



Population Health within a Rural Health Context

Nursing 830 Clinical Applications

February 16, 2022

NDSU School of Nursing

**Presented by Brad Gibbens, Acting Director
and Assistant Professor**



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- Established in 1980, at The University of North Dakota (UND) School of Medicine and Health Sciences in Grand Forks, ND
- One of the country's most experienced state rural health offices
- UND Center of Excellence in Research, Scholarship, and Creative Activity
- Home to seven national programs
- Recipient of the UND Award for Departmental Excellence in Research

Focus on

- Educating and Informing
- Policy
- Research and Evaluation
- Working with Communities
- American Indians
- Health Workforce
- Hospitals and Facilities

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The Importance of Values

*Ultimately our values guide our perceptions toward health,
health care, our view of the importance of "community",
and the development of public health policy*

"It is not what we have that will make us a great nation, it is how we decide to use it"

Theodore Roosevelt

"Vision is the art of seeing things invisible"

Jonathan Swift

**"Americans can always be relied upon to do the right thing...after they have
exhausted all the other possibilities"**

Sir Winston Churchill

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What is this whole “community thing” and rural health?

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What Is Rural Health?

- Rural health focuses on **population health** (“community”) and improving overall **health status** for rural community members
- Rural health relies on **infrastructure** – the organizations, resources, providers, health professionals, staff, and other elements of a health delivery system working to improve population health (the **rural health delivery system**)
- Rural health ***is not*** urban health in a rural or frontier area
- Rural health focuses on **health equity and fairness**
- Rural health is very **community focused and driven** – interdependent and collaborative
- Rural health is inclusive of **community sectors** – 1) health and human services, 2) business and economics, 3) education, 4) faith based, and 5) local government



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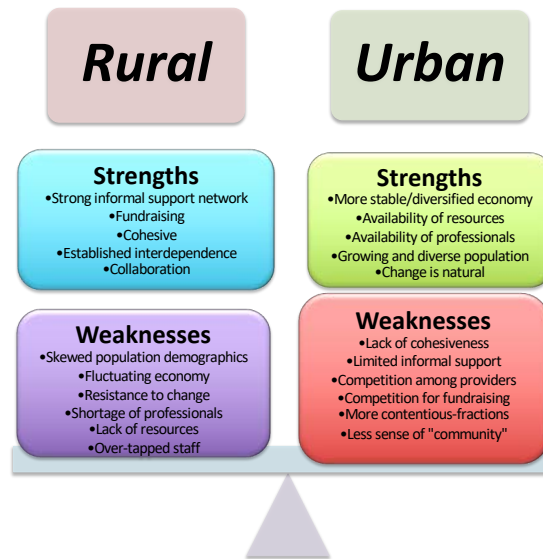
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Rural and Urban Strengths and Weaknesses



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Why is Community Engagement Important to Rural Health for Population Health Improvement

- Health care providers and organizations cannot operate in isolation
- Even more important as we **implement health reform** – new payment models – movement **from volume payments to value based** payments as more and more providers are assessed and reimbursed on outcomes and patient satisfaction.
- **Community members input on needs, issues, and solutions more critical than ever** – community involvement in finding solutions (CHNA) that reflect their needs – **community ownership not just the health providers.**
- **Building local leadership and local capacity** – think of the next generation of community leadership.
- **Communication** – listening to the community – educating the community.

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What is population health and how does this relate to social determinants of health?

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Population Health

“Health outcomes of a group of individuals, including the distribution of such outcomes within the group.” (Kindig, *What is Population Health?*)

- Groups can be based on geography, race, ethnicity, age, language, or other arrangements of people
- Focus – Health Outcomes (what is changed, what are the impacts, what results?)
- What determines the outcomes (determinants of health)?
- What are the public policies and the interventions that can improve the outcomes?

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Health Equity

- “Attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities.” (Healthy People 2020)
- Equity is aspirational and it relates to previous discussion on values.
- To achieve some level of equity we must first address disparities.

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Health Disparity

- “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.” (Healthy People 2020)
- Social Determinants of Health are factors to consider.
- We work to address SDOH to address disparity so as to achieve health equity and to improve population health (very simple).

