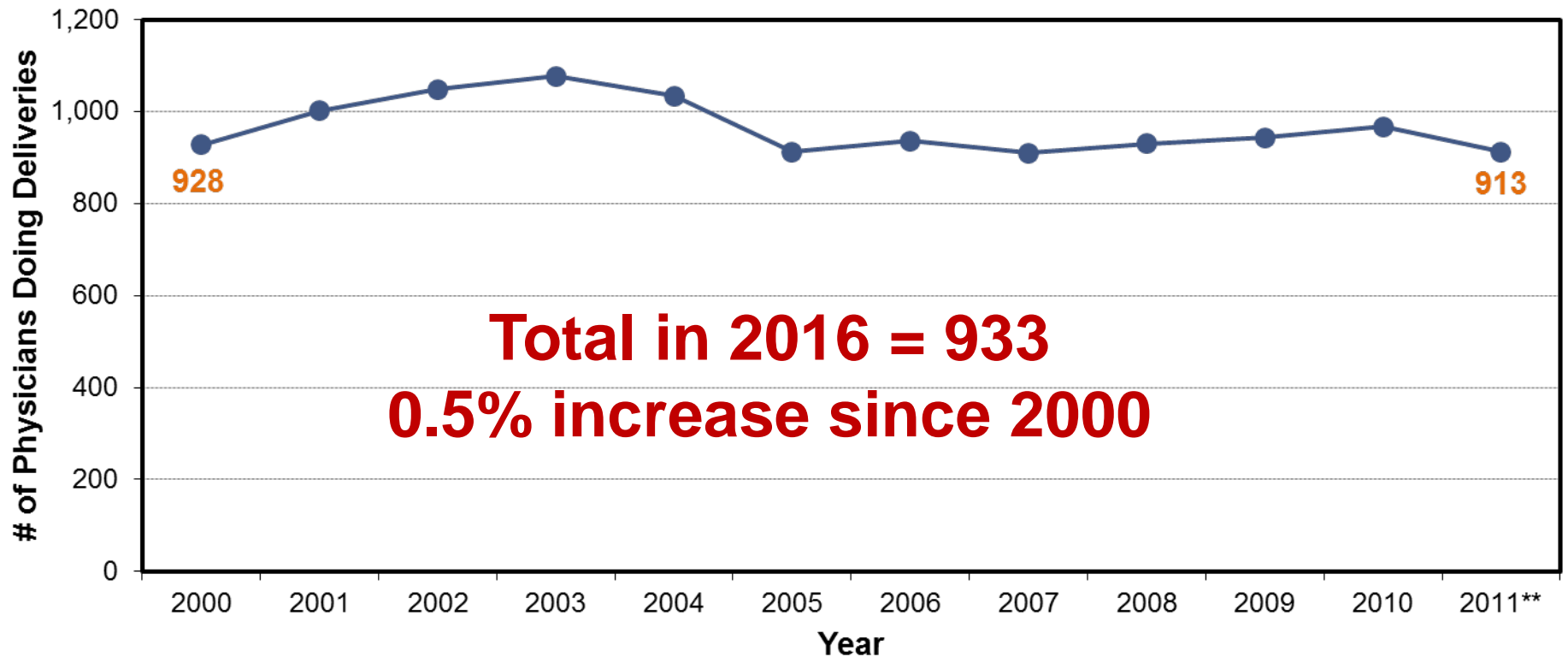
Note: Hospitals serving specific populations such as the VA hospital in Asheville and the Cherokee Indian Hospital in Swain County are not shown here (neither have maternity wards).
Sources: Hospitals, Center for International Earth Science Information Network, Mapzen isochrone service, Census Bureau

Alissa Scheiller/HuffPost

Pearson C & Taylor F. Mountain maternity wards closing, WNC women's lives on the line. *Carolina Public Press*. 25 September 2017. Accessed 10 Oct 2017 at: <https://carolinapublicpress.org/27485/mountain-maternity-wards-closing/>

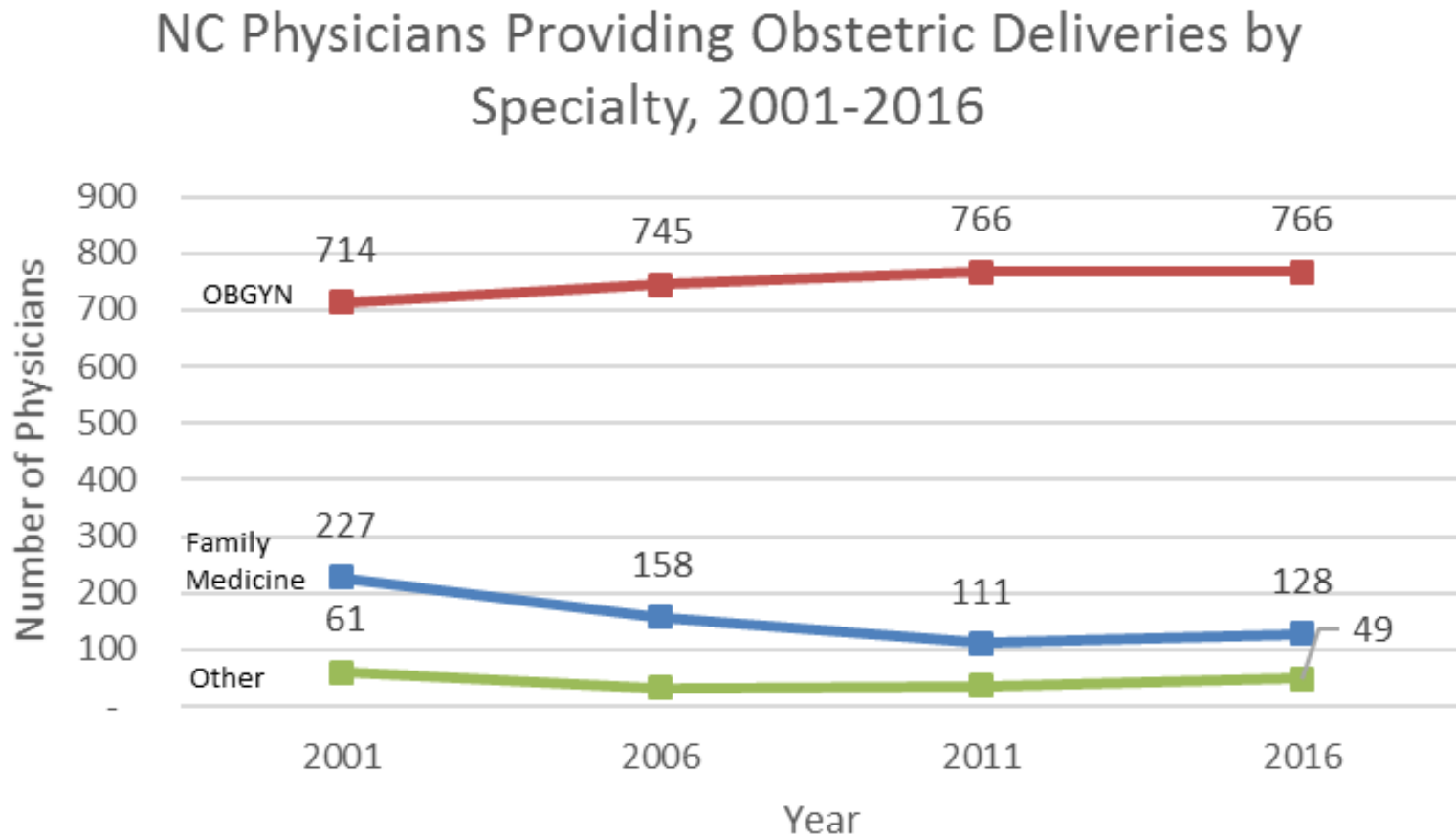
The number of physicians providing deliveries since 2000 has been flat

