

2021

# AUDACITY

AUDIOLOGY UNLEASHED

OCTOBER 25-27 PORTLAND, OREGON

# Panel Session: Addressing Challenges in Patient Access to Hearing Health Care

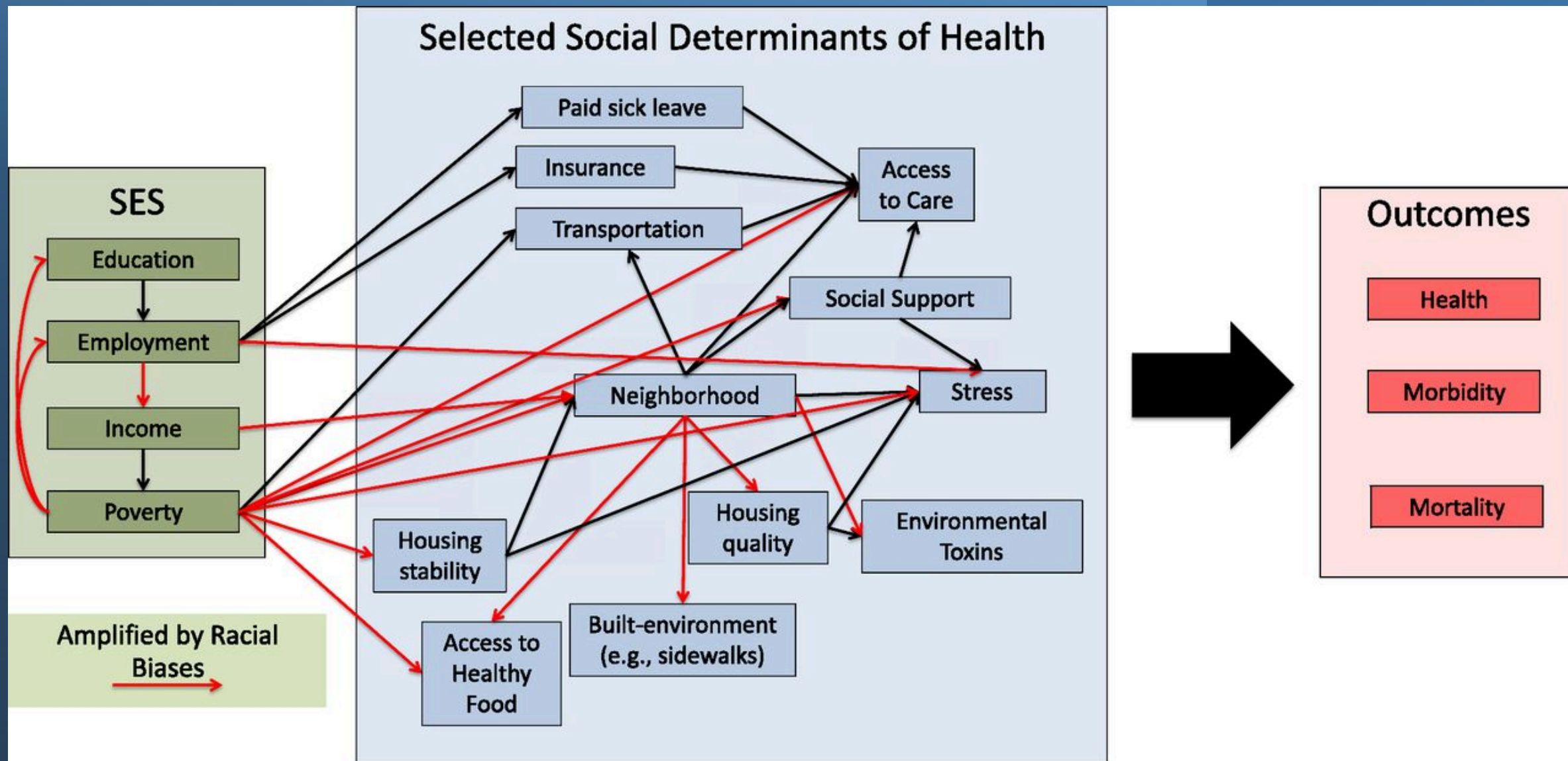


# Access Defined *(Institute of Medicine, 1993, p. 33)*

**“The timely use of personal health services to achieve the best possible health outcomes.”**

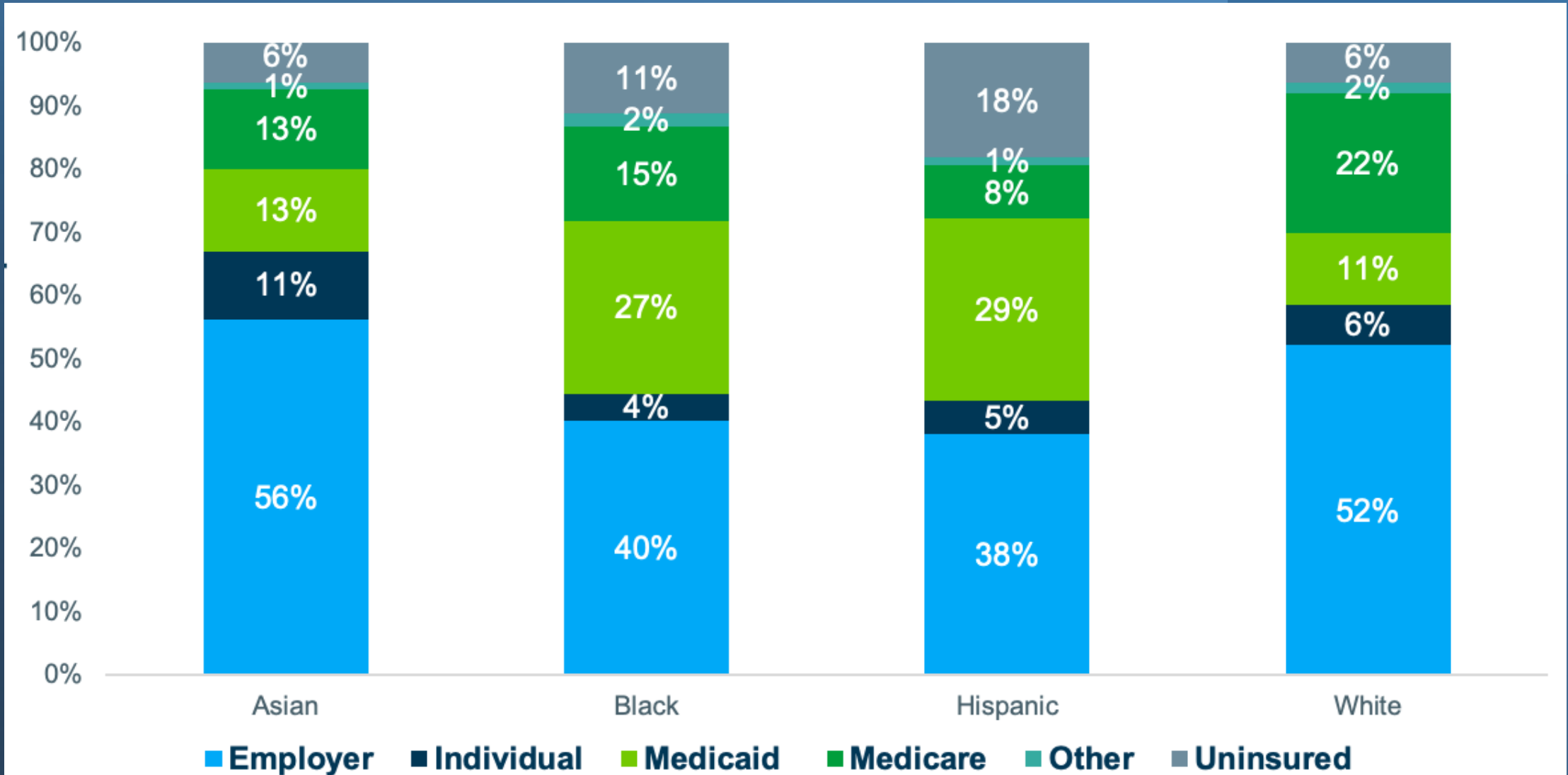
**“The test of access involves determining whether there are systematic differences in the use and outcome among groups in society and whether these differences are the result of financial or other barriers to care.”**

**“Affordability is part of access. If health care is too expensive for the individuals affected, it will not be accessible.”**



