

How Data and Evidence Can (and Should!) Inform Scope of Practice

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April 9, 2018



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This presentation in one slide

- My frame: objective, “data agitating” workforce researcher
- Scope of practice (SOP) battles are emerging with increased frequency due to concerns about shortages, rising health care costs and access to care issues
- Health professional regulation is state function. Results in lots of variation between states
- Strong stakeholder groups involved in SOP battles, often focused on professional self-interest, not patients’ interests
- Lack of evidence about SOP changes makes evaluation difficult
- Health care is changing quickly, regulation needs to adapt
- The way forward for North Carolina is more evidence-based SOP and regulation



My lens on scope of practice (SOP)

- First job was working for a regulatory body. Spurred my interest in health workforce policy
- I've been a health workforce researcher for more than 20 years. I've seen (and studied) lots of SOP debates
- Direct research program dedicated to providing timely, objective research to inform health workforce policy
- Based at Cecil G. Sheps Center for Health Services Research at UNC-CH. Focus is statewide and national
- My goal is to infuse data and evidence into what are often contentious turf wars
- I believe in patient-centered, not profession-centered, workforce planning



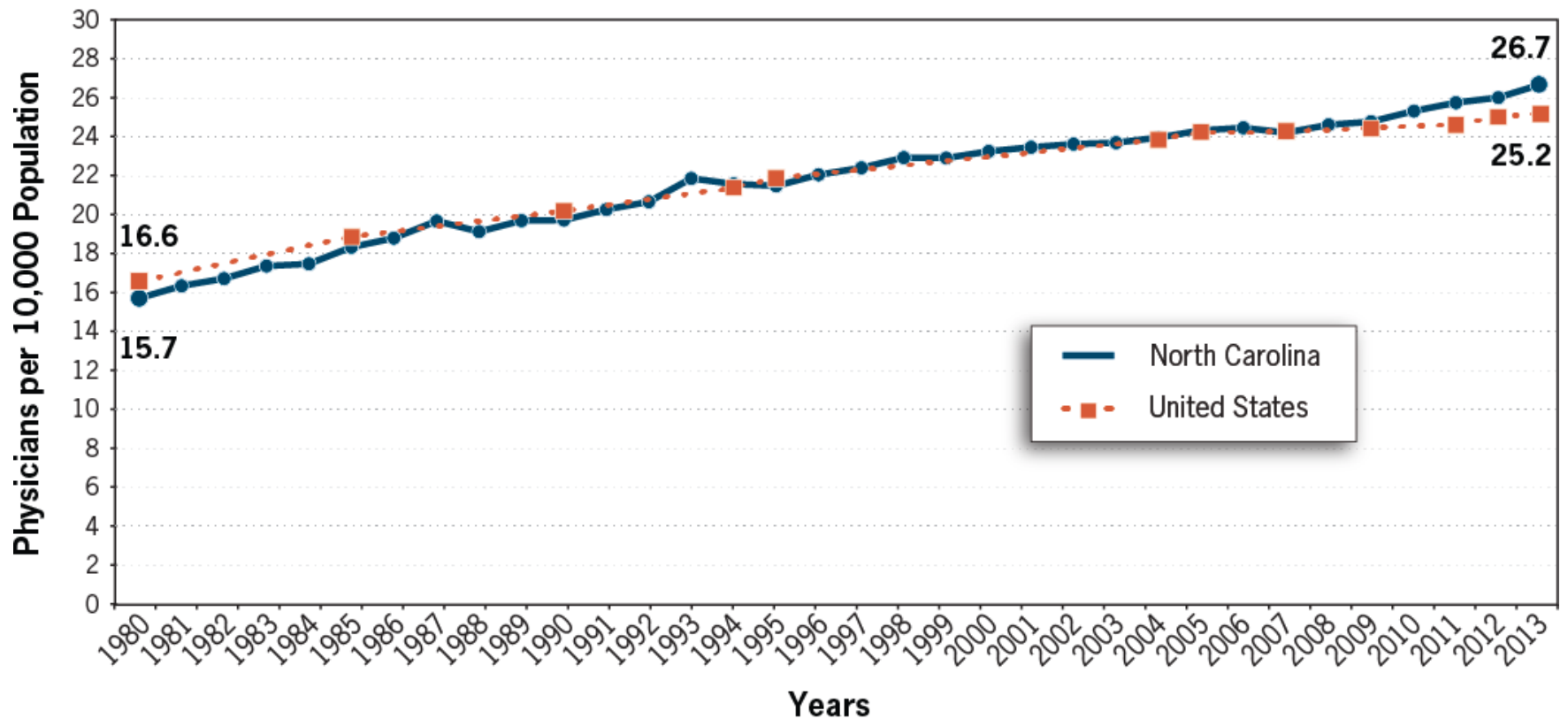
In NC (and other states) increasing number of SOP practice bills proposed

Driving forces include:

- Increased pressure from payers and large health care systems to contain costs
- New payment models that encourage task shifting to lower cost health care workers
- New care delivery models that encourage team-based models of care and new roles for health care professionals
- Increasing involvement of corporate players like Walmart in health care. Retailers complain “onsite supervision is expensive and a significant waste of resources” (LeGros and Robinson, 2008)
- Concerns about access to care due to workforce shortages and maldistribution of providers

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

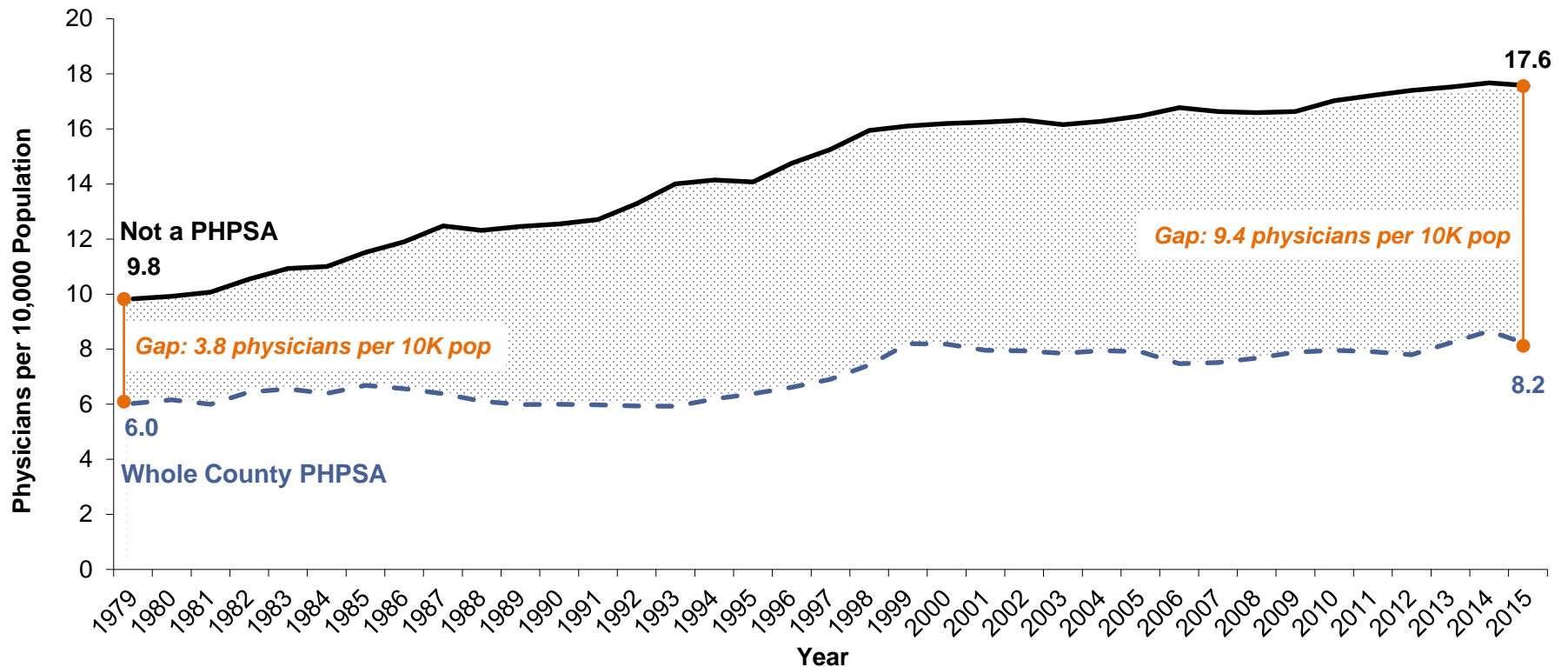
Physicians per 10,000 population, North Carolina and United States, 1980-2013