Total Physicians Doing Deliveries, North Carolina, 2000-2011



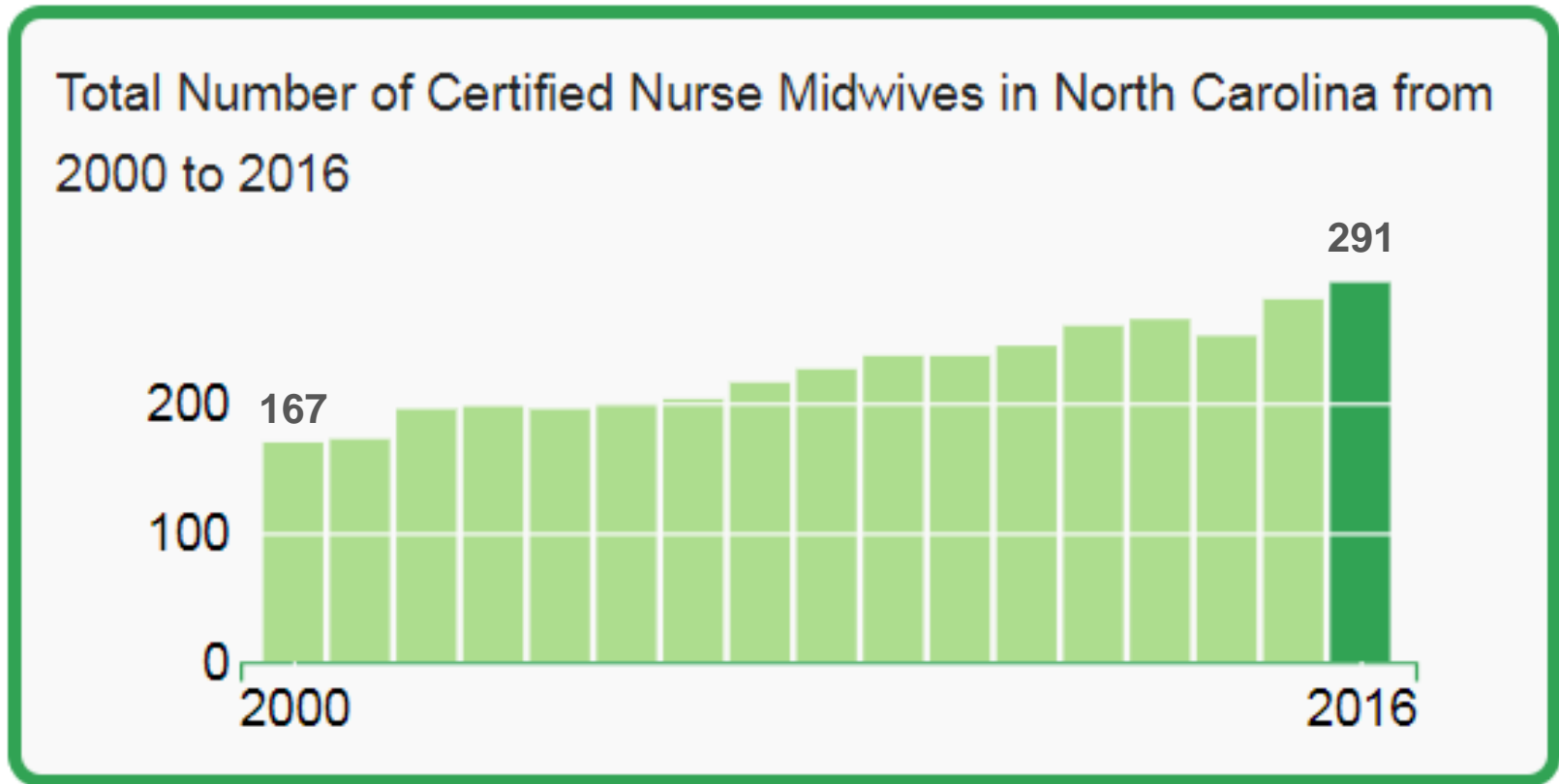
Note: Data include active, instate, nonfederal, non-resident-in-training physicians licensed in North Carolina as of October 31, 2011 who reported that they provide obstetric deliveries. **Sources:** North Carolina Health Professions Data System, with data from the North Carolina Medical Board, 2011; US Census Bureau and Office of Management and Budget, 2013.

Fewer Family Medicine physicians deliver babies now



Note: Data include active, instate, nonfederal, non-resident-in-training physicians licensed in North Carolina as of October 31 of each year who reported that they provide obstetric deliveries. Specialties are based on self-reported Primary Area of Practice. **Sources:** North Carolina Health Professions Data System, with data from the North Carolina Medical Board.