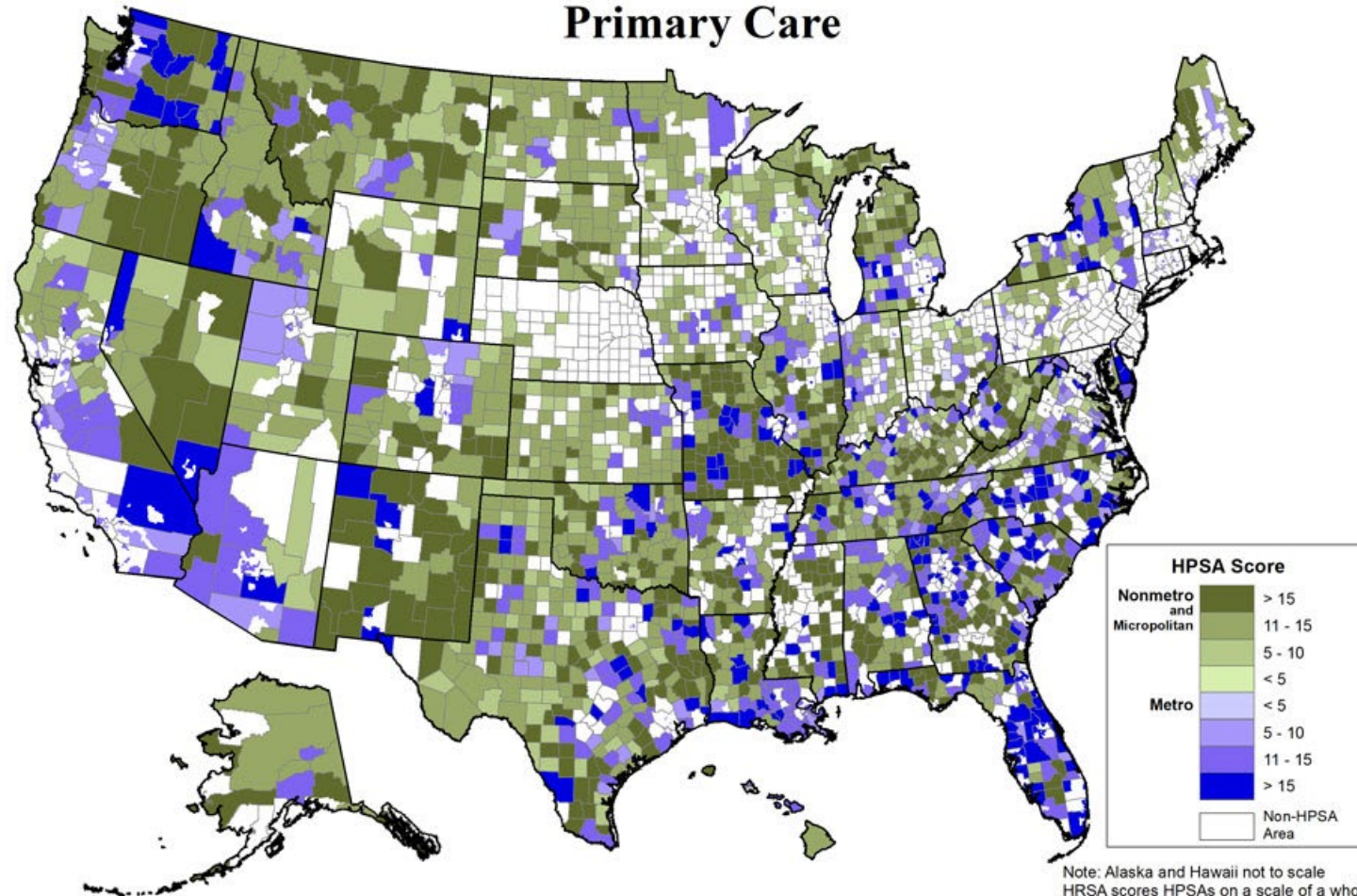


## Source of Health Insurance Coverage by Race, 2018



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## Health Professional Shortage Areas Primary Care



Note: Alaska and Hawaii not to scale  
HPSA scores on a scale of a whole number (0-25 for primary care), with higher scores indicating greater need

Source(s): data.HRSA.gov, U.S. Department of Health and Human Services, July 2021



# Arrianna Planey, PhD

- Assistant Professor, Department of Health Policy and Management, University of North Carolina School of Global Public Health
- Fellow in the Cecil G. Sheps Center for Health Services Research
- She is a health/medical geographer with expertise in measuring and conceptualizing health care access, health and healthcare equity, and spatial epidemiology
- Her research and teaching focuses include the application of spatial analytic/statistical/epidemiologic methods to study interactions between health(care) policies, healthcare access and utilization and underlying, population-level health inequities, and identify points of intervention at structural- and system-levels.



# Access as a Process & Outcome

My modification of Levesque et al, (2013) Conceptual Framework of Access to Healthcare

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Systems-Level Determinants

Provider Characteristics

Individual & Interpersonal

## Health Policy – State Level

- Medicaid Expansion Status (post-ACA)
- Medicaid Coverage of Audiology Services
- Legislation Mandating Health Plan Coverage of Audiology Services

## Health Policy – Federal Level

- CMS Classification of Audiologists as “non-physician” providers
- Exclusion of non-surgical treatment from Medicare essential benefits
- Classification of hearing loss as a non-medical condition

Information  
Screening

Awareness

Geographic Location  
• urban/rural  
Travel Time

Approachability

Provider Supply  
- Referring PCPs/ENTs  
- Audiologists  
Hours of Opening  
Wait Times

Availability & Accommodation

Direct Costs  
Indirect Costs  
Opportunity Costs

Affordability

Care Coordination  
Care Continuity

Appropriateness & Acceptability

Onset of Hearing Loss

Problem-Recognition & Desire for Care

Health Care Help-Seeking

Health Care Utilization (PCP, ENT, audiologist)

Procurement of Diagnosis

Outcomes

- Follow-up for treatment
- No follow-up

Ability to Perceive

Ability to Seek

Ability to Reach

Ability to Pay

Ability to Engage

Social Support  
Stigma  
Degree of Perceived Impairment

Health Beliefs  
Health Literacy  
Awareness

Size of Activity  
Space  
Mobility  
• Modality  
• Degree

SES  
Employed Status  
Insured Status  
Type of Insurance

Quality of Therapeutic Relationship  
• Effective communication



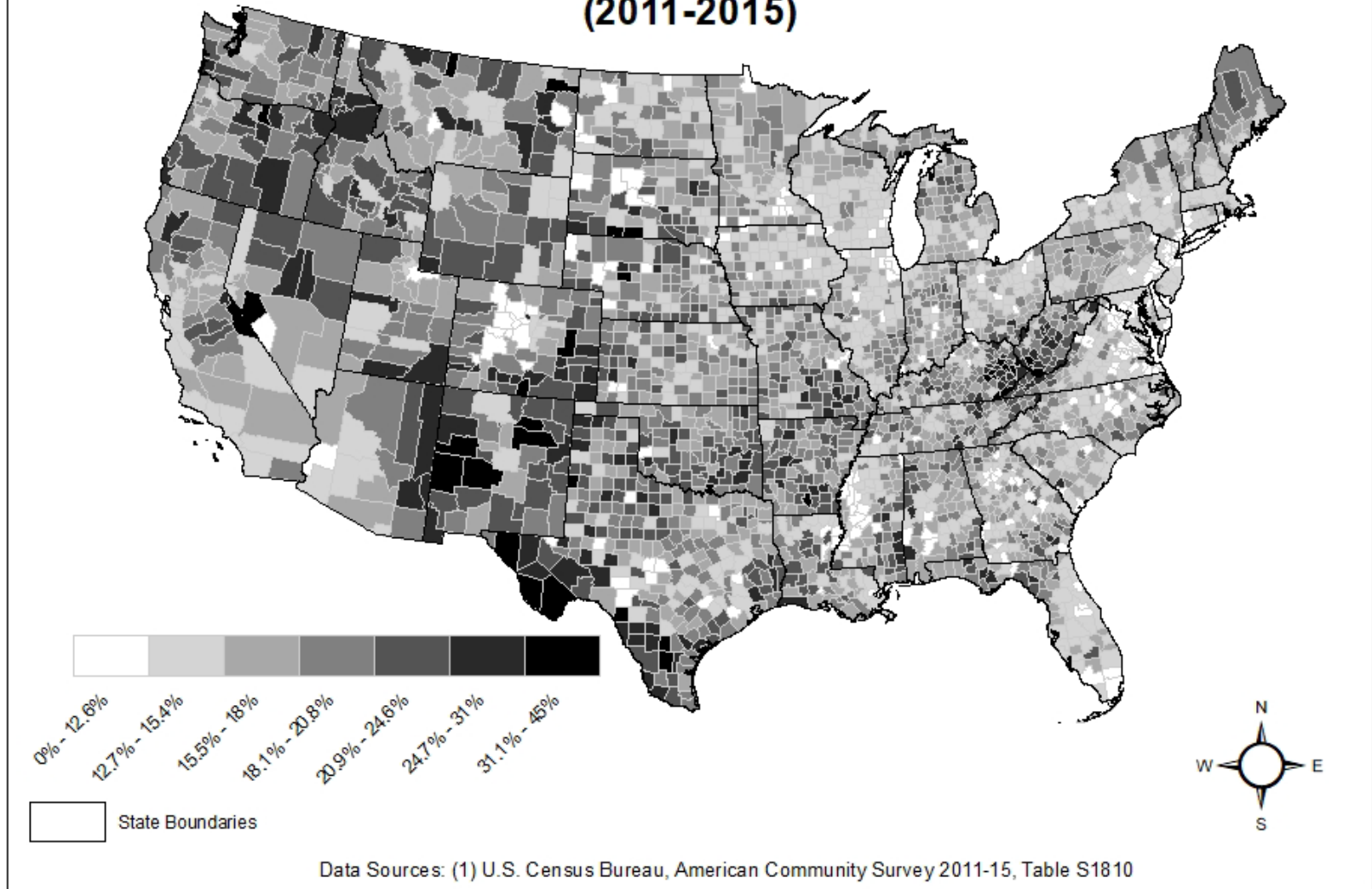
# Introduction

- As the US population ages, hearing & balance disorder prevalence is expected to rise
- Meanwhile, the supply of audiologists- hearing & balance disorder specialists- is falling due to the triplet trends of attrition, clinical program closures, & falling enrollment in said programs (Windmill, 2013)
- Access to key services is also constrained by health care policies that preclude coverage of audiology services beyond physician-referred assessments
- This means that older adults with hearing loss have higher out-of-pocket costs (Mahmoudi et al, 2018)