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.

The real issue is maldistribution. Gap between shortage and non-shortage counties is growing

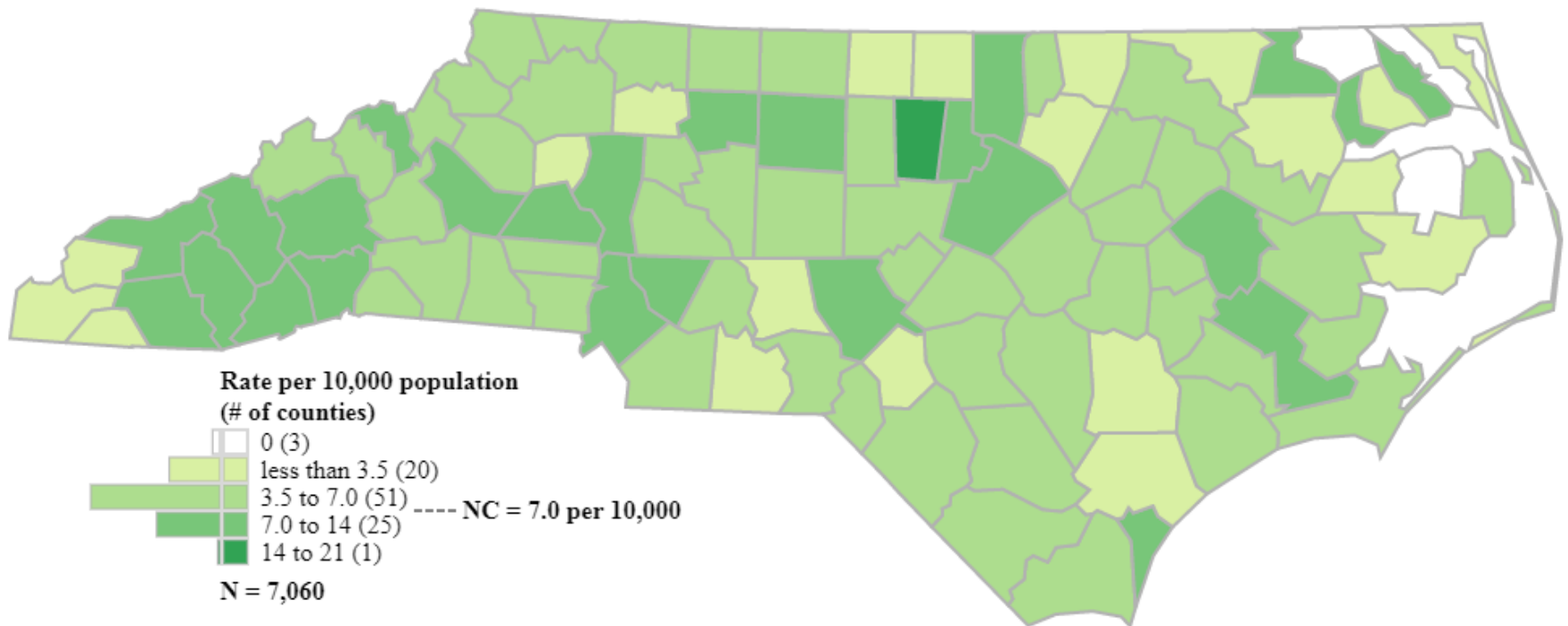
Physicians per 10,000 population by Persistent Health Professional Shortage Area (PHPSA) Status, North Carolina, 1980-2015



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.

20 NC 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 5, 2017 at <https://hpds.sirsdemo.unc.edu>.



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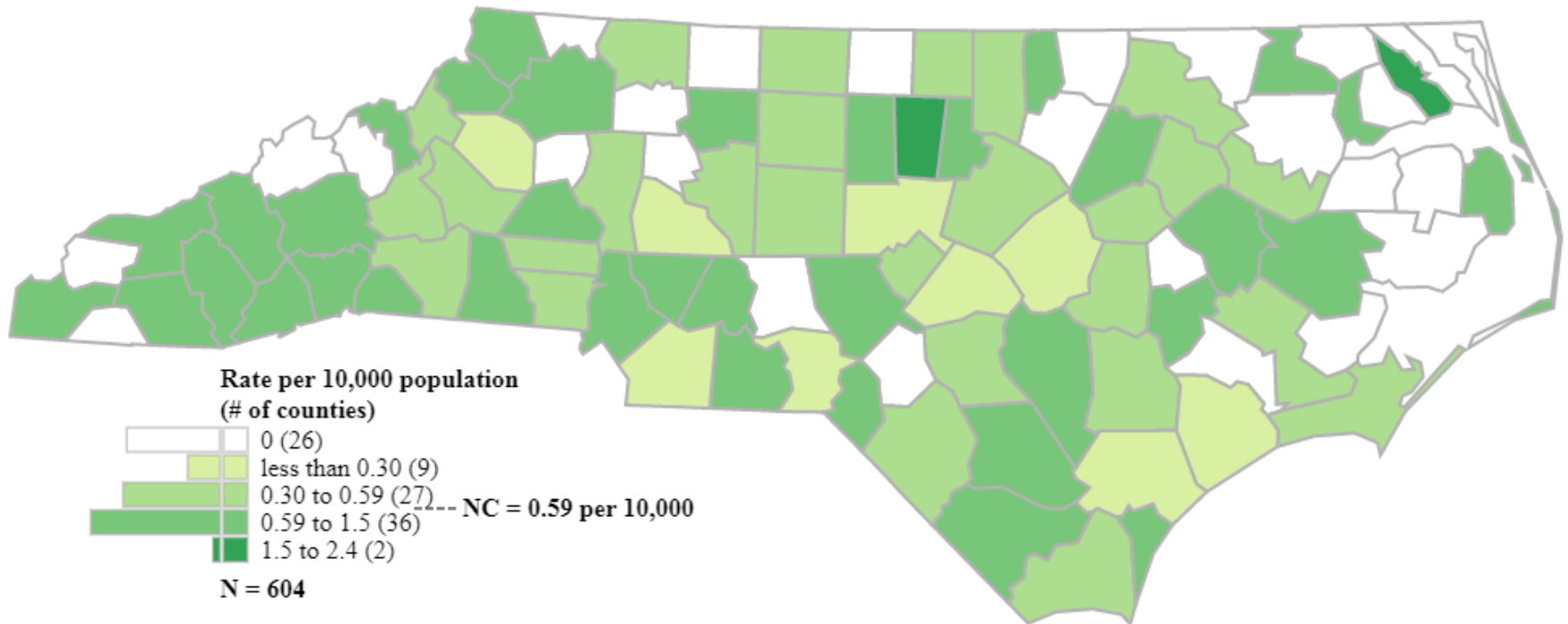
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26 NC counties have no general surgeon