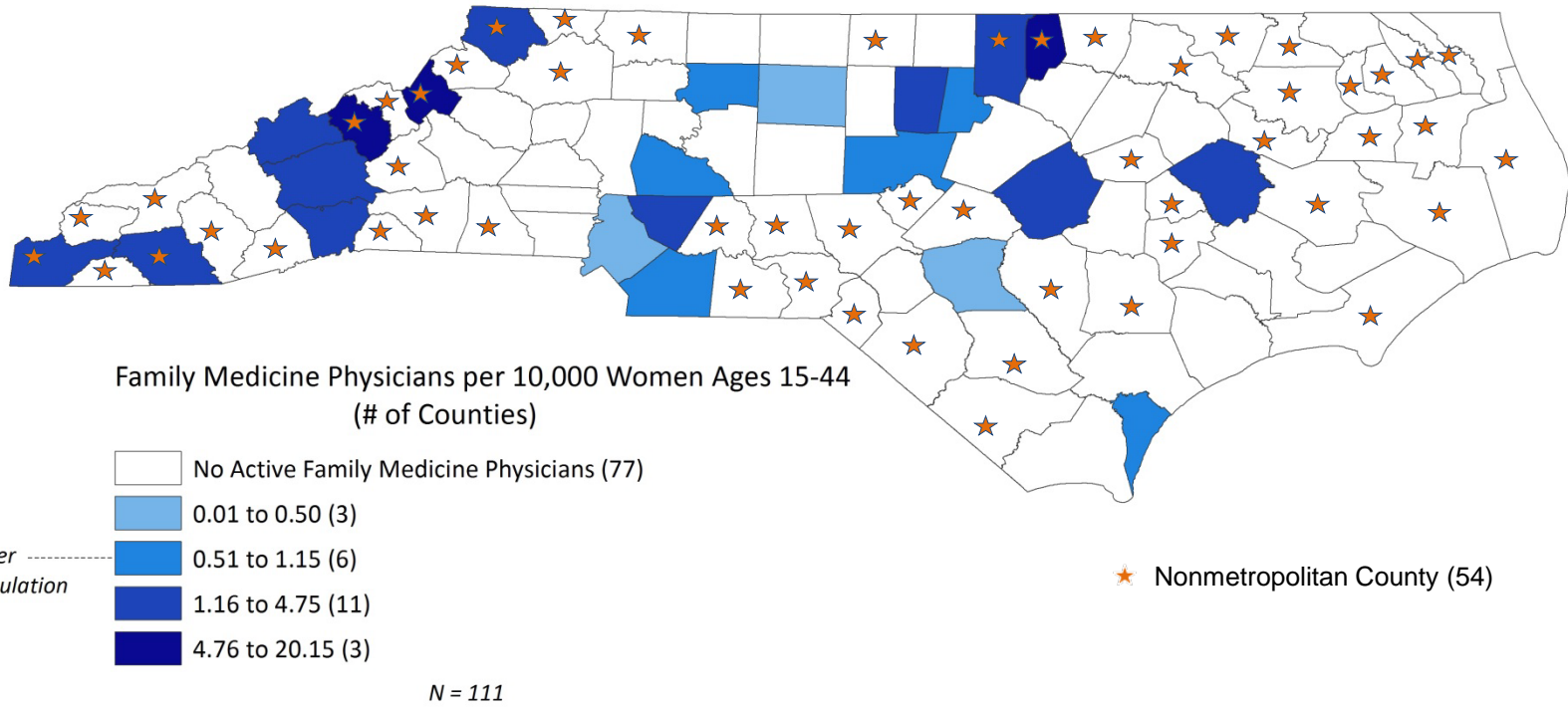
But we have more Certified Nurse Midwives



Data include active licensed certified nurse midwives in practice in North Carolina as of October 31 of each year. Certified nurse midwife data are derived from the North Carolina Board of Nursing. Population census data and estimates are downloaded from the North Carolina Office of State Budget and Management via NC LINC and are based on US Census data. Source: North Carolina Health Professions Data System Program on Health Workforce Research and Policy Cecil G. Sheps Center for Health Services Research University of North Carolina at Chapel Hill.

In 2011 only 4% of NC family medicine physicians provided obstetric deliveries, clustered in western and central counties

Family Medicine Physicians Who Provide Routine Obstetric Deliveries per 10,000 Childbearing Age* Females, North Carolina, 2011



Note: *Childbearing age: 15-44 years. Data include active, in-state, nonfederal, non-resident-in-training physicians licensed in North Carolina as of October 31, 2011 who reported a primary area of practice of "Family Medicine." **Sources:** North Carolina Health Professions Data System, with data from the North Carolina Medical Board, 2011; US Census Bureau and Office of Management and Budget, 2013.

How do we get more physicians to practice in rural areas?