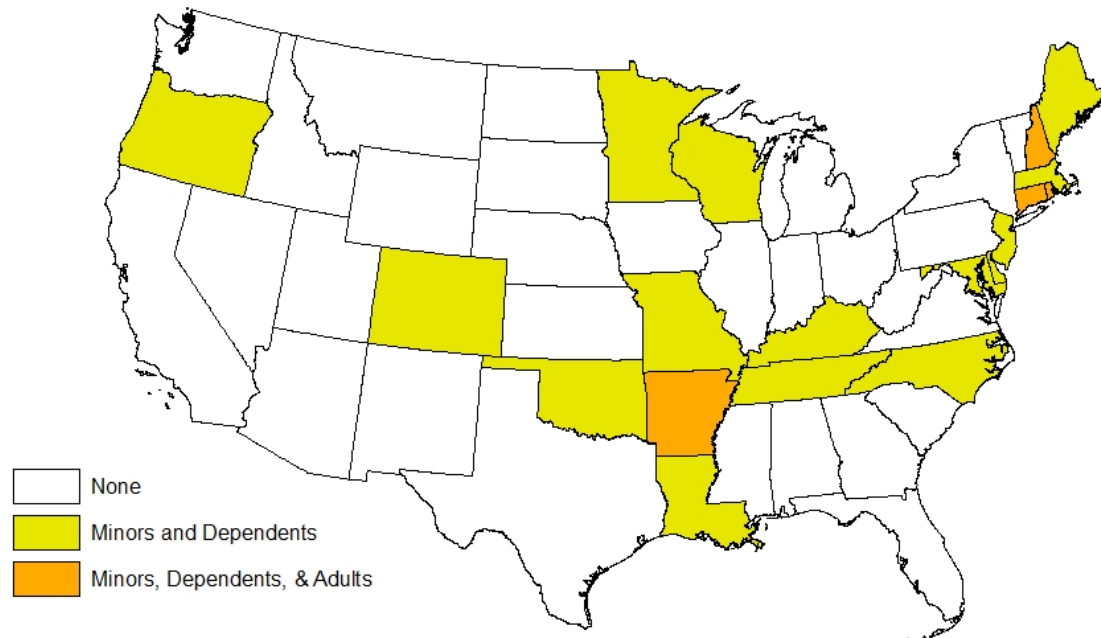
# Health Care Policy – Medicare

Centers for Medicare & Medicaid Services (CMS) regulations preclude reimbursement of audiologist services except in the case of physician-referred assessments “in support of a diagnosis” (CMS, 2016)

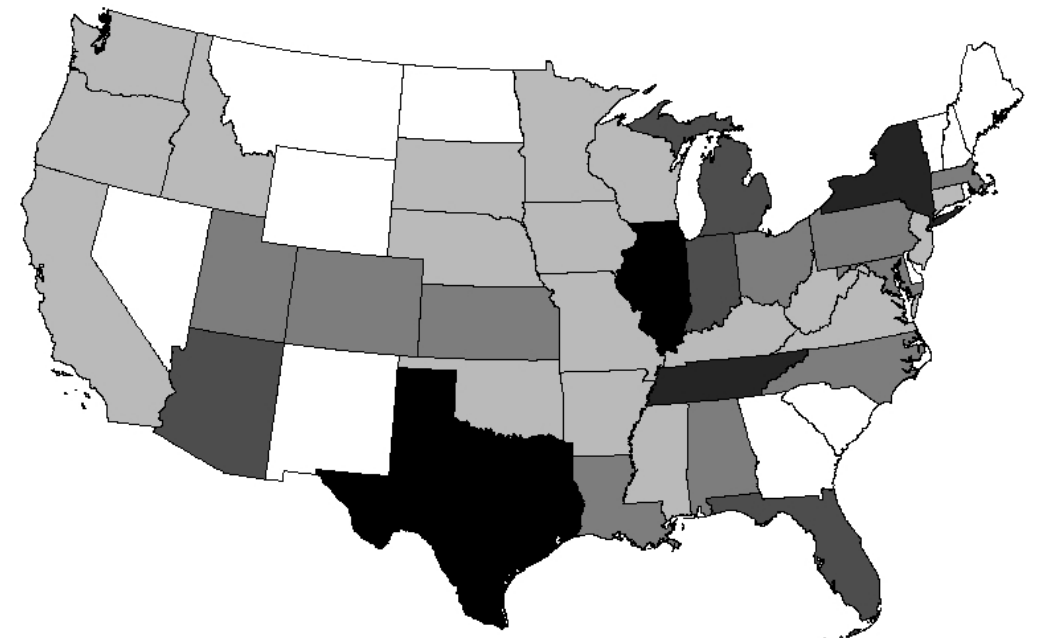
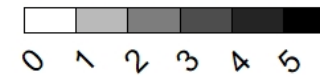
**Estimated Percent of Population Aged 65+ Reporting Hearing Difficulty  
(2011-2015)**



**State Legislation Mandating Private Insurance  
Plan Coverage of Audiology Services (as of Nov 2017)**



**Number of Clinical Audiology Programs**



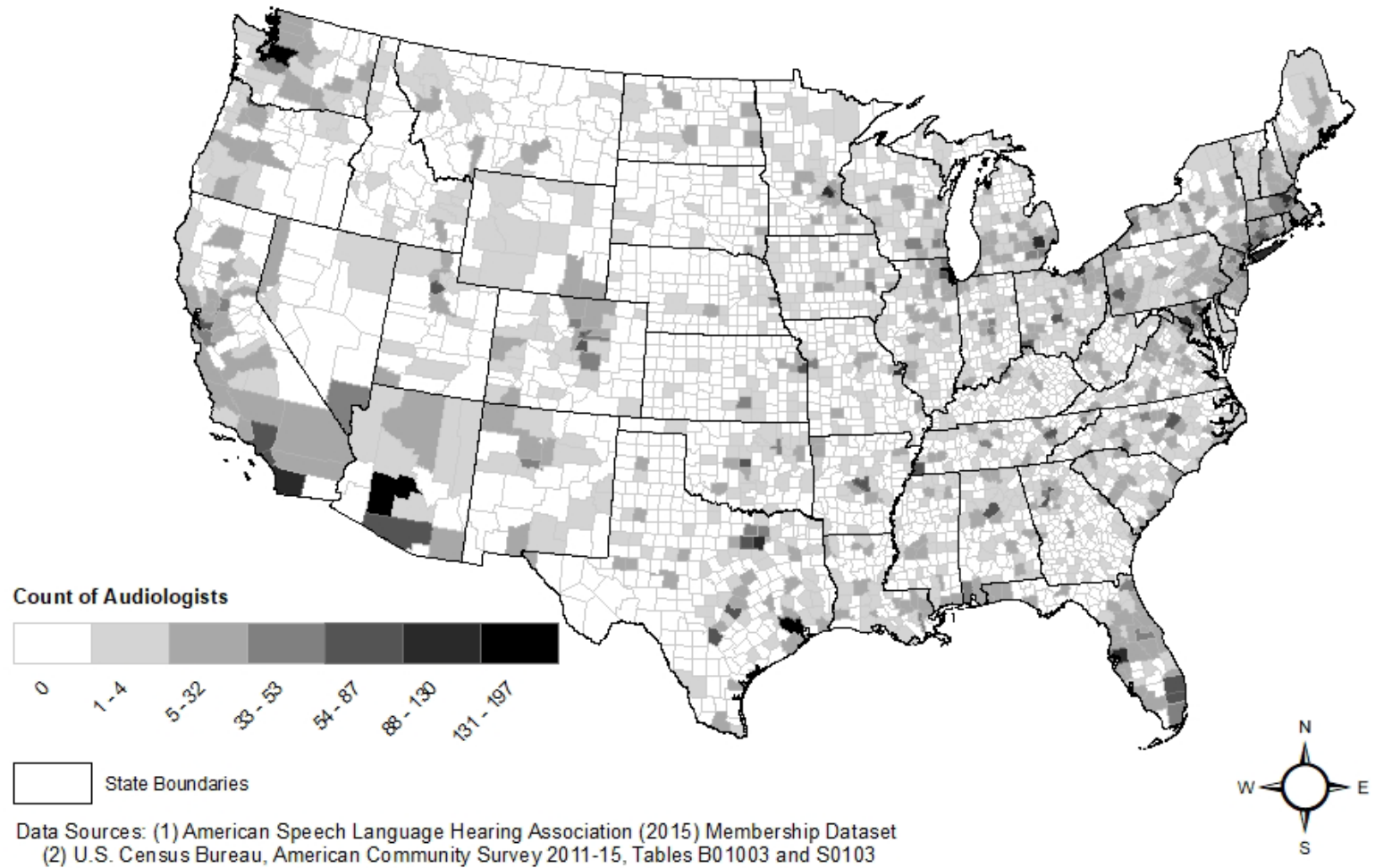
# State Legislation & Clinical Training Landscape

# Racial, Ethnic, & Class Disparities in Hearing Health Care Access & Use

- Higher income older adults are more likely to have their hearing loss diagnosed and treated (Bainbridge and Ramachandran, 2014)
- In the US, older Black adults are more likely to have their hearing screened, but less likely to have their hearing loss treated (Nieman et al, 2016)
- Medicaid coverage is negatively associated with hearing tests among older Black adults, pointing toward the uneven coverage of audiology services among state Medicaid programs (Arnold, Hyer, and Chisholm, 2017; Planey, 2019)

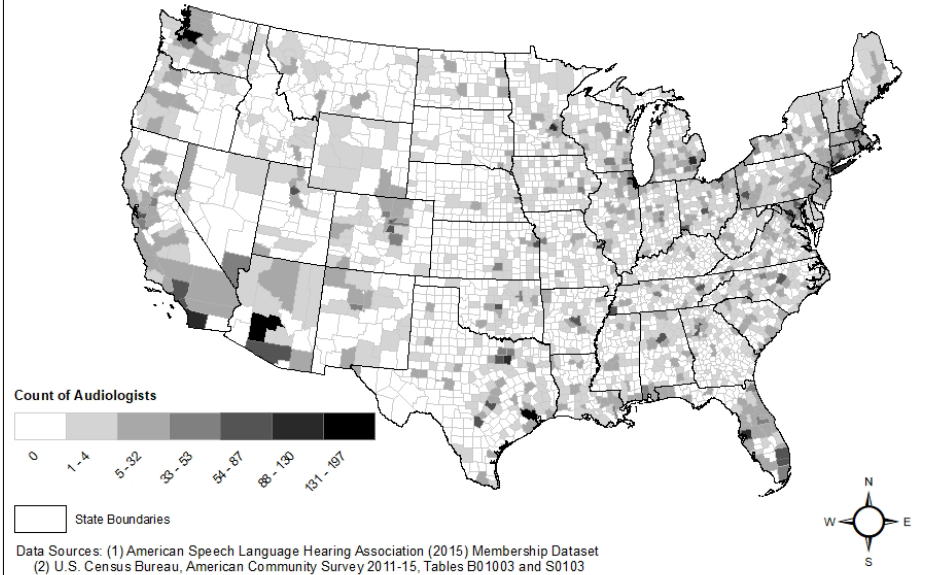


## Count of Audiologists - Conterminous US Counties (2015)



In the absence of comprehensive coverage of their services, audiologists in the US tend to locate in high-income counties with younger populations, and lower proportions of older adults reporting difficulty hearing (Planey, 2019).