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 5, 2017 at <https://hpds.sirsdemo.unc.edu>.



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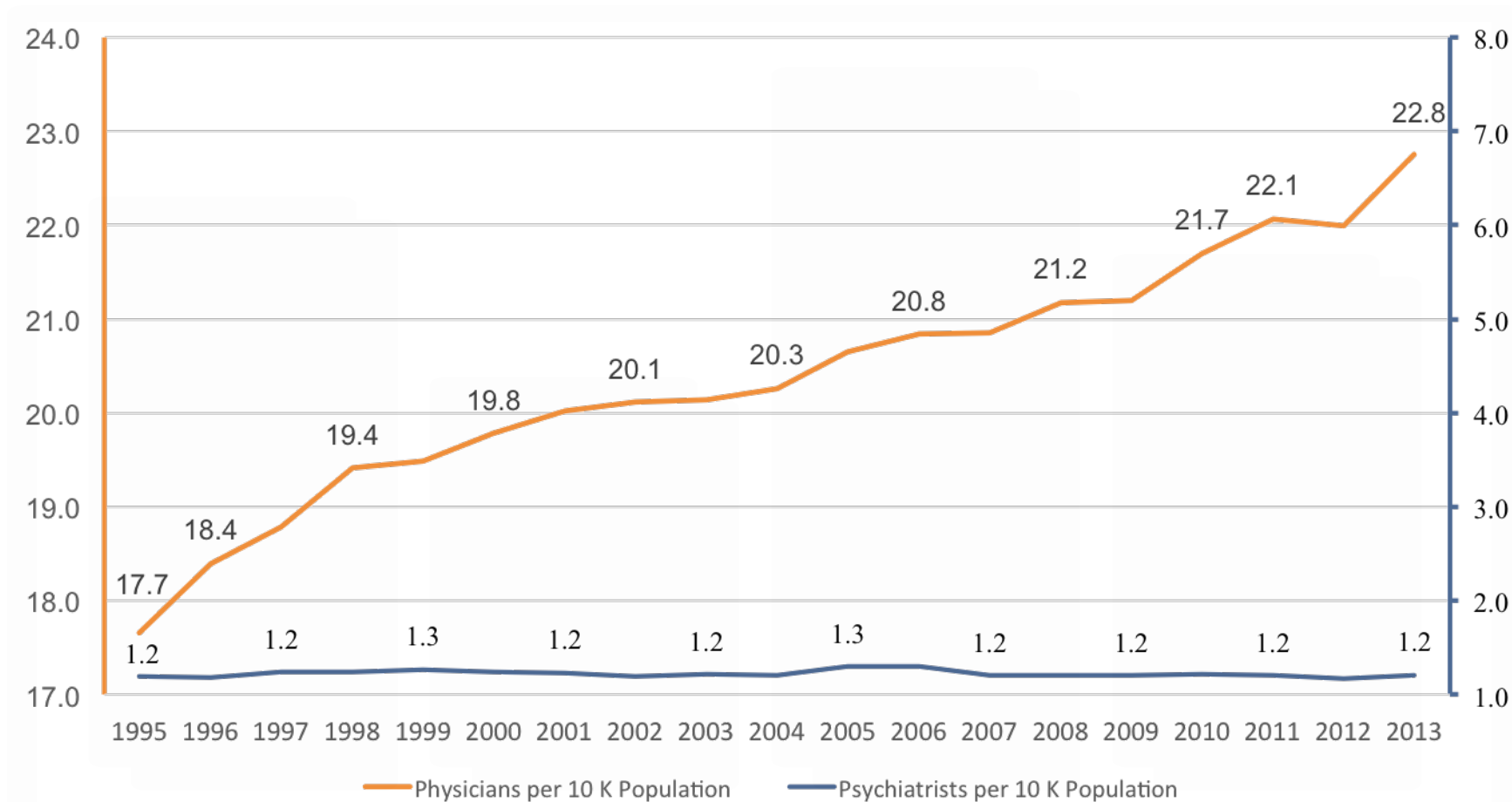


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Opioid epidemic has heightened interest in behavioral health workforce: Why doesn't anyone want to become a psychiatrist?

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



Closures of obstetric delivery units in rural NC may be creating access to care issues