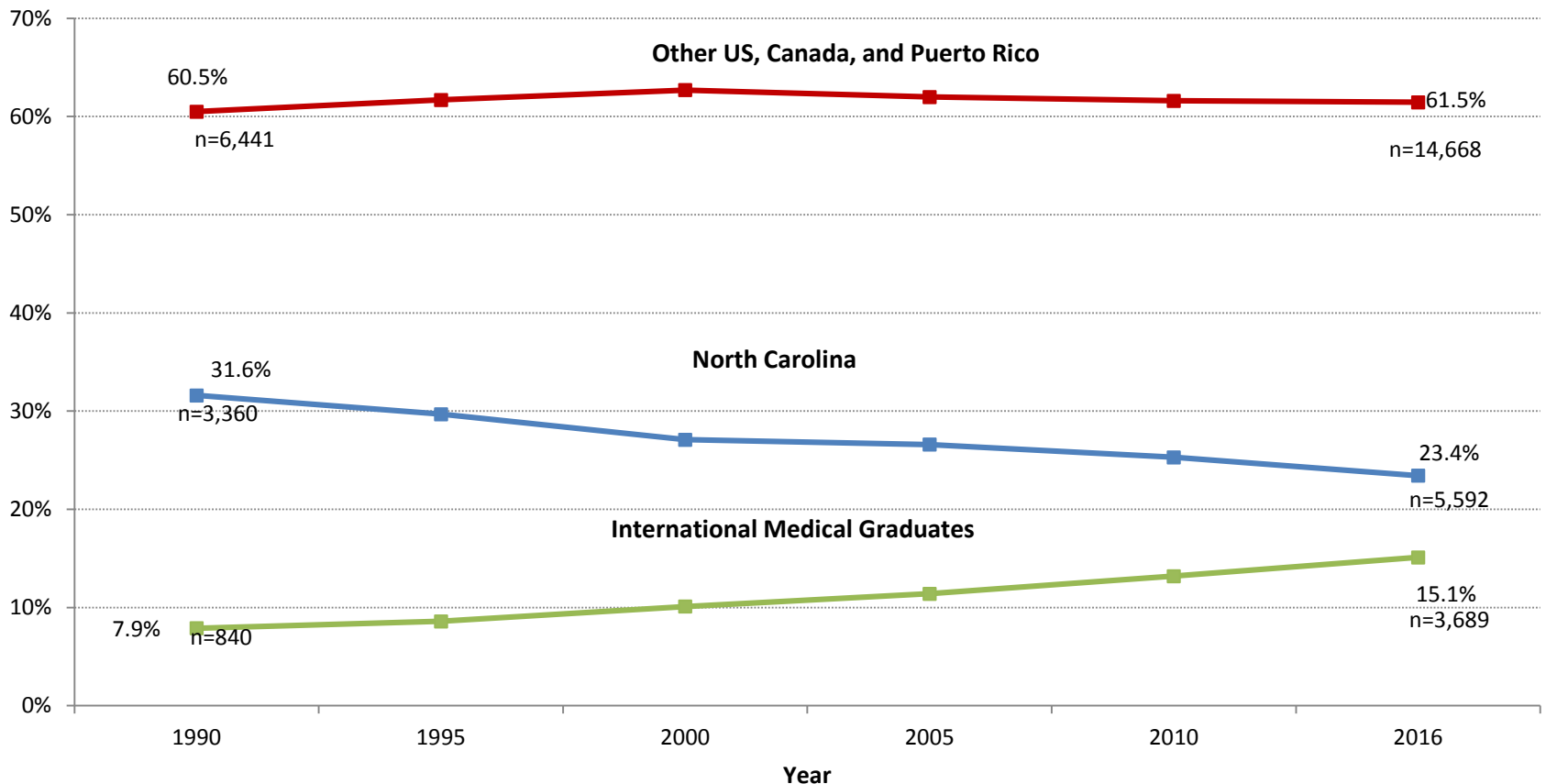


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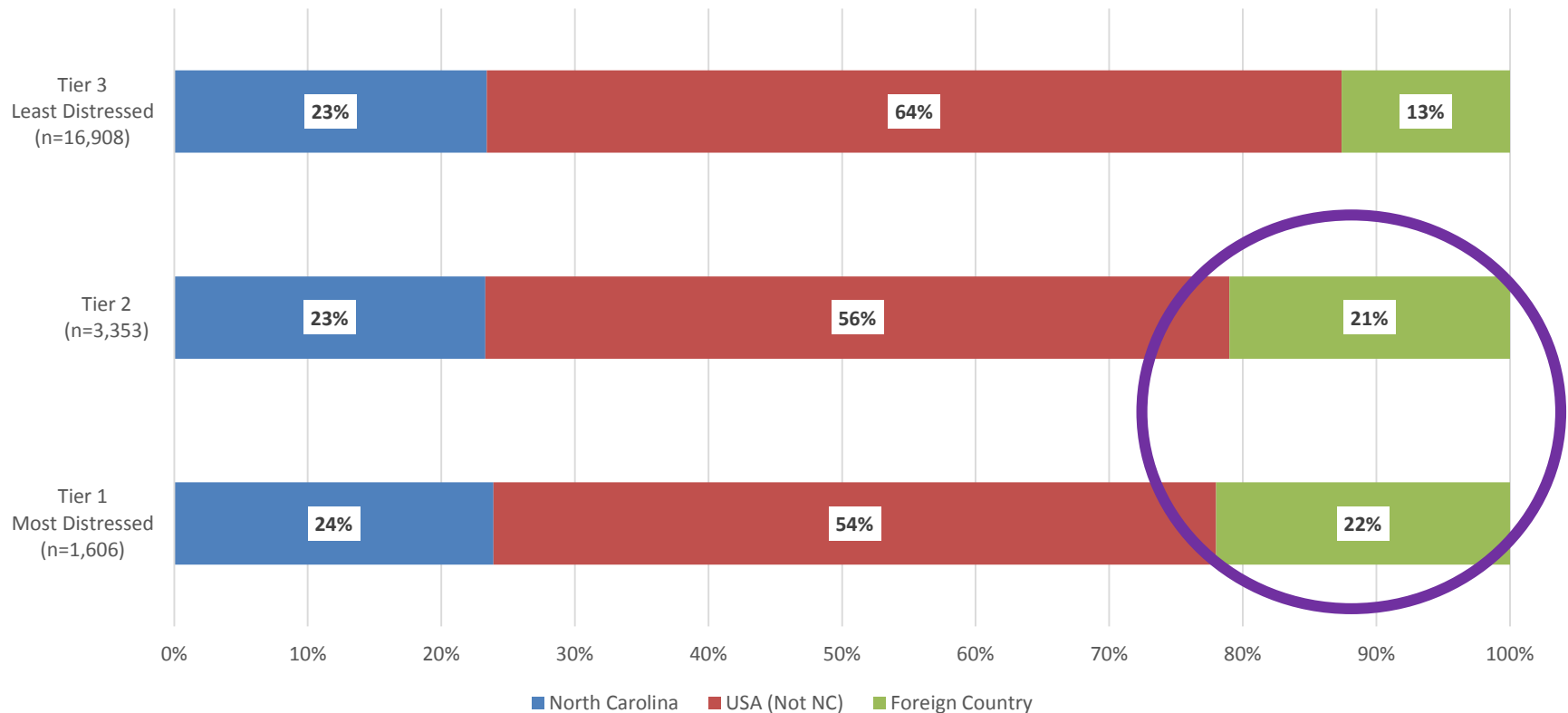
Most of North Carolina's physicians completed medical school outside NC

Active Licensed North Carolina Physicians by Medical School Location, 1990-2016



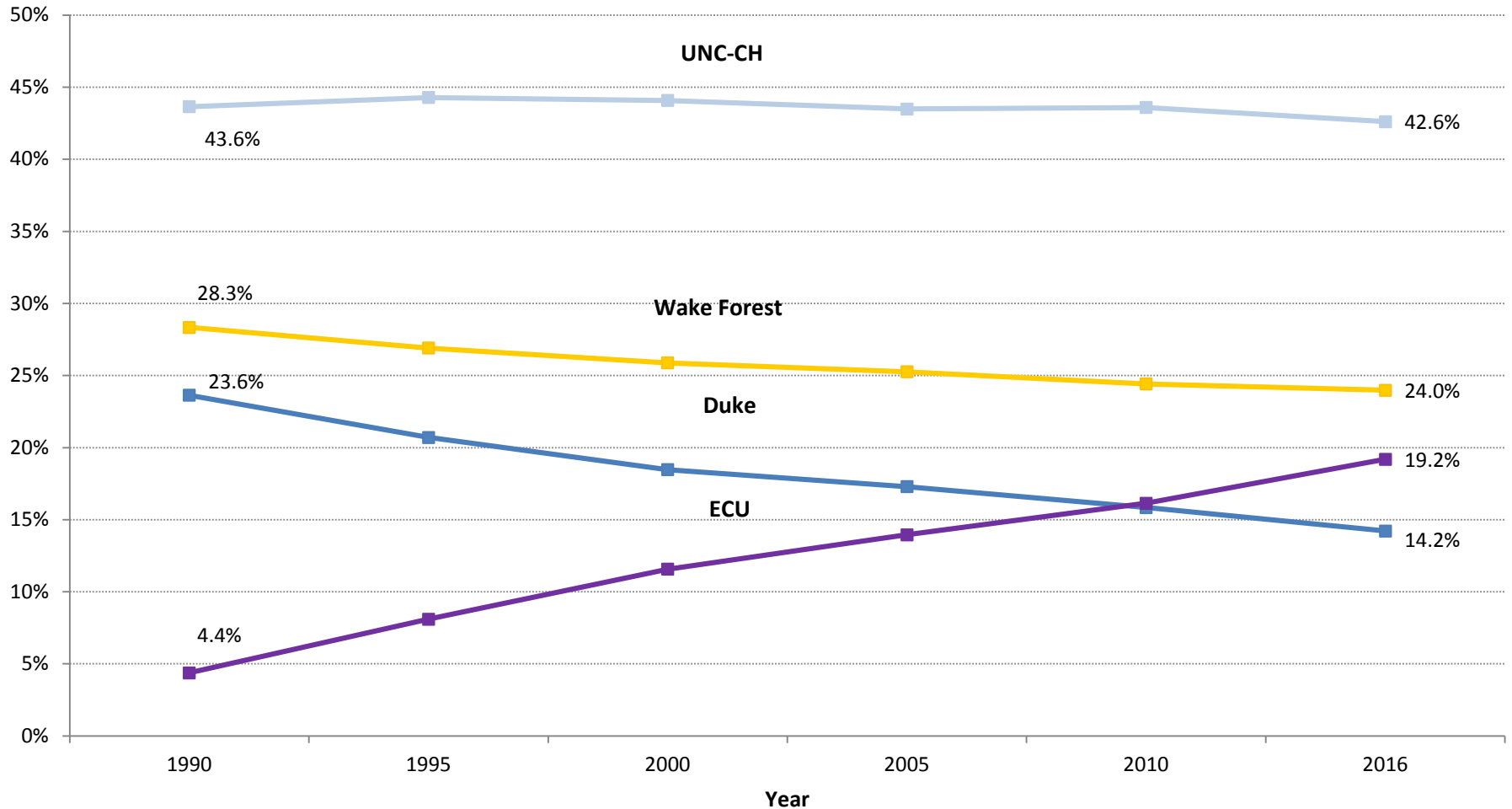
International Medical Graduates are a higher percentage of the workforce in economically distressed counties