Count of Audiologists - Conterminous US Counties (2015)

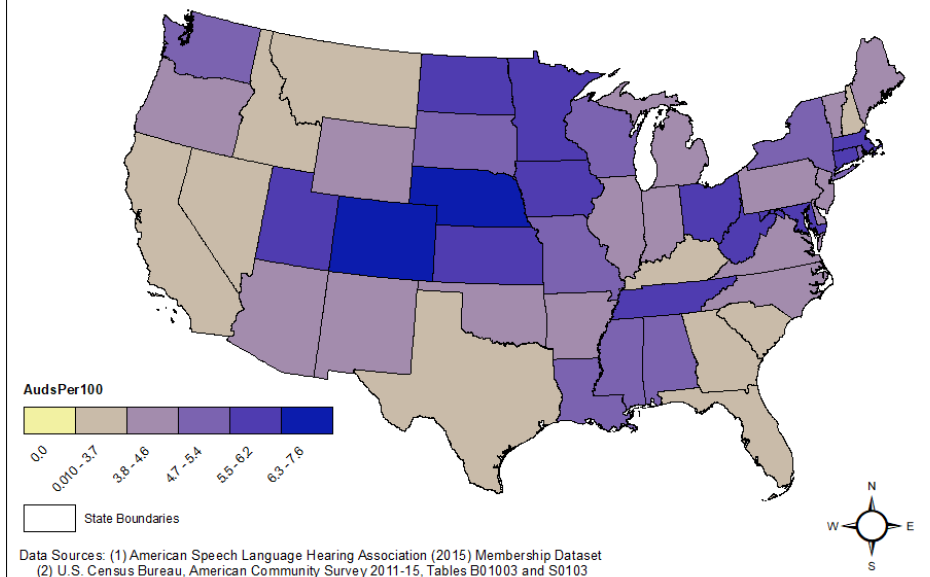


# Unequal Availability Nationally

- At this coarse spatial resolution, we see disparities in availability and supply.

*What about spatial access at a finer scale?*

Audiologists per 100,000 Population (2015)



# Research Questions

- (i) Does the **spatial patterning** of audiologists' locations relative to referring primary care providers **reflect the health policies and insurance regulations that define inter-professional practice?**

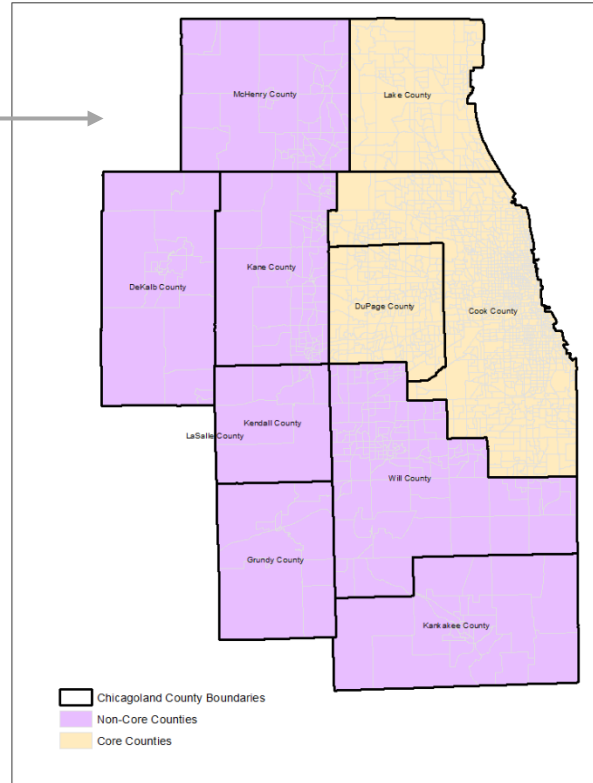
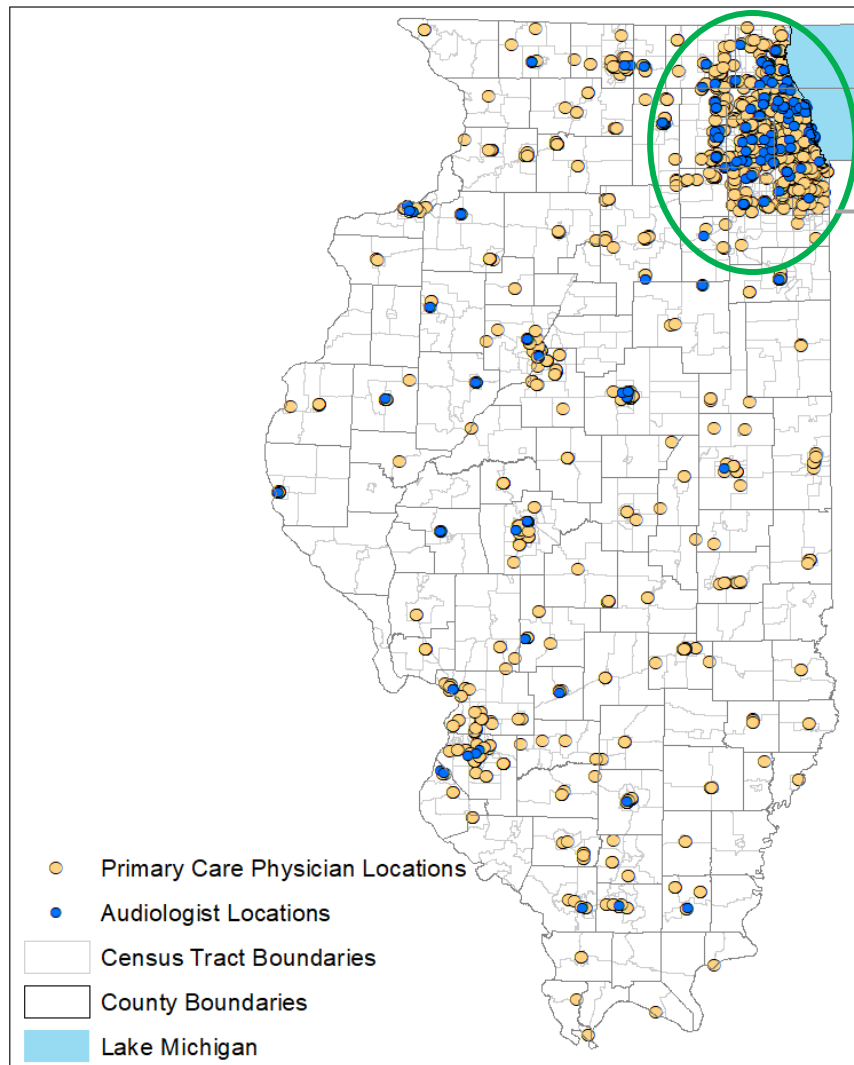
**H1:** Audiologists co-locate with physicians

- (ii) Do the aforementioned patterns **exacerbate socioeconomic and racial inequalities in access to audiologists?**

**H2:** This co-location reinforces racial, ethnic, and class disparities in spatial access to care

# Study Area

Illinois - Audiologist & Primary Care Physician Locations (2018)



The Chicago metropolitan region- or Chicagoland- includes Cook County and the surrounding counties (Lake, DuPage, Will, McHenry, Kane, DeKalb, Kendall, Grundy, and Kankakee counties).

- 61.3% of the state's population
- 81.6% (347 out of 425) of all audiologists in Illinois
- 73.1% (258 out of 353) of all Medicare-enrolled audiologists in Illinois