LISTEN TO AMERICA

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 26, 2017

hospitals forced to close their birth centers

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by **Adriana Gallardo**

LETTER FROM NORTH CAROLINA

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

J. Scott Applewhite/AP Photo



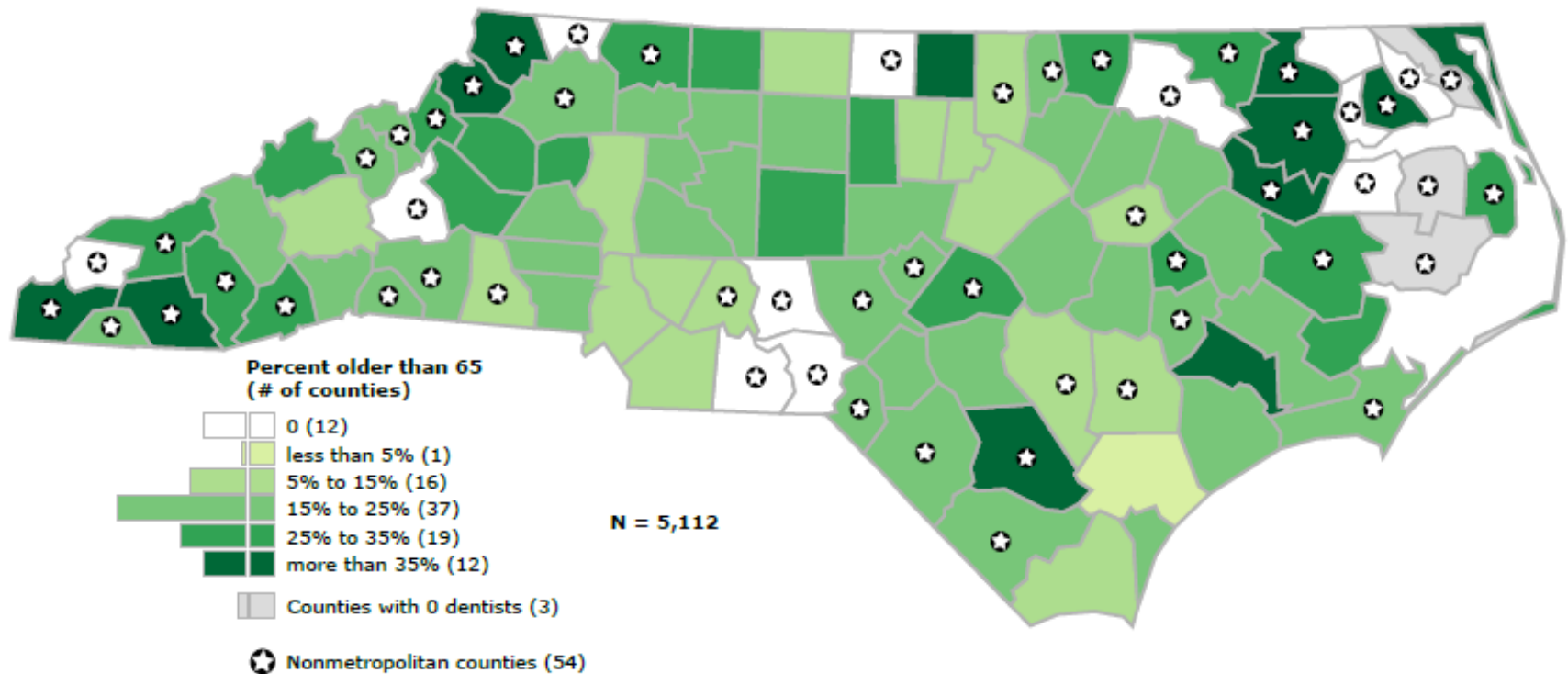
B OONE, N.C.—Three years ago, Lucia Parker gave birth to her first child surrounded by people she loved. Her mother, sister, and husband were by her side at Blue Ridge Regional Hospital, and the nurses attending her were family friends. Each of them took turns massaging her back. They lifted her out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



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In 12 counties, one-third of the dentist workforce is older than 65

Percent of Dentists in North Carolina Counties who were 65 or Older in 2017



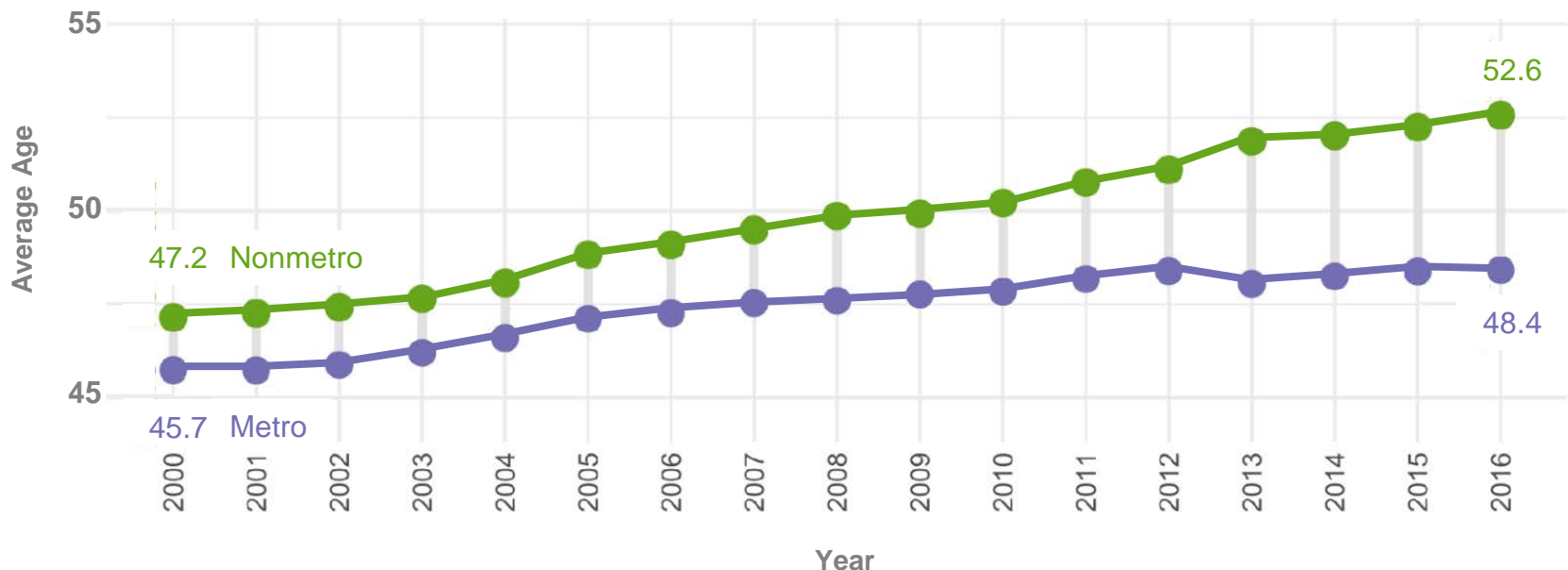
Note: Metro or nonmetro status is defined at the county level using Core Based Statistical Areas (CBSA), the Office of Management and Budget's collective term for Metropolitan and Micropolitan Statistical Areas. Here, nonmetropolitan counties include micropolitan and counties outside of CBSAs. Data include active, in-state dentists licensed and practicing in NC as of October 31, 2017.

Source: North Carolina Health Professions Data System, <https://nchealthworkforce.sirs.unc.edu>, with data derived from the North Carolina State Board of dental Examiners; 2010 Office of Management and Budget (OMB) Standards for Delineating Metropolitan and Micropolitan Statistical Areas, July 2015 Delineation File.

Produced by: Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, UNC-CH.

And rural physician workforce is aging at faster pace than urban workforce

Average Age of North Carolina Physicians Over Time (Metro vs. Nonmetro)



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. 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.

Scope of practice bills and laws in 2017-18 NC Legislative Session

- H88/S73 Modernize Nursing Practice Act
 - Moves regulation of advanced practice nurses (APRNs) (nurse practitioners, certified nurse-midwives, clinical nurse specialists and certified registered nurse anesthetists) to Board of Nursing, not joint regulation with Medical Board
 - Removes requirement for collaborative practice/supervisory agreements between APRNs and physicians
- S342 Enact Enhanced Access to Eye Care Act
 - Expands optometrist SOP to use laser technology to perform specific surgical procedures that do not require general anesthesia

Scope of practice bills and laws in 2017-18 NC Legislative Session

- H357/S297 Modernize Dietetics/Nutrition Practice Act
 - Clarifies license scope to medical nutrition therapy; allow ordering nutrition-related lab tests
- S.L. 2017-28 Enact Physical Therapy Licensure Compact
 - Allows physical therapists licensed in other compact states to practice in NC; military-trained applicants and spouses licensed in other compact states are exempt from application fees
- Not yet proposed, but brewing, are potential dental regulatory changes. Might be accomplished through rule making instead.