NC Physician Workforce by 2016 NC Economic Tier of Practice County and Medical School Location



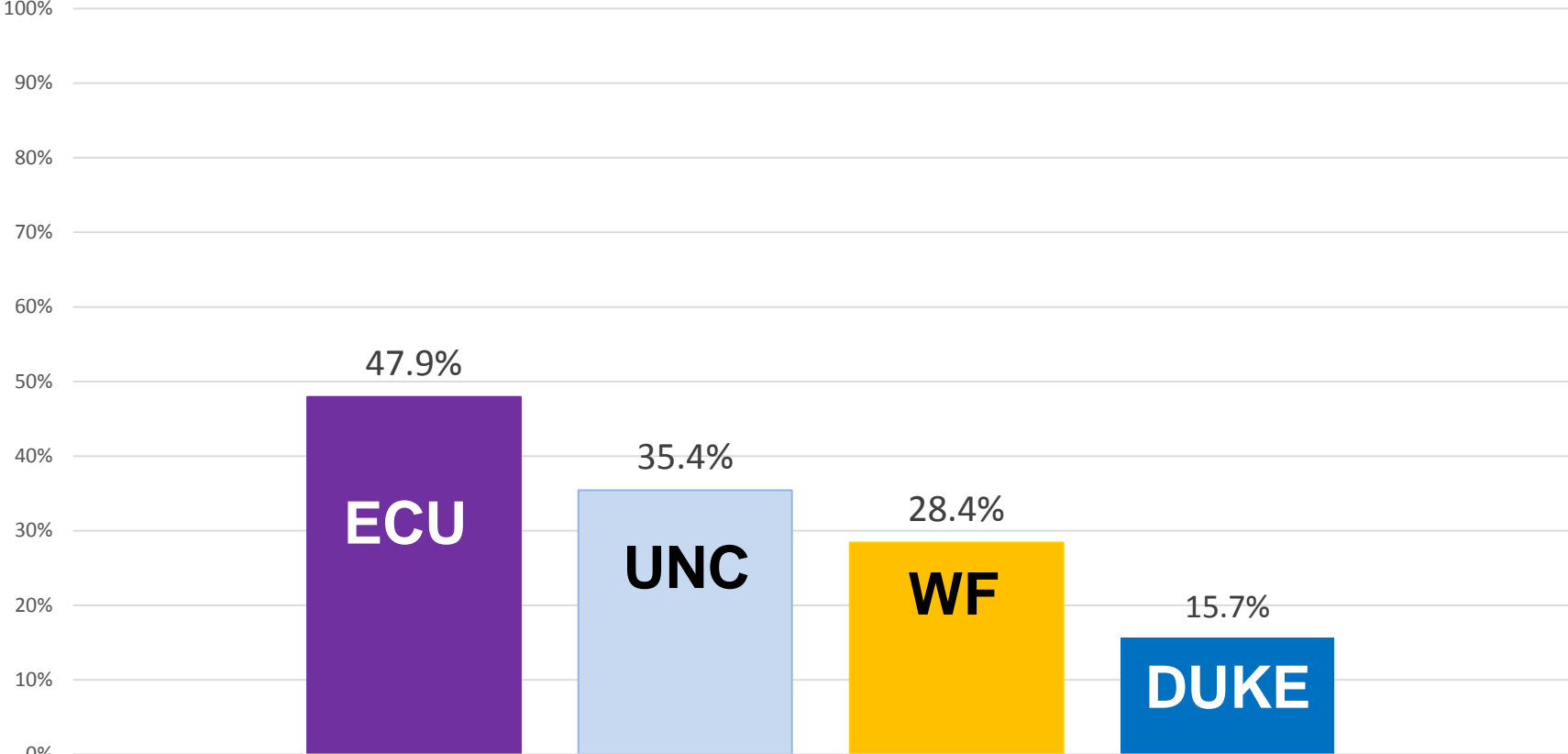
Of NC educated physicians, largest proportion went to UNC-CH but ECU is on the rise

Active Licensed NC Educated Physicians by Medical School Location, 1990-2016



More public medical school grads practice in state

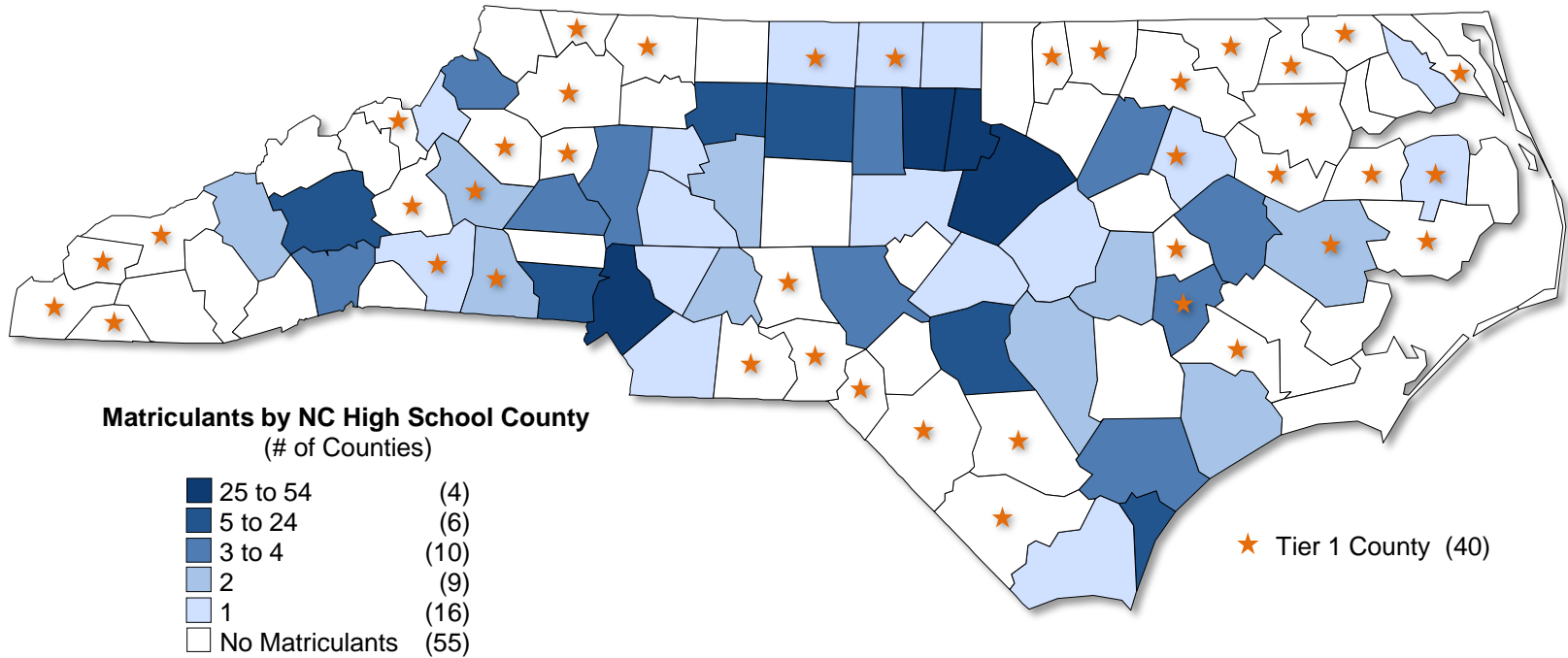
Percent of Graduates from Classes of 1990-2015 in Active Practice in 2016 NC Physician Workforce