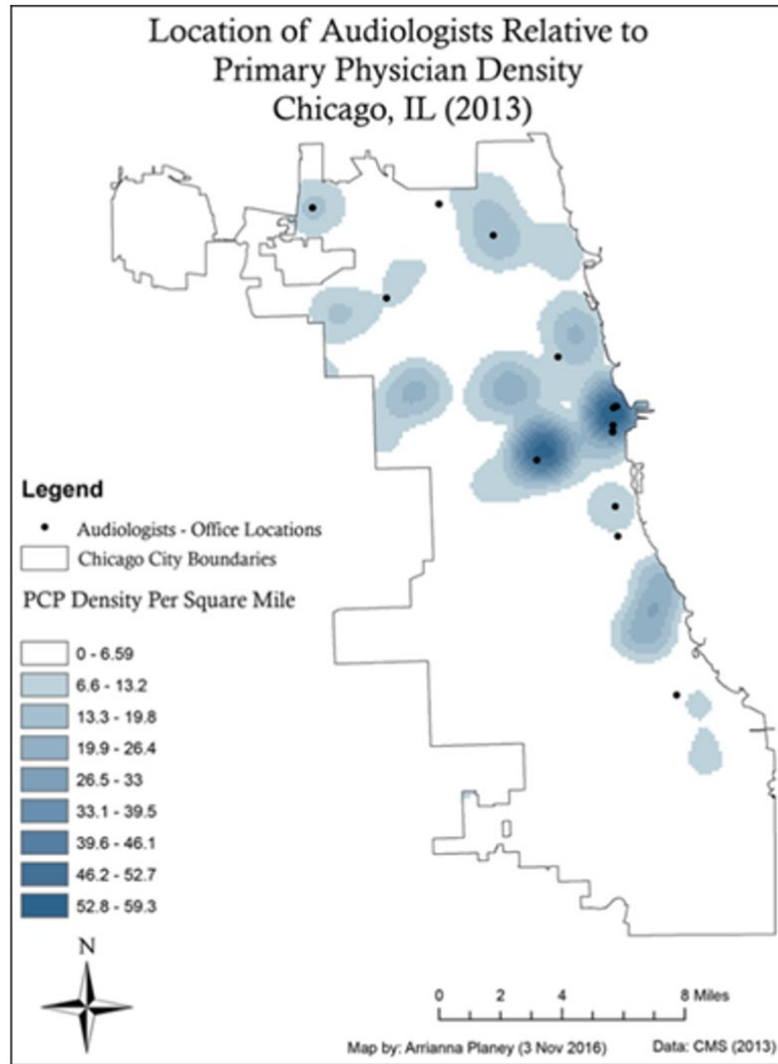


## H1: Audiologists co-locate with physicians

Audiologists & PCPs cluster among one another

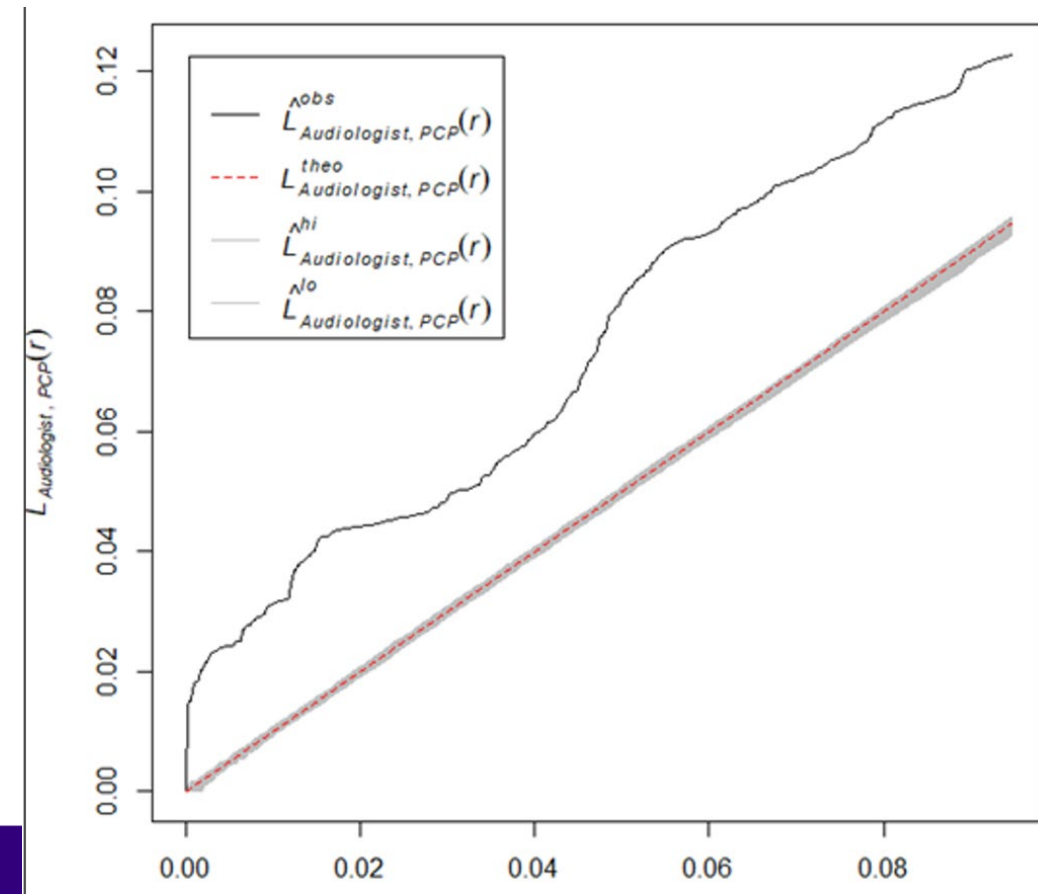
Audiologists & PCPs co-cluster in the study area at all distances

Note: All K and L functions were border-corrected to account for edge effects.



*Kernel Density Estimates of PCPs with Audiologist Locations Overlaid.*

Cross-L Function - Audiologists and PCPs in Chicago. The curve above the line indicates spatial co-clustering across the study area at all distances. Below the line would include dispersion.



## H2: The co-location of audiologists with PCPs reinforces racial and class disparities in spatial access to care

- Majority Black & Hispanic tracts in Chicagoland's core have more travel impedance
- Travel impedance is lowest in tracts with more households that did not own cars- which are concentrated in the central business district ('the loop') where PCPs and audiologists also cluster.
- In Chicagoland's suburban counties, population density predicted shorter travel distances to audiology services.
- Travel impedance is greater for tracts with lower household incomes.

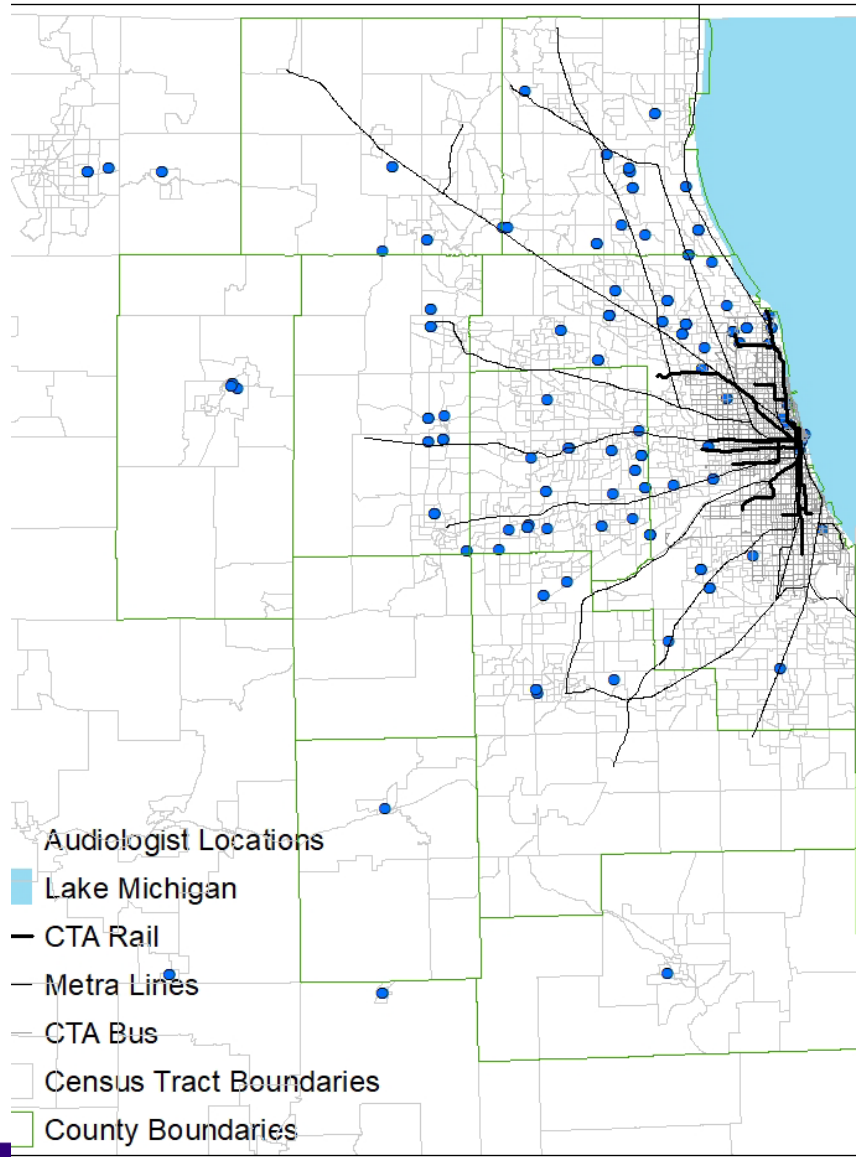
Metro Chicagoland Core Counties (Cook, DuPage, and Lake Counties) (n = 1,728 census tracts)

Variables	Coef ( $\beta$ )	Standard Error	p>z
Share of Black Population (%)	1.4114	0.323723	0.00001
Share of Hispanic Population (%)	0.8936	0.414494	0.03110
Share of Older Adults Reporting Difficulty Hearing (%)	0.0122	0.060444	0.84006
Median Age (years)	0.0006	0.014541	0.96492
Share of population with insurance (%)	0.009	0.011285	0.42662
Percent of Households without a car (%)	-0.035	0.009458	0.00021
Median Household Income (US, 2016)	-5.738 <sup>-006</sup>	3.4651 <sup>-006</sup>	0.09773
Population Density (population per square mile)	-1.294 <sup>-005</sup>	1.3785 <sup>-005</sup>	0.34796
Count of Audiologists (County-Level)	-0.0003	0.00154	0.86860
AIC: 8656.36			