A Quick Primer on Scope of Practice and Health Professional Regulation



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What's the difference between licensure and certification?

Licensure

Recognizes competence to practice a given occupation of individual who completes required training and testing and is held accountable to practice within established standards of safety

Certification

Recognition (certification) by an authorized body that an individual, institution, or educational program has met predetermined requirements/standards

Both aim to protect public safety. What's the difference?

Licensure is required to practice, certification is voluntary. Licensure confers a monopoly on who can enter profession, provide certain services (SOP) and get paid for it.

Regulation differs between states for same types of health care workers

- Education standards and licensure exams are national, but licensure is state function
- State licensure boards determine requirements to enter practice and set boundaries on scope of services permitted
- Result = variation between states in:
 1. who is required to be licensed; and
 2. what services licensed health professionals can provide patients

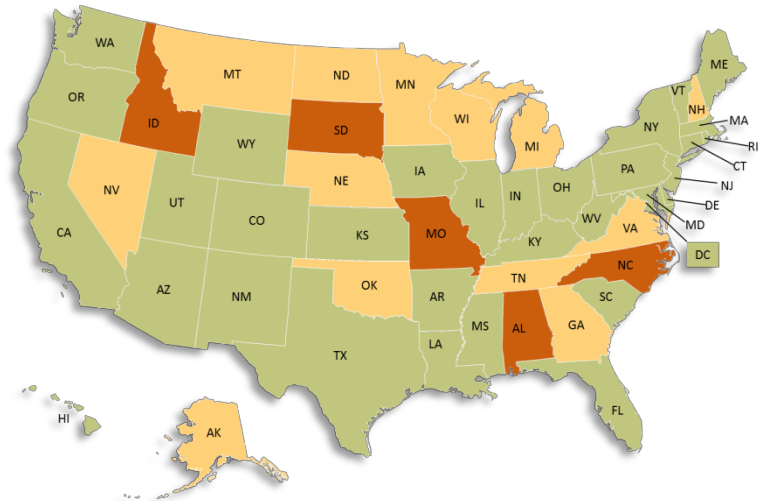
Example 1: Some states require radiologic technologists to be licensed, others do not

Radiology Technologist Licensure Environment, 2014




What they do:

RTs use various technologies (including radiation) to take pictures of a patient's body for radiologists, who interpret the images

Note: in North Carolina, hairdressers - but not RTs - are licensed



Legend

-  States that license/regulate three or more of the primary radiologic disciplines (radiography, radiation therapy, nuclear medicine and magnetic resonance).
-  States that license/regulate at least one of any radiologic discipline (fluoroscopy, mammography, radiologist assistant, etc.).
-  States that do not license/regulate any of the radiologic disciplines.

asrt
American Society of
Radiologic Technologists

Example 2. Meanwhile Louisiana is only state where florists are licensed

Gov. John Bel Edwards 'not sure why' Louisiana requires florists, others to be licensed, wants review

BY ELIZABETH CRISP | ECRISP@THEADVOCATE.COM JAN 14, 2018 - 7:15 PM (7)



Louisiana Governor John Bel Edwards speaks during the "Nashville to the Rescue" benefit for injured East Baton Rouge Sheriff's Deputy Nick Tullier, Tuesday, January 9, 2018, at the Marriott in Baton Rouge, La.

Buy Now

Louisiana previously required florists to make a floral arrangement that could be judged as part of licensing process. In 2010, legislature did away with that requirement.

Rationale cited is that without licensure "you're going to set up a situation where anybody can open a floral shop".

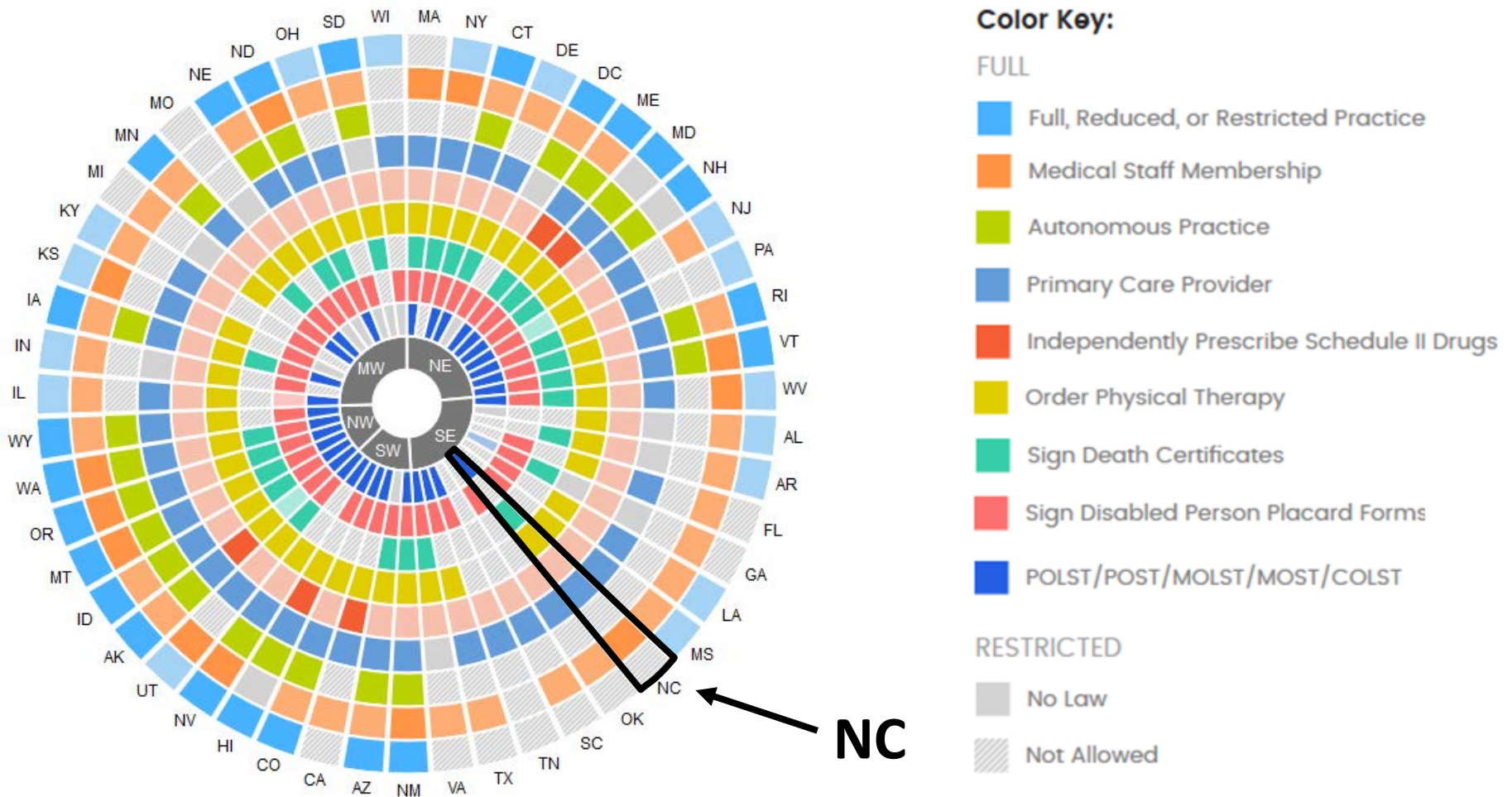
Is this protecting the public or the profession?