Percent of Graduates from 1990-2015 in Practice in NC in 2016

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



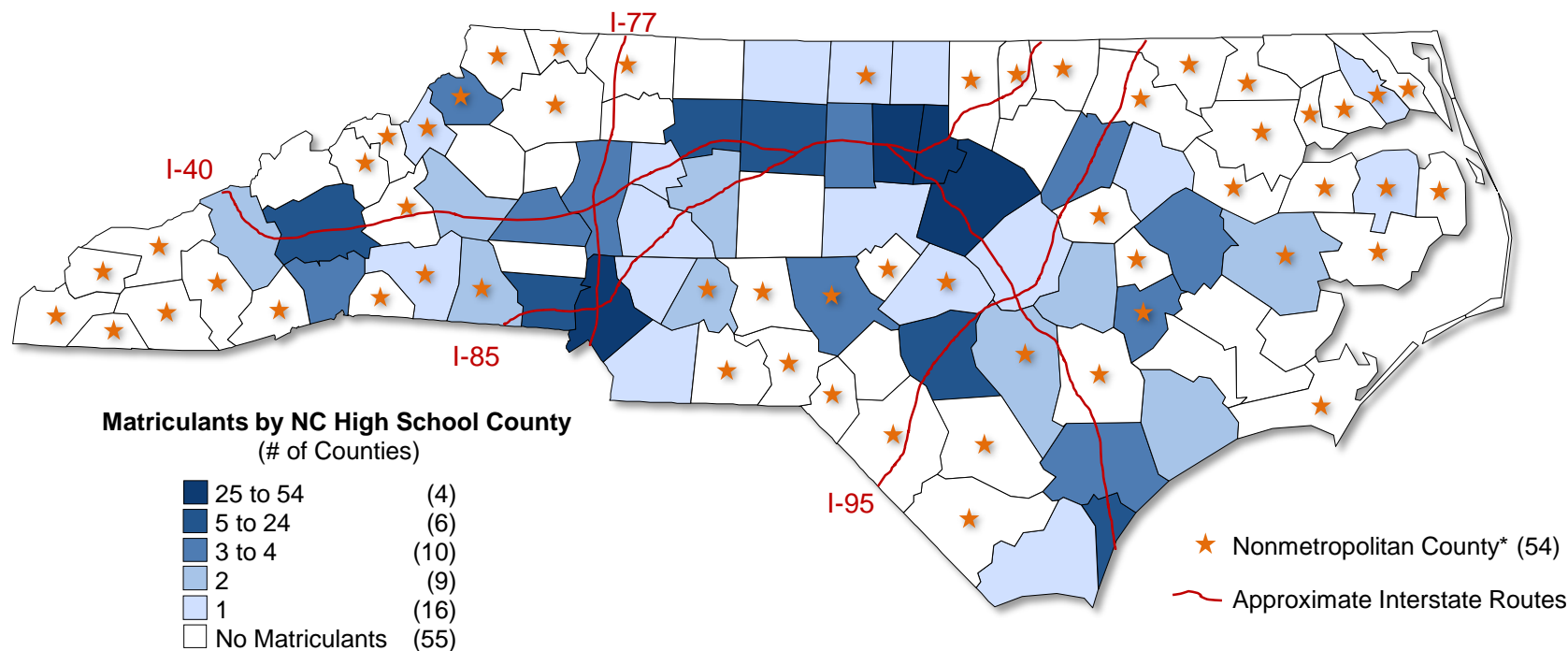
N = 331

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,
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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,
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UNC medical school expanding rural training opportunities

Programs and Opportunities

The UNC School of Medicine is committed to educating, training, and placing physicians across North Carolina to address health care disparities. To learn more about all programs and engagement opportunities for rural and underserved medicine through The UNC School of Medicine, please explore the following programs.



Kenan Primary Care Medical Scholars



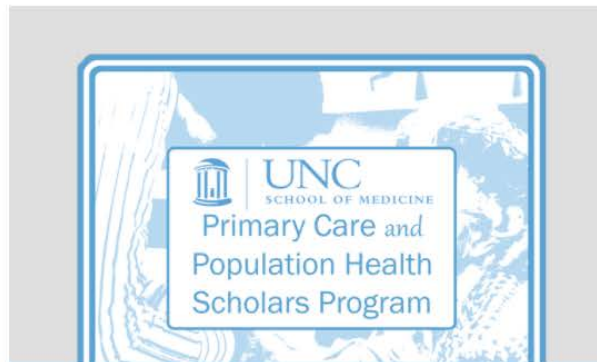
FIRST Program



NC Rural Promise Scholarship



Rural Inter-Professional Health Initiative



Primary Care & Population Health Scholars



Community Engagement Projects

Graduate Medical Education



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 $\chi^2(1)=4.3902$, $Pf=0.036$