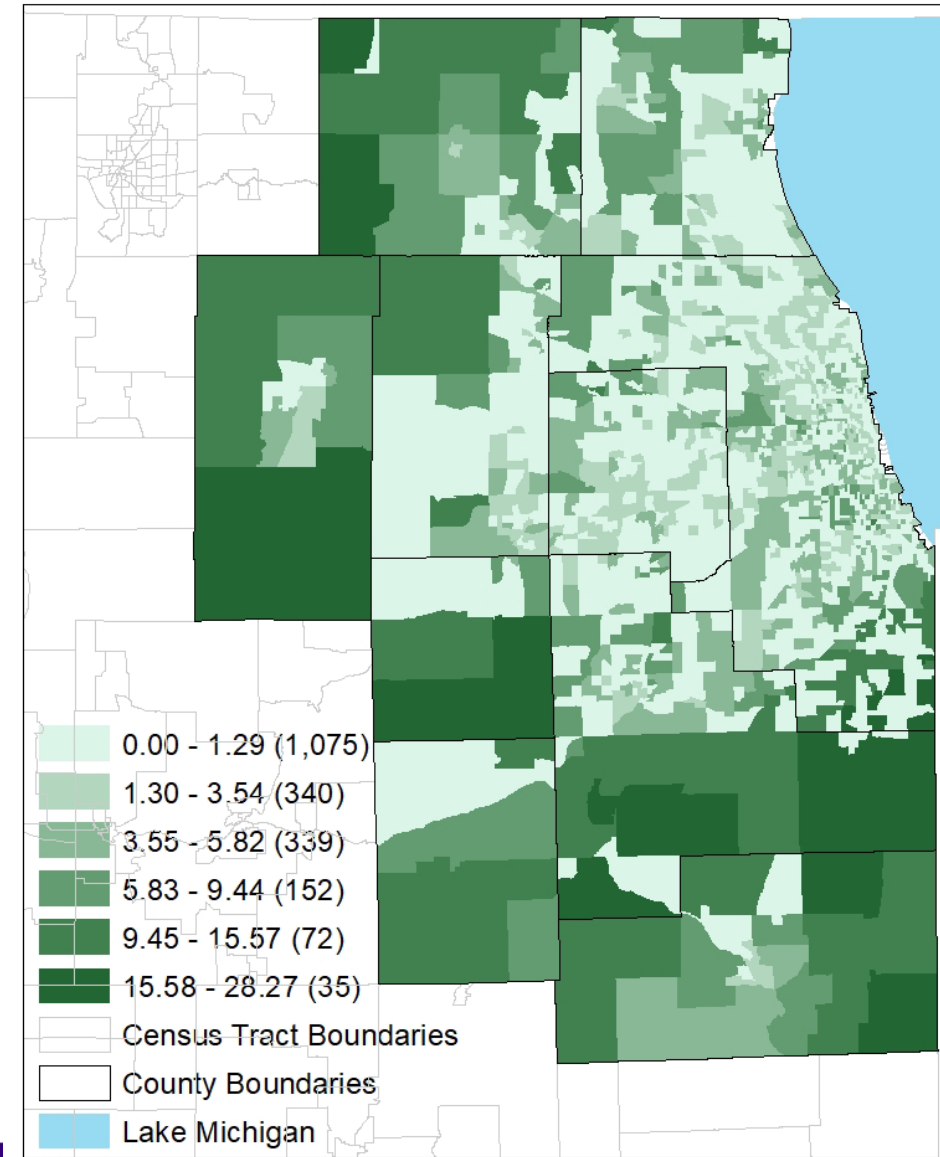
Metro Chicagoland Suburban Counties (n = 470 census tracts)

Variables	Coef ( $\beta$ )	Standard Error	p>z
Share of Black Population (%)	-2.60354	-1.532	0.12552
Share of Hispanic Population (%)	-2.04755	1.92318	0.28703
Share of Older Adults Reporting Difficulty Hearing (%)	-0.111155	0.203627	0.58515
Median Age (years)	0.0224305	0.0487343	0.64533
Share of population with insurance (%)	-0.0618827	0.0439553	0.15917
Percent of Households without a car (%)	-0.166574	0.131217	0.20428
Median Household Income (US, 2016)	-2.85554 <sup>-005</sup>	1.25022e <sup>-005</sup>	0.02237
Population Density (population per square mile)	-0.000994752	0.000281867	0.00042
Count of Audiologists (County-Level)	0.00255898	0.0058211	0.66022
AIC: 2783.47			

Audiologist Locations + Transit Connectivity (2017)

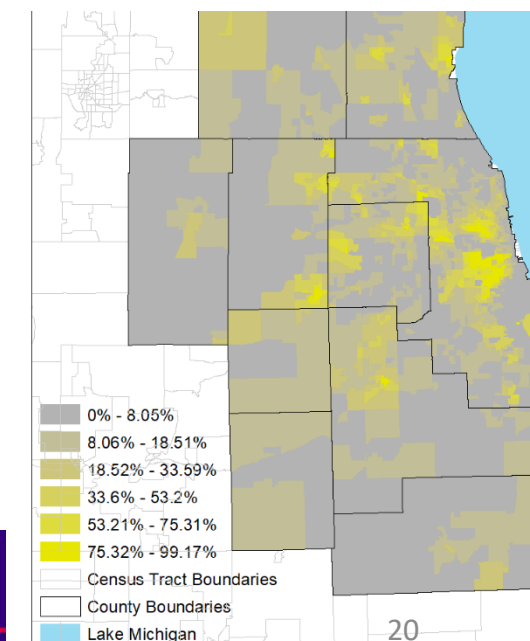
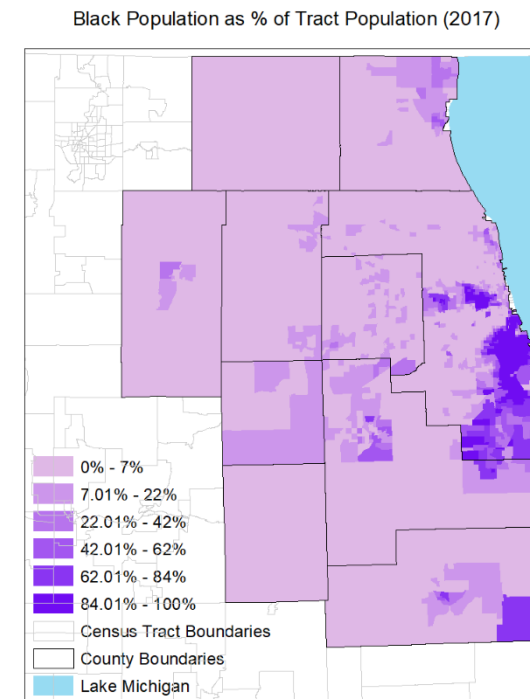
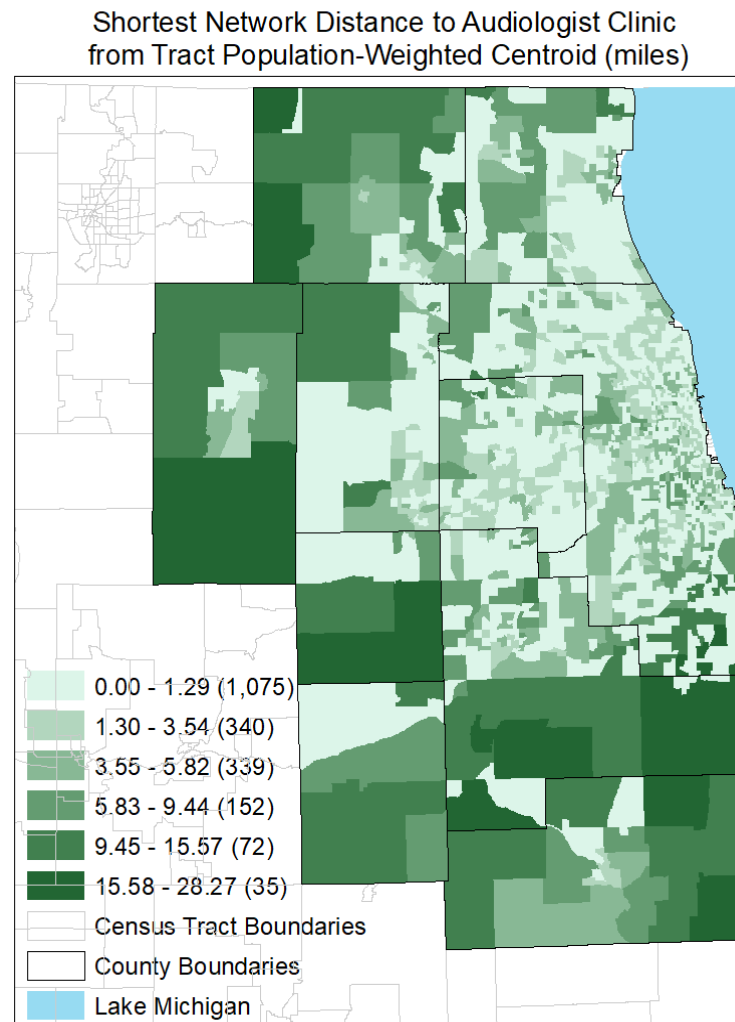


Shortest Network Distance to Audiologist Clinic from Tract Population-Weighted Centroid (miles)



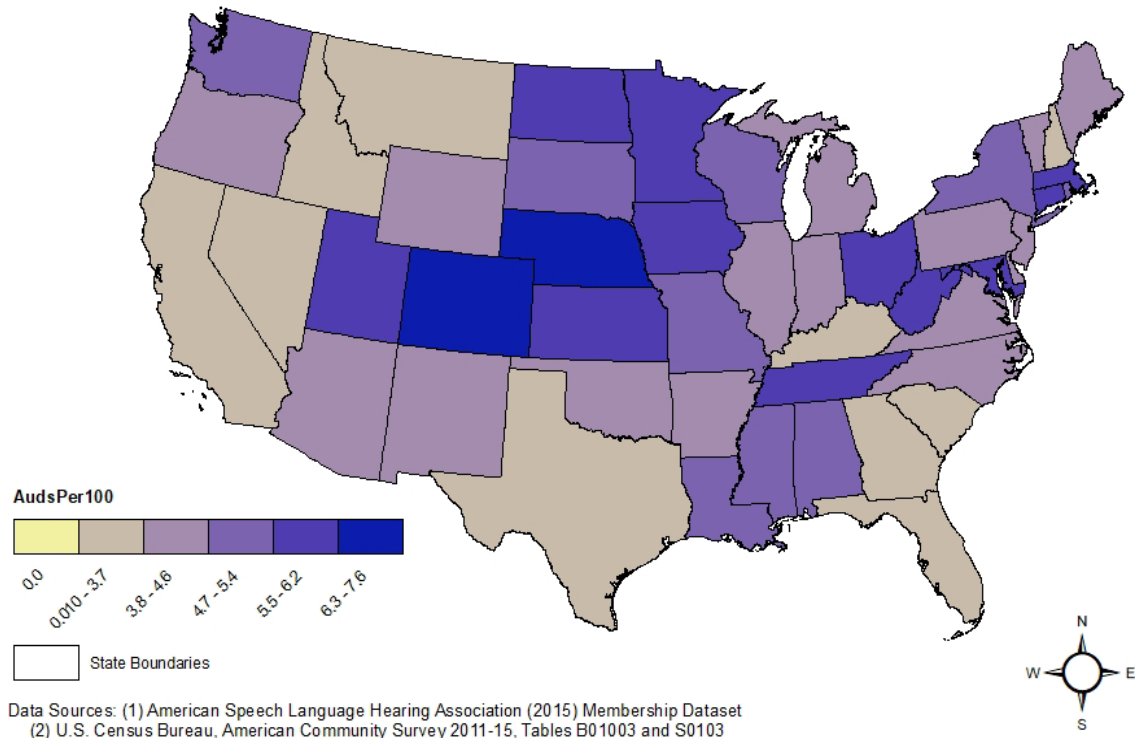
# Findings & Significance

- Within a segregated metro region, I find that specialist co-location with primary care physicians reinforces class, racial, & ethnic disparities in spatial access to care.
- This study expands studies of health care geographies to consider (i) health care policies regulating interprofessional practice across the hierarchy of care, and (ii) the potential inequities in spatial access that result from co-location.