Example 3: Nurse Practitioners are licensed in all states, but what they can do varies

- Significant variation exists in
 - prescriptive authority
 - who counts as a primary care provider
 - whether NPs can order physical therapy, admit patients to hospitals, and sign workers' comp claims, death certificates, and handicap permits
- Also significant variation in level of supervision needed

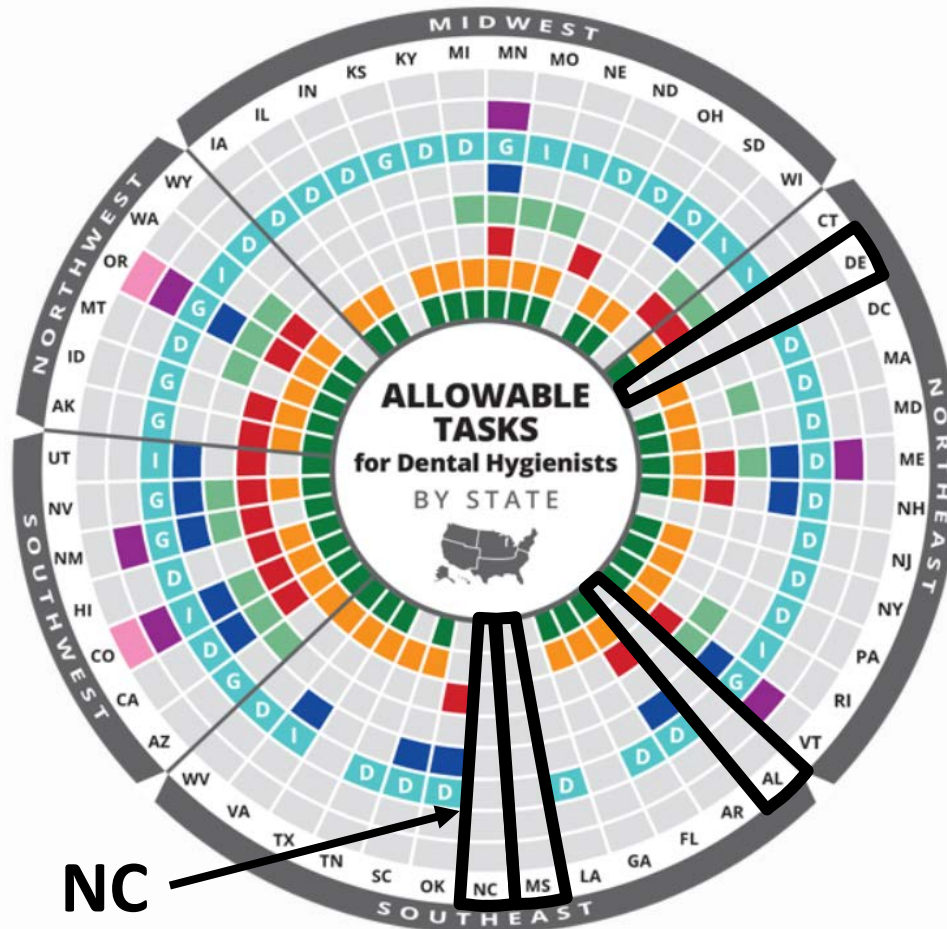


In NC, NPs require physician supervision and dual regulation with medical board



<https://www.bartonassociates.com/locum-tenens-resources/nurse-practitioner-scope-of-practice-laws/>, Accessed 4/9/2018.

Example 4: Compared to other states, NC has restrictive scope of practice for dental hygienists



- Dental Hygiene Diagnosis
- Prescriptive Authority
- Local Anesthesia
- D Direct I Indirect* G General
- Supervision of Dental Assistants
- Direct Medicaid Reimbursement
- Dental Hygiene Treatment Planning
- Provision of Sealants
- Direct Access to Prophylaxis
- Not Allowed / No Law



<http://www.oralhealthworkforce.org/resources/variation-in-dental-hygiene-scope-of-practice-by-state/>, Accessed 2/1/2018.

While states have authority to regulate health professions, federal government has authority to restrict anti-competitive regulations

- Federal Trade Commission increasingly weighing in on scope of practice battles
- A fairly typical letter regarding SOP of practice for Certified Registered Nurse Anesthetists in Missouri warned legislators to proceed with caution and urged them to “carefully consider whether there was evidence to justify the broad restriction on CRNA practice [proposed by bill]”.
- The FTC noted that because of shortage and maldistribution of anesthesiologists, the bill’s effects “would likely be felt most acutely by Missouri’s most vulnerable populations—the elderly, the disadvantaged and rural citizens”

https://www.ftc.gov/sites/default/files/documents/advocacy_documents/ftc-staff-letter-honorable-representative-jeanne-kirkton-missouri-house-representatives-concerning/120327kirktonmissouriletter.pdf



The Supreme Court has also weighed in here in North Carolina

- 2015 Supreme Court Case: *North Carolina State Board of Dental Examiners v. Federal Trade Commission*
 - Dental Board sent cease-and-desist letters sent to cosmetic teeth whitening clinics since not licensed to practice dentistry
 - FTC said anti-competitive because (per state law) 6 of 8 board members were dentists active in profession and had vested self-interest
- Court's decision has had national impact, with many lawsuits against state regulatory boards in other states and in professions outside health

Strong and often conflicting stakeholders involved in SOP battles

- Stakeholders include:
practicing health professionals and their associations, licensure boards, employers, individuals wanting to enter profession, payers, legislators and state policy makers, patients/consumers
- Higher paid professionals (i.e. physicians and dentists) have more lobbying power than lower paid ones (nurses and hygienists)
- Often patient, family and community voice is lost among professional lobbyists

The role of licensure bodies as stakeholders: It's complicated

- Licensure bodies are self-regulating. Their mission is to protect public safety.
- Self-regulation was originally instituted at request of the medical profession because the body of professional knowledge was unknown to average citizen, making external regulation difficult
- Licensure boards are expected to set standards and discipline members to protect public safety
- Yet, boards have relatively few public members and sometimes tension exists between protecting public versus protecting the profession

Variation in regulation between states is often not evidence-based

- Evidence is often not available to inform SOP decisions
- States sometimes look to other states as “policy laboratories” to determine:
 - Did change result in adverse patient outcomes?
 - Did SOP changes solve/have an effect on the problem at hand? Increase access? Decrease cost? Improve patient satisfaction?