Completing an AHEC residency increases in-state retention

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



AHEC

compared to

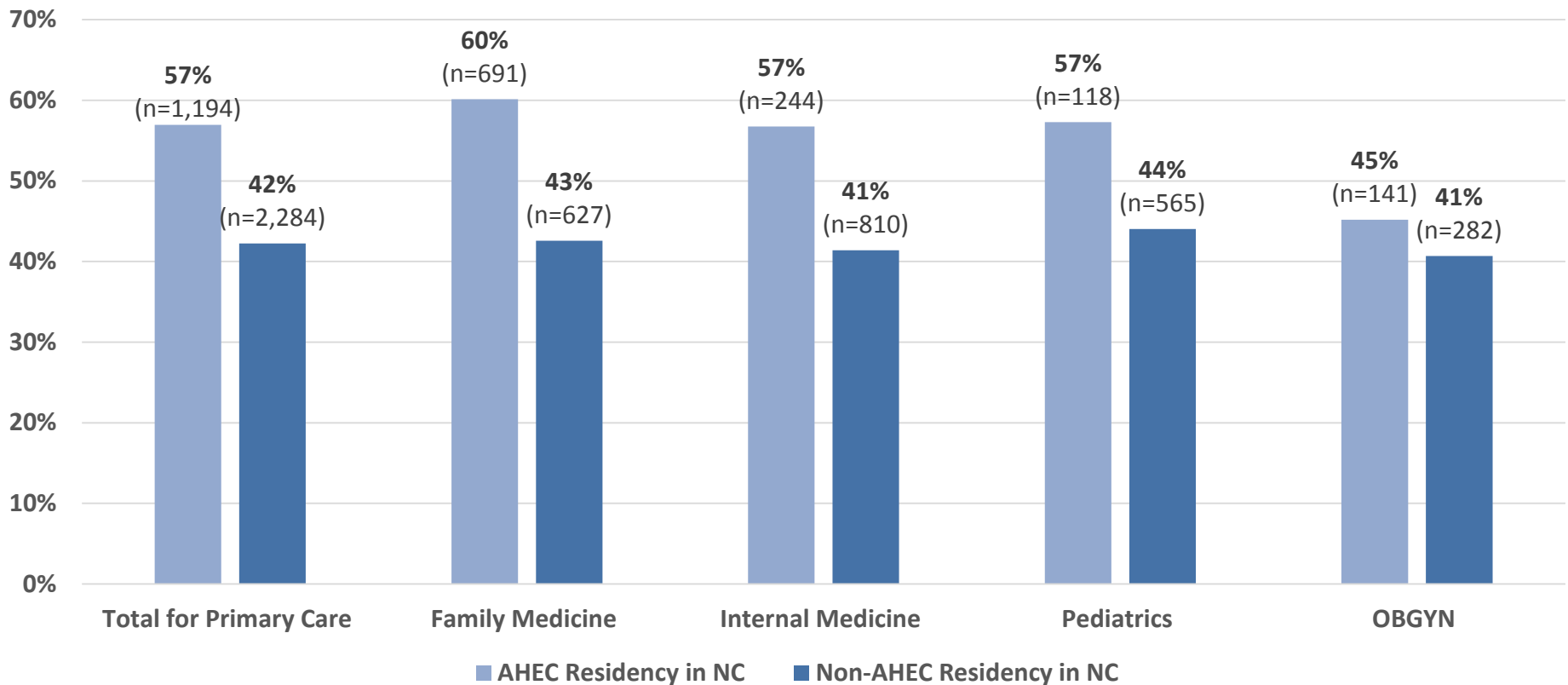
➤ **38% (n=5,879) of physicians who complete a non-AHEC residency stay in North Carolina to practice**



Non-AHEC

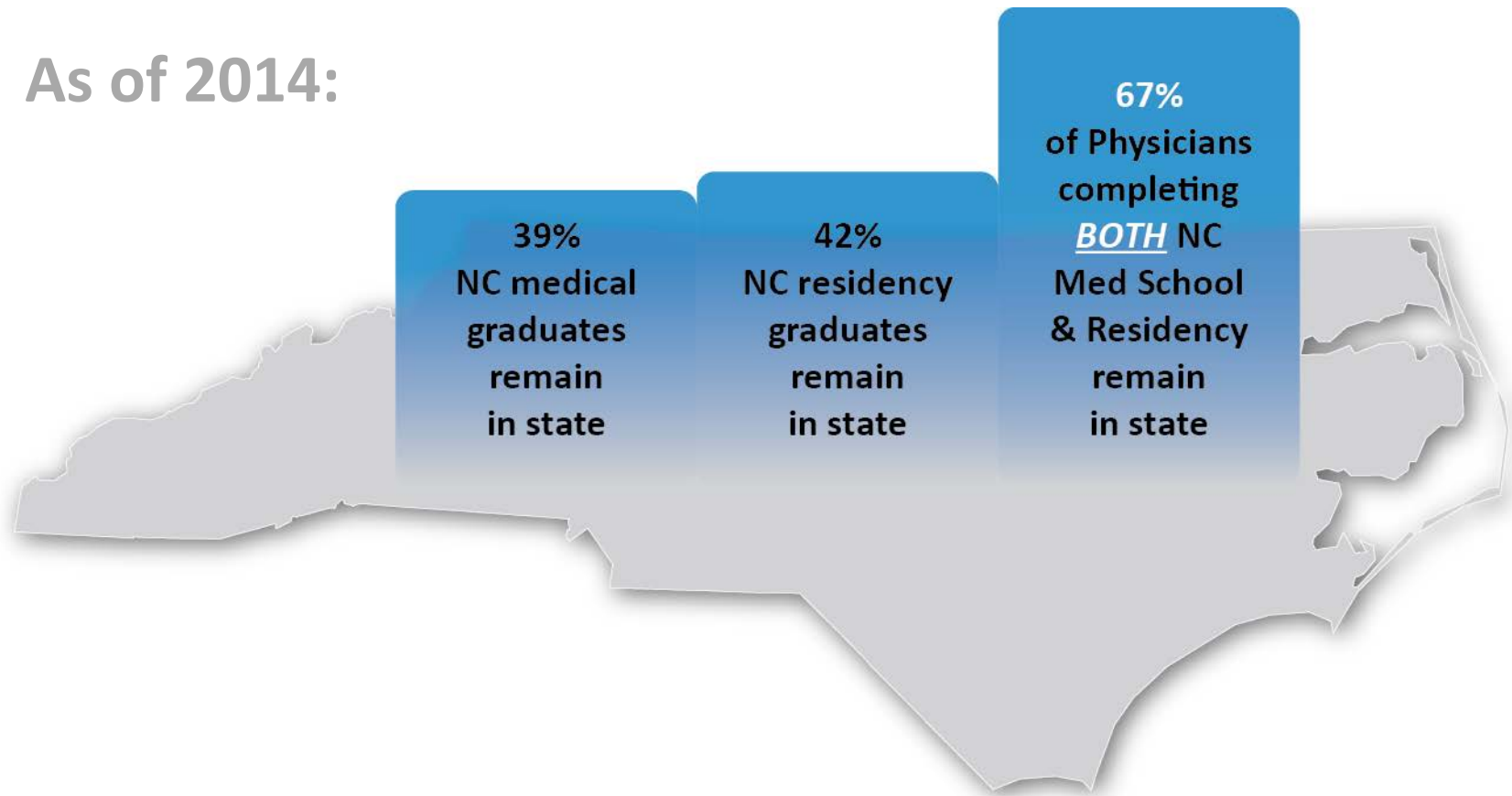
Retention rates are even higher for residents who complete primary care AHEC residencies