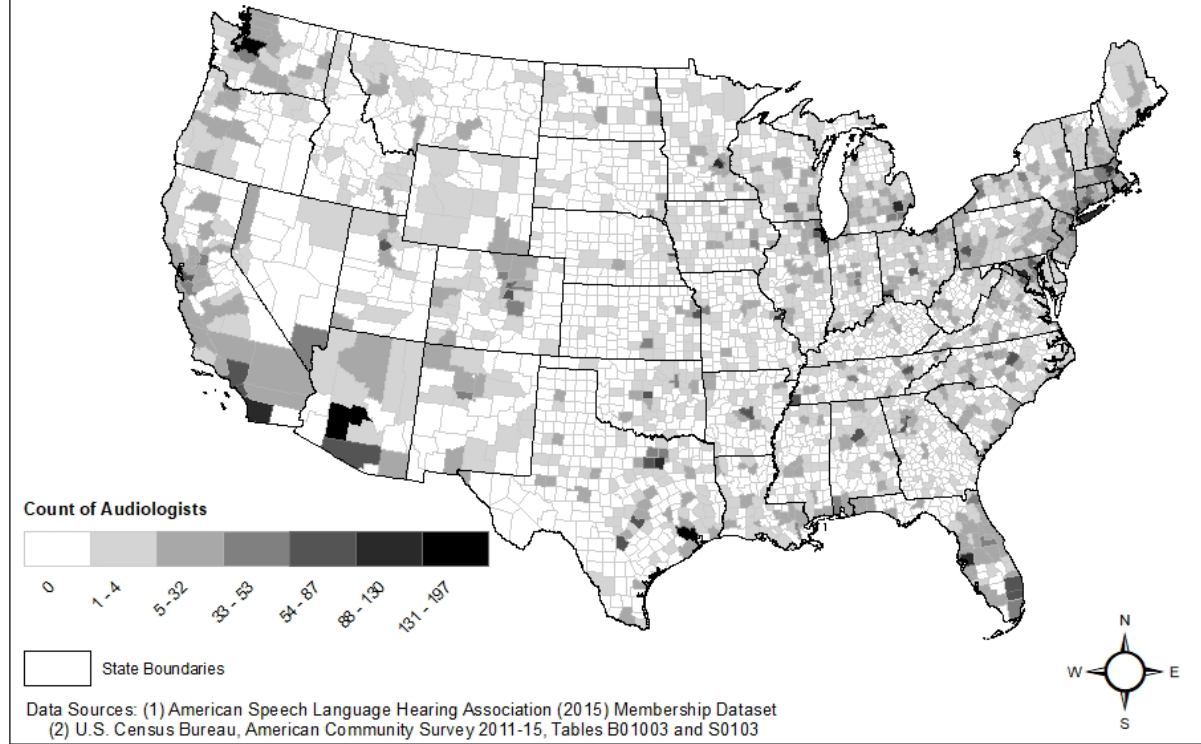




Audiologists per 100,000 Population (2015)



Count of Audiologists - Conterminous US Counties (2015)



# Audiologist Availability

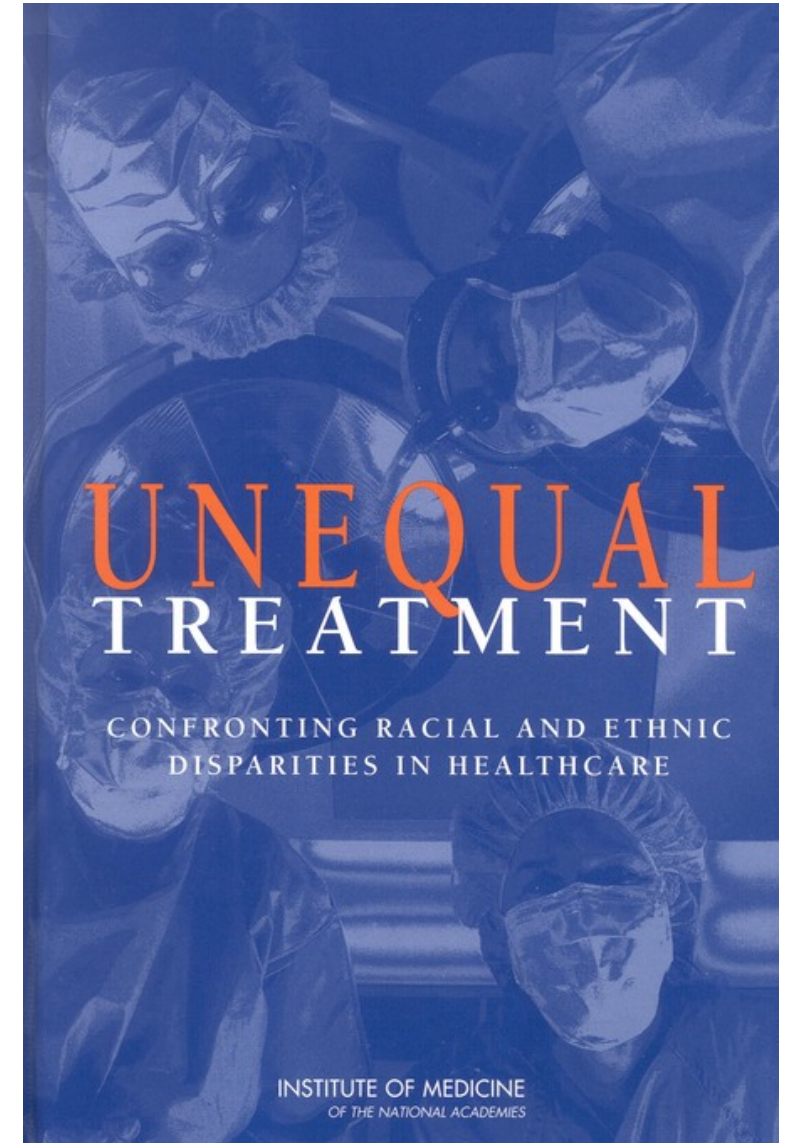
# Jerald James, AuD



- **Assistant Professor, Department of Communication Disorders, LSU Health School Center-New Orleans**
- **Clinical Director of Audiology**
- **Areas of interest include adult aural rehabilitation, audiology business development, and hearing conservation**
- **Serves as the Chair, Diversity-Equity-Inclusion (DEI) Committee for the Academy of Doctors of Audiology**

# Health Care Disparities and the ADA Action Plan

- Prioritizing reducing disparities in health care.
- Institute of Medicine Report (2006)- “Unequal Treatment”
- Findings- racial/ethnic disparities exist in healthcare
- Recommendation- Increase Proportion of underrepresented minority groups into the healthcare workforce



# ADA DEI Task Force

- **Established in 2020 to support ADA Commitment to diversity and Inclusion**
- **DEI Task Force- provided concrete recommendations**
  - **Increase Racial Diversity in the Profession of Audiology**
  - **Promote Audiovestibular Health Equity in the Community**
- **Recommendations became part of ADA Strategic Plan and the DEI Committee was formed.**





# ADA DEI Committee

## **Increase Racial Diversity in the Profession of Audiology**

### **Tasks:**

- Increase Racial Diversity in Audiology
- Create Resources to use for in-person or remote outreach
- Advocate for holistic approach to AuD admissions (GRE reliance)





# ADA DEI Committee

## Promote Audiovestibular Health Equity in the Community

### Tasks:

- Create a toolkit of resources for alternative models of care
- Create a repository of business models and ideas for practice owners who are interested in improving health equity
- We welcome your creativity and ideas!







# Elizabeth Rogers, AuD

- Owner of Southeast Kentucky Audiology Services
  - Southeast Kentucky Audiology is a full-scope practice providing services for both pediatrics and adults including ABR, cerumen management, hearing evaluations, vestibular evaluations with rotary chair and VEMPs, hearing aids, and cochlear implant evaluations and programming
- Graduate of Indiana University-Bloomington.
- Special interests include cochlear implants and rural healthcare.
- Elected Director-At-Large, Academy of Doctors of Audiology



- Corbin, KY: Population of 7,202
- Surrounding areas (London, Barbourville, Williamsburg)
  - Population total 16,404





- Only full-service audiology office in the region
- Colleagues in the areas include 3 HIS offices, and audiologists that come with ENTs who have satellite clinics
- They primarily offer HEs, some HAs, and some VNGs

**Our mission is to provide high standards audiological care to our residents who otherwise would not have access to these services**



Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City, State and Zip Code \_\_\_\_\_

Dear Patient Name,

Thank you for being a valued patient of Southeast Kentucky Audiology. We are grateful for your trust and support. One of our goals at Southeast Kentucky Audiology is to provide the best quality hearing healthcare with state-of-the-art technology and resources.