There is evidence supporting dental hygienist scope

- Broader scopes of practice for dental hygienists are associated with lower rates of tooth loss because of disease or decay¹
- Research indicates that dental hygienists who practice independently or are supervised remotely improve the oral health of patients and do not adversely affect public health or safety²⁻⁵

1. Langelier, Continelli, Moore, Baker, Surdu. Expanded Scopes of Practice for Dental Hygienists Associated with Improved Oral Health Outcomes for Adults. *Health Affairs*. 2016;35(12): 2207-2215.
2. Freed, Perry, Kushman. Aspects of Quality of Dental Hygiene Care in Supervised and Unsupervised Practices. *Journal of Public Health Dentistry*. 1997;57(2):68-72.
3. Astroth, Cross-Poline. Pilot Study of Six Colorado Dental Hygiene Independent Practices. *Journal of Dental Hygiene*. 1998;72(1):13-22.
4. Olmstead, Rublee, Zurkawski, Kleber. Public Health Dental Hygiene: An Option for Improved Quality of Care and Quality of Life. *Journal of Dental Hygiene*. 2013;87(5):299-308.
5. Virginia Board of Health Professions. 2014. Review of Dental Hygienist Scope of Practice. Accessed 6 Apr 2018 at: <https://www.dhp.virginia.gov/bhp/studies/DentalHygienistReview.pdf>

National Academy of Medicine: *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*

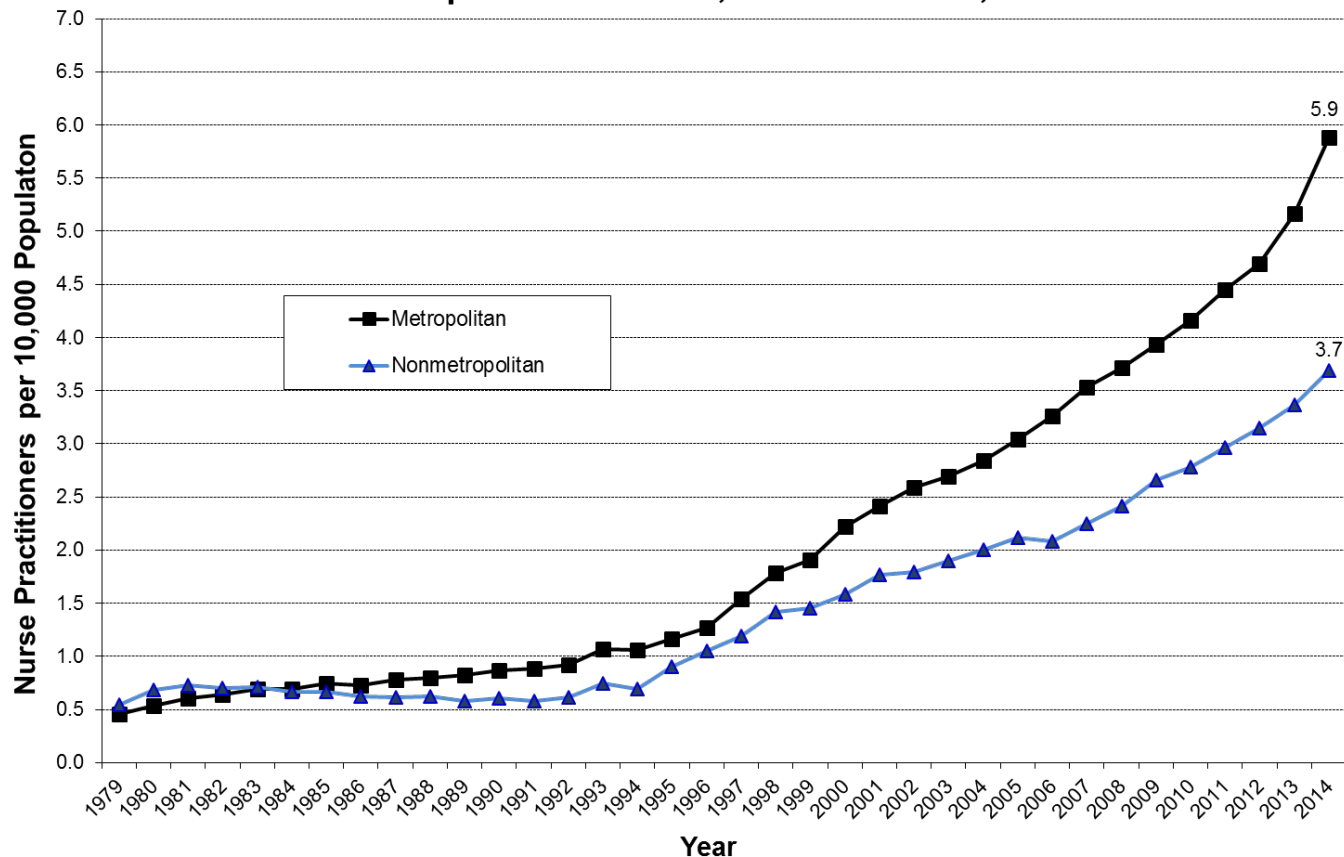
“While restricting scope of practice is generally attributed to protecting consumers from unsafe or untrained professionals, data suggest that restrictive licensure laws in oral health are not tied to better health outcomes or supported by scientific evidence; in fact, stringent laws have been tied to increased consumer costs, which may restrict an individual’s ability to access care (IOM, 1989; Kleiner and Kudrle, 2000; Shepard, 1978).

Licensure laws also affect wages and employment opportunities. Studies show that more restrictive laws lead to increased income for dentists, while less restriction leads to decreased income and employment growth for dentists and greater income and employment opportunities for dental hygienists (Kleiner and Kudrle, 2000; Kleiner and Park, 2010; Shepard, 1978; Wanchek, 2010).”

Source: IOM (Institute of Medicine) and NRC (National Research Council). 2011. *Improving access to oral health care for vulnerable and underserved populations*. Washington, DC: The National Academies Press.

Expanded scope of practice for nurses often supported by claims that NPs will practice in underserved areas

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.

Yet North Carolina data are inconclusive

What we know:

- Roughly the same percent of the primary care physician workforce and NP workforce practice in:
 - the most economically distressed (Tier 1) counties,
 - whole county primary care health professional shortage areas (HPSAs)
 - rural counties
- What we don't know:
 - whether scope of practice restrictions affect NP practice in rural or underserved areas in NC
 - whether the supervisory requirement does or does not impede rural practice in NC

Data from other states:

Do SOP laws affect NP practice locations?

- Rural counties in “full practice” states have significantly more primary care NPs per capita than rural counties in states where NP scope of practice is “restricted” (NC is a “restricted” state)¹

1. Graves JA, et al. Role of geography and nurse practitioner scope-of-practice in efforts to expand primary care system capacity. *Medical Care*. 2016;54(1):81-89.

Research on cost, quality and access of expanded NP scope is inconclusive

- Cost
 - **Inconclusive evidence**: some studies have found no difference in costs, while others have found that some costs were lower in states with expanded SOP
- Quality
 - **Possible improvements**: studies are few
- Access
 - **Possible improvements**. Recent study found “states granting NPs greater SOP authority tend to exhibit an increase in the number and growth of NPs, greater care provision by NPs, and expanded health care utilization, especially among rural and vulnerable populations. (Xue et al, 2016)

Sources:

Martsof G, Kandrack R. The Impact of Establishing a Full Scope of Practice for Nurse Practitioners in Michigan. Santa Monica, CA: RAND Corporation. 2016.

https://www.rand.org/pubs/research_reports/RR1639.html.