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



Retention much higher for physicians completing both UME and GME instate

As of 2014:

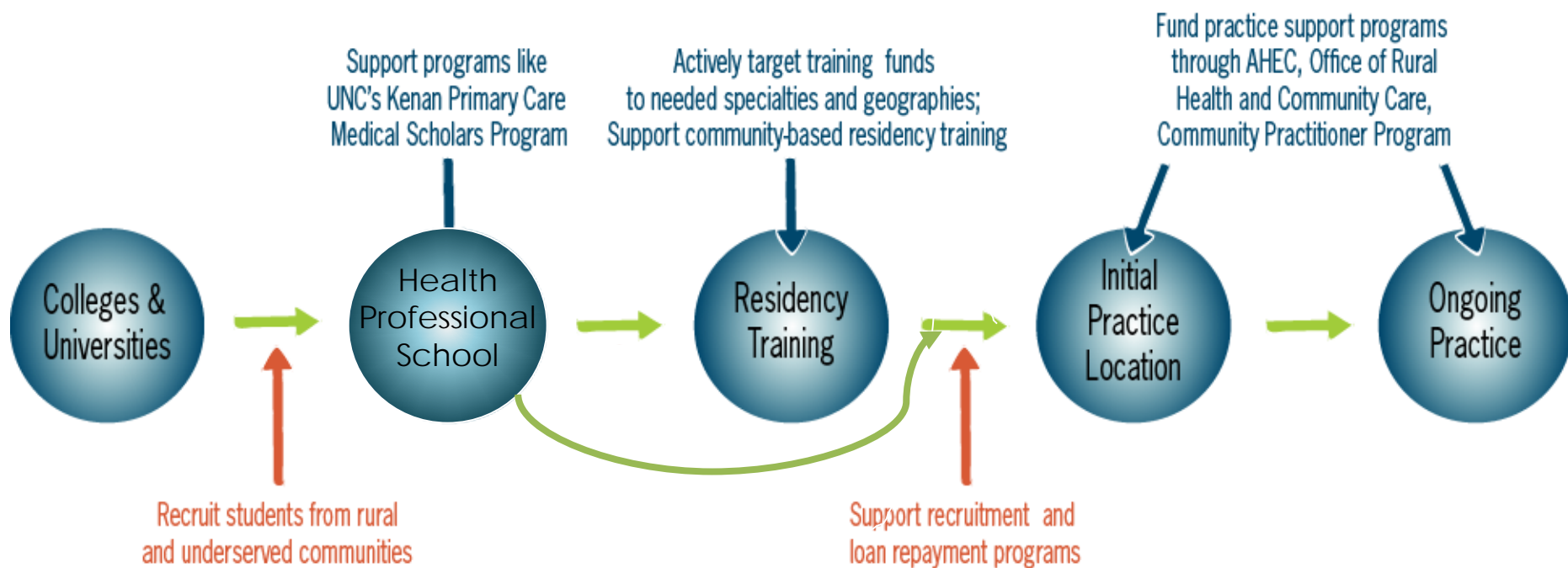


39%
NC medical
graduates
remain
in state

42%
NC residency
graduates
remain
in state

67%
of Physicians
completing
BOTH NC
Med School
& Residency
remain
in state

Many points where can intervene to promote distribution of workforce to meet NC's population health needs



Big picture health system change: ***What does it mean for the workforce?***



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Looking to the future...



- Cost pressures are driving change *with* or *without* health reform
- New models of care aim to lower costs, enhance quality, improve population health and lower provider burnout

Some Predictions

- Health care jobs will continue to grow rapidly
 - Supply will grow but workforce will still be maldistributed
- Changing care delivery and payment models are/will:
 - Shift care and workforce from inpatient to community settings
 - Generate new professions and roles
- Career ladders are needed

Care coordination within health care system is big and getting bigger

- Increased incentives to keep patients out of hospital
 - Fines that penalize hospitals for readmissions
- In January 2015, Medicare began paying \$42/month for managing care for patients with two or more chronic conditions
- Health care teams include nurses, pharmacists, social workers, dieticians and others
- Most of what we see that is termed “care coordination” is happening within the health care system
- Nurses and social workers often take on roles as care coordinators, case managers and transition specialists

Social workers play increasingly important boundary spanning roles

Social workers serving three functions on integrated behavioral health/physical health teams:

- Behavioral health specialists: provide interventions for patients with mental health, substance abuse and other behavioral health disorders
- Care Managers: coordinate care of patients with chronic conditions, monitor care plans, assess treatment progress and consult with primary care physicians
- Referral role: connect patients to community resources including housing, transportation, food, etc.

Fraser M, Lombardi B, Wu S, Zerden L, Richman E, Fraher E. Social Work in Integrated Primary Care: A Systematic Review. Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research. September 2016. http://www.shepscenter.unc.edu/wp-content/uploads/2016/12/PolicyBrief_Fraser_y3_final.pdf

Boundary spanning roles are growing quickly

“Boundary spanning” roles reflect shift from visit-based to population-based strategies

Two examples:

Panel Managers

Assume responsibility for patients between visits. Use EHRs and patient registries to identify and contact patients with unmet care needs. Often medical assistants but can be nurses or other staff

Health Coaches

Improve patient knowledge about disease or medication and promote healthy behaviors. May be medical assistants, nurses, health educators, social workers, community health workers, pharmacists or other staff

Look within community to help address population health needs

Two more examples:

Community Paramedics

Mobile paramedics for non-emergency home visits. Medical evaluations, behavioral health crisis intervention, health coaching, patient education. Goal to reduce unnecessary ED use.

Community Health Workers

Formal or informal role. Trusted community member who provides outreach, education, informal counseling, social support, etc. Point of contact for people unfamiliar/distrustful of those outside of their community

And new health care teams are emerging: Community Aging in Place—Advancing Better Living for Elders (CAPABLE) Teams

- An Occupational Therapist, a Registered Nurse, and a handyman form team allowing seniors to age in homes
- Provide assistive devices and make home modifications to enable participants to navigate their homes more easily and safely
- After completing five-month program, 75 percent of participants (n=281 adults age 65+) had improved their performance of ADLs
- Symptoms of depression and ability to perform instrumental ADLs such as shopping and managing medications also improved
- Health systems are testing CAPABLE on a larger scale

http://nursing.jhu.edu/faculty_research/research/projects/capable/

It's complicated

- New roles may be filled by existing staff or new hires
- Some roles have similar functions but different titles—**care managers** and **case managers**
- Other roles have different functions but same name—**patient navigators**
- Depending on setting and patient population, roles are often filled by different types of **providers—medical assistants, social workers, nurses, etc.**

Questions?

Julie Spero

(919) 966-9985

juliespero@unc.edu

Director

North Carolina Health Professions Data System

<http://nchealthworkforce.sirs.unc.edu/>

<http://www.healthworkforce.unc.edu>



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