We have some exciting news to share with you. Over the past 6 months, our practice has taken great strides in accomplishing this goal. We are the only practice beyond Louisville to offer all of following new services and technology:

**THE EARIGATOR**

Revolutionary Ear Wax Removal System – Safely Cleans Ears in Seconds

**CONGNIVUE – COGNITIVE SCREENER**

World's First FDA-Cleared Computerized Test of Cognitive Function

**ROTARY CHAIR**

Rotational Computerized Chair Assisting in Diagnosing Patients with Dizziness and Vertigo

**LANTOS 3D EAR SCREENER**

An Ear Scanning System Uses Patented Technology to Map the Unique 3D Geometry of the Ear

We are very excited about the new additions and the advancements of Southeast Kentucky Audiology. If you are interested in learning more about the new advancements, please to call 606-528-9993 or text 606-517-5717 to schedule your appointment. We would love to share the advantages with you.

Again, thank you for being a valued patient of Southeast Kentucky Audiology.

Sincerely,

Liz Rogers, Au.D., CCC-A  
Board Certified Doctor of Audiology

P.S. Enclosed is a special Earigator offer. For a limited time only, receive ear wax removal services for only \$20/Ear. Our normal price is \$38/ear. Please call today to set-up your appointment.

1707 Cumberland Falls Hwy Suite U7 • Corbin, Kentucky 40701

806-528-9993 – Phone • 806-517-5757 – Text  
[www.sekyaudiology.com](http://www.sekyaudiology.com) • [info@sekyaudiology.com](mailto:info@sekyaudiology.com)



## Kristin Davis, AuD

- Owner of Davis Audiology in Greenville, South Carolina
- Founder of Carolina Hearing Foundation
- Past President of SC Academy of Audiology
- President-Elect, Academy of Doctors of Audiology



**greenville**  
free medical clinic  
*quality care with compassion*



Carolina  
**HEARING**  
FOUNDATION

Delivering hope through hearing

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- Getting Started & Stuck
- Interprofessional collaboration
- Sustainability
- Resources:
- The National Association of Free & Charitable Clinics @ <https://www.nafcclinics.org>
- <https://www.irs.gov/instructions/i1023ez>

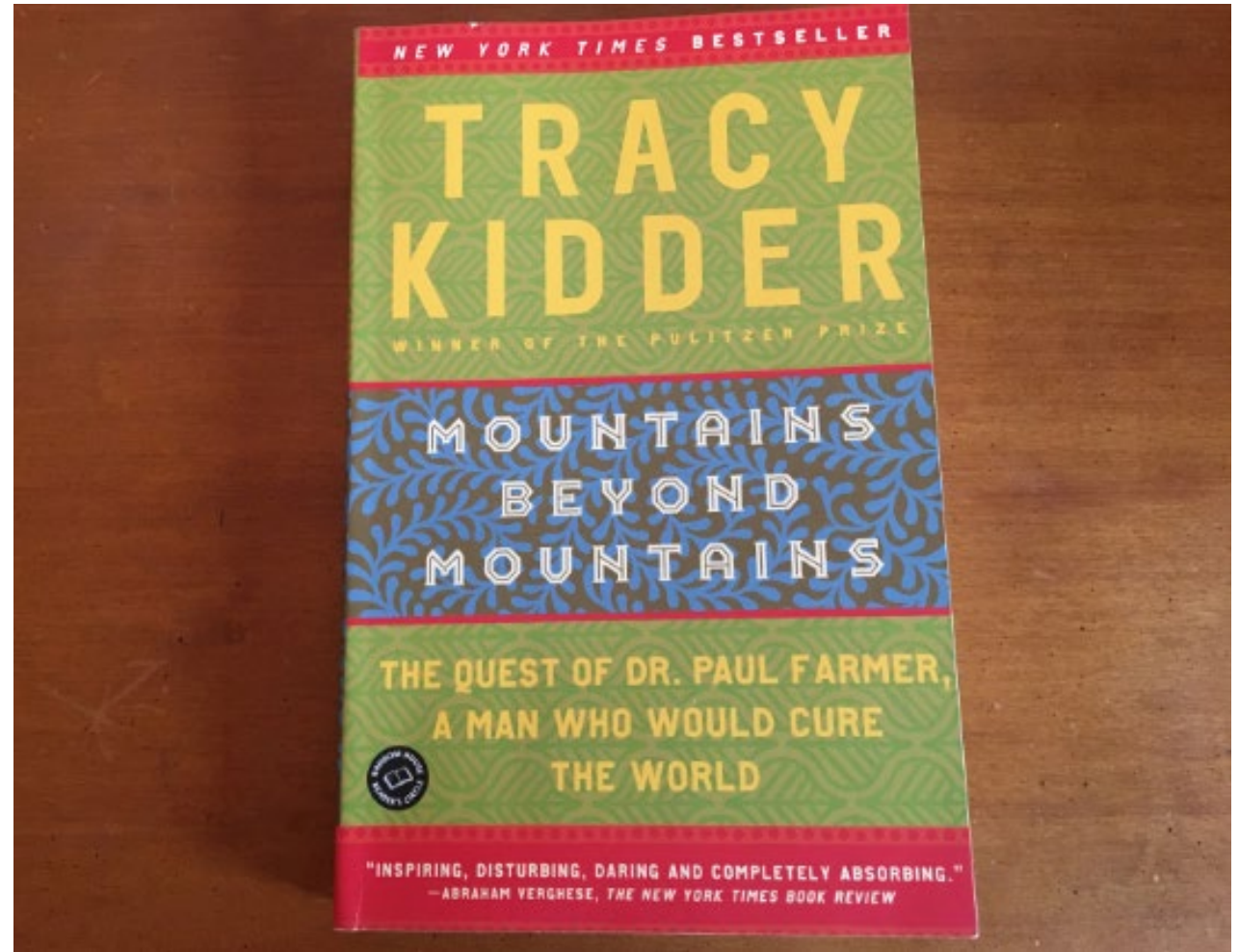


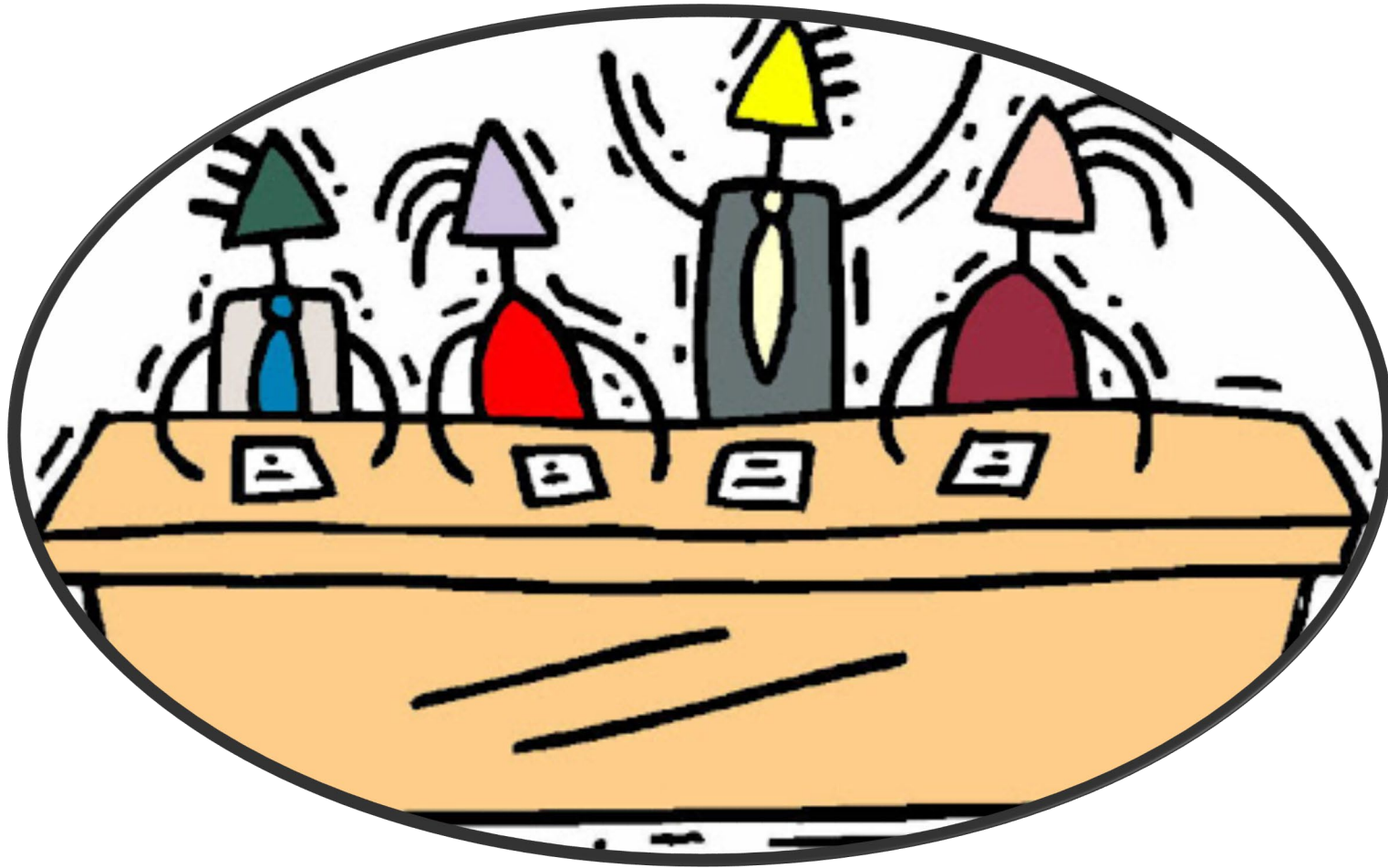
Dr. Paul Farmer's  
philosophy:  
"the only real  
nation is humanity"

Dèyè mòn gen mòn.

Beyond mountains there are  
mountains.

Haitian Proverb





## **PANEL DISCUSSION**

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