Xue Y, Ye Z, Brewer C, Spetz J. Impact of state nurse practitioner scope-of-practice regulation on health care delivery: Systematic review. *Nursing Outlook*. 2016;64(1):71-85.

<https://doi.org/10.1016/j.outlook.2015.08.005>.

But lack of evidence is on both sides....

State medical societies recognize lack of data on whether physicians provide higher quality care. Executives noted in 2012 report:

- “I don’t think we can hold back scope of practice much longer without data. If there’s no data, we’re on thin ice.”
- “The CRNAs have data [showing favorable outcomes], but we don’t have any data showing that physician outcomes are better.”
- “We don’t have a strong policy argument [against allowing optometrists to prescribe oral medications] because we don’t have any data showing that there’s a problem in the other 46 states that *allow* prescriptions.”
- “We just don’t have the outcome data.”

Source: Isaacs S, Jellinek P. Accept No Substitute: A Report on Scope of Practice. The Physicians Foundation. November 2012. https://physiciansfoundation.org/wp-content/uploads/2017/12/A_Report_on_Scope_of_Practice.pdf.

Health care system is changing rapidly: Regulation needs to adapt

- New care delivery and payment models encourage new roles among existing health providers
- At same time, new roles are emerging –community health workers, care coordinators, community paramedics, etc.
- Technology and scientific advancements are changing roles and responsibilities



“The health profession regulation system in place today does not have the flexibility to support change

Source: Dower C, Moore J, Langelier M. It is time to restructure health professions scope-of-practice regulations to remove barriers to care. *Health Aff* (Millwood). 2013 Nov;32(11).

Moving forward: How do we get there from here?

Resources and tools for NC legislators that support evidence-based evaluation of SOP changes:

- Scope of Practice Evaluation Tool
- Demonstration project model
- Consider alternative policy levers instead of regulatory change



Resources and tools: Objective scope of practice evaluation frameworks

- Minnesota and Virginia have developed frameworks to help policy makers objectively evaluate scope of practice changes for regulated health professionals
- MN framework developed by professional associations, state licensing boards, legislators, MN Department of Health, Office of Rural Health, National Governors Association and National Council of State Legislatures

VA: Policies and Procedures for the Evaluation of the Need to Regulate Health Occupations and Professions.

<https://www.dhp.virginia.gov/bhp/guidelines/75-2.doc>

MN: Minnesota Office of Rural Health and Primary Care. Scope of Practice Tools. <http://www.health.state.mn.us/divs/orhpc/scope.html>



Key considerations for legislators evaluating SOP proposals

- Public safety
 - Describe, using evidence, how proposed change may improve or harm safety
 - Is there research evidence that change might have risk?
- Access
 - Describe how unmet health care needs of population (including disparities) will be met by this proposal
 - Does proposal encourage service to underserved populations?
 - How does proposal contribute to evolving health care delivery and payment models?

Regulation and training required

- Regulation
 - What is proposed form of change (licensure, certification, etc.)
 - Have other states adopted this regulatory change?
 - Does proposed change in SOP overlap with other health professionals?
- Education and supervision
 - What training, education or experience will be required?
 - Is education available?
 - What is recommended level of supervision?
Independent, collaborative, supervised?



Financial and workforce impacts

- Reimbursement and Fiscal Impact to State
 - How and by whom will expanded services be compensated?
 - What costs will accrue to whom (patients, insurers, employers)
 - Is reimbursement available in other states?
 - What is the state fiscal impact of the change?
- Workforce Impacts
 - How many health professionals are expected to practice under the change? What is geographic distribution?
 - How will change affect the overall supply of providers in relation to demand?

When data are lacking, one option is to allow demonstration projects to build evidence base

California Health Workforce Pilot Projects Program

- Allows organizations to test and evaluate proposed changes in licensure before decision is made by the Legislature. Demonstrations are used to:
 - evaluate changes to *existing* health professions' roles and regulation
 - evaluate *new/emerging* roles for health professions in new healthcare delivery models
- Demonstrations require evaluation, including cost effectiveness, access to care and implications for workforce development

Since 1972:

**173 HWPP
applications
submitted**

123 approved

**77 resulted in
legislative and/or
regulatory change**

Regulations & Statutes

- California Codes Health and Safety Code Section 128125-128195 establishes HWPP.
<https://www.oshpd.ca.gov/documents/HWDD/HWPP/HMPPlegcode.pdf>
- California Code of Regulations Section 92001-92702 provides definitions and criteria for administering HWPP.
<https://www.oshpd.ca.gov/documents/HWDD/HWPP/HMPPPregs.pdf>

One final consideration, consider whether regulatory change is needed

- Is regulatory change the best way to achieve underlying goal?
- Are there other ways to increase access to care, improve quality, and achieve greater efficiency?
- Consider multiple incentives to encourage practice in underserved areas
 - **Payment**: for example, increase Medicaid payment rates for dentists
 - **Support practice in rural communities**: for example, work with NC Office of Rural Health to better target loan repayment to needed communities
 - **Require outcomes data** for public funds spent on health professions training
 - Invest funding in **developing pipeline** of students from underserved communities
 - **Support career ladders** for health professionals in rural and underserved communities



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Citations: State resources

- California Health Workforce Pilot Projects Program: <https://www.oshpd.ca.gov/HWDD/HWPP.html>
Regulations & Statutes
 - California Codes Health and Safety Code Section 128125-128195 establishes HWPP. <https://www.oshpd.ca.gov/documents/HWDD/HWPP/HMPPlegcode.pdf>
 - California Code of Regulations Section 92001-92702 provides definitions and criteria for administering HWPP. <https://www.oshpd.ca.gov/documents/HWDD/HWPP/HMPPPregs.pdf>
- Virginia Policies and Procedures for the Evaluation of the Need to Regulate Health Occupations and Professions. <https://www.dhp.virginia.gov/bhp/guidelines/75-2.doc>
- Minnesota Office of Rural Health and Primary Care. Scope of Practice Tools. <http://www.health.state.mn.us/divs/orhpc/scope.html>
- CLEAR (Council on Licensure, Enforcement & Regulation): http://www.clearhq.org/resources/glossary_general.pdf
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- DeSanti SS, Farrel J, Feinstein RA. FTC Staff Letter to the Honorable Representative Jeanne Kirkton, Missouri House of Representatives, Concerning Missouri House Bill 1399 and the Regulation of Certified Registered Nurse Anesthetists. March 27, 2012. https://www.ftc.gov/sites/default/files/documents/advocacy_documents/ftc-staff-letter-honorable-representative-jeanne-kirkton-missouri-house-representatives-concerning/120327kirktonmissouriletter.pdf



Citations: Scholarly articles and reports

- Astroth DB, Cross-Poline GN. Pilot Study of Six Colorado Dental Hygiene Independent Practices. *Journal of Dental Hygiene*. 1998;72(1):13-22.
- Freed JR, Perry DA, Kushman JE. Aspects of Quality of Dental Hygiene Care in Supervised and Unsupervised Practices. *Journal of Public Health Dentistry*. 1997;57(2):68-72.
- Graves JA, et al. Role of geography and nurse practitioner scope-of-practice in efforts to expand primary care system capacity. *Medical Care*. 2016;54(1):81-89.
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