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Factors Contributing to Health

Outside Health Care System	Related to the Health Care System	
Societal Factors	Care Delivery	Regulatory Environment
<ul style="list-style-type: none"> • Food Safety • Health food availability • Housing conditions • Neighborhood violence • Open space and parks/recreation availability • Genetic inheritance • Disease prevalence • Income levels • Poverty rates • Geographic location • Unemployment rate • Uninsured/underinsured rate • Median age • Sex • Race/ethnicity • Pharmacy availability • Care-seeking behaviors • Health literacy • Patient choice • Morbidity rates • Transportation availability 	<ul style="list-style-type: none"> • Quality of care • Efficiency • Access • Physician training • Health IT system availability • Distance to and number of hospitals, primary and urgent care centers, retail clinics, etc. • Provider supply (MDs, RNs, etc.) • Physician mix (primary versus specialty care) • Payer contracts • Physician employment and payment structure • Disease management • Populations subgroup disparity • Advanced technology availability • Care integration and coordination • Behavioral health availability • Cultural and linguistic access 	<ul style="list-style-type: none"> • Medicare payment rates and policies • Medicare and Medicaid care delivery innovation • CON regulation • Medicaid/CHIP policies (payment rates, eligibility) • Implementation of ACA • Local coverage determinations (LCDs) • Other local, state, and federal laws that impact the way health care is delivered and which treatments are provided

Source: Hospital Research Education Trust, *Managing Population Health, The Role of the Hospital, AHA, 2012*



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Social Determinants

World Health Organization definition:

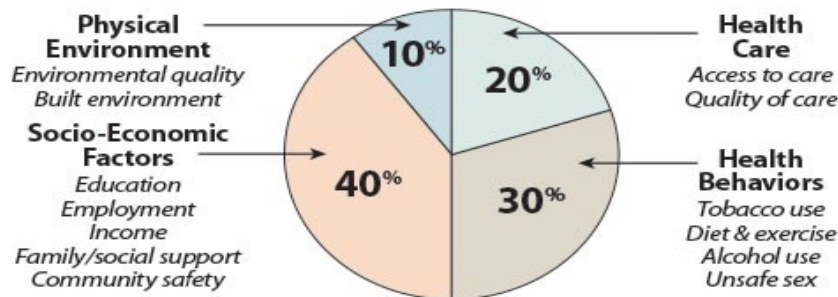
"the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics."

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Social Determinants of Health

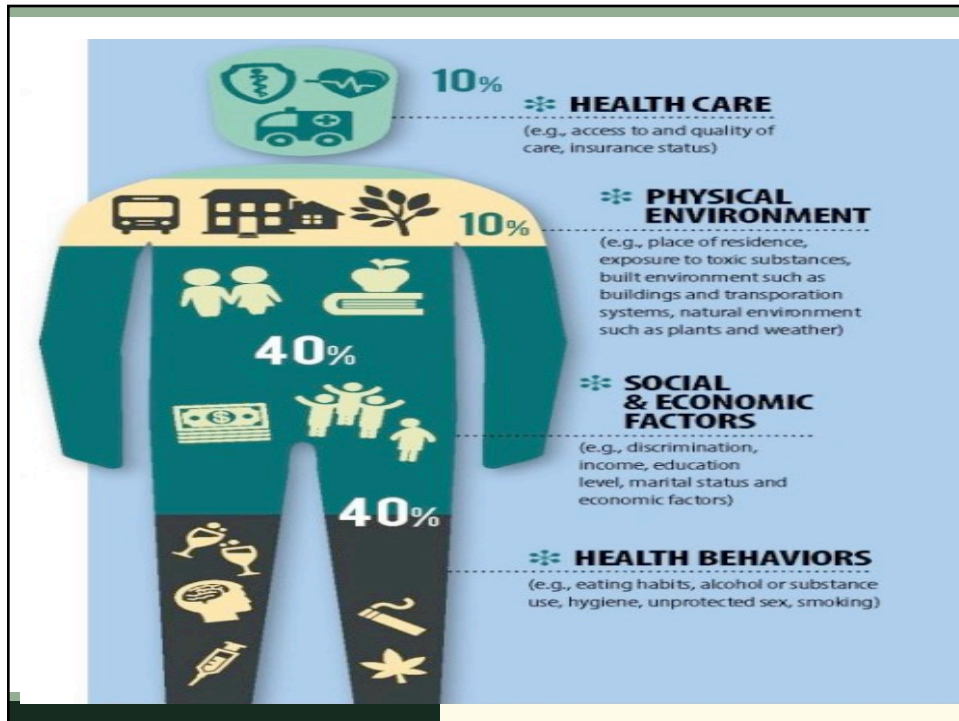
Population Health



Source: Authors' analysis and adaption from the University of Wisconsin Population Health Institute's *County Health Rankings* model ©2010, <http://www.countyhealthrankings.org/about-project/background>

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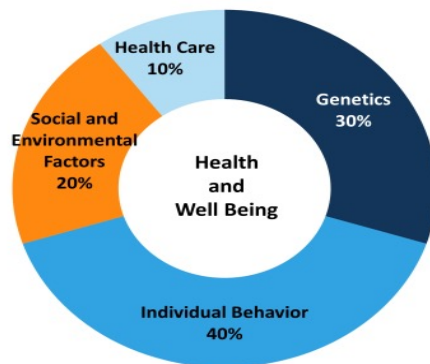
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Figure 1

Impact of Different Factors on Risk of Premature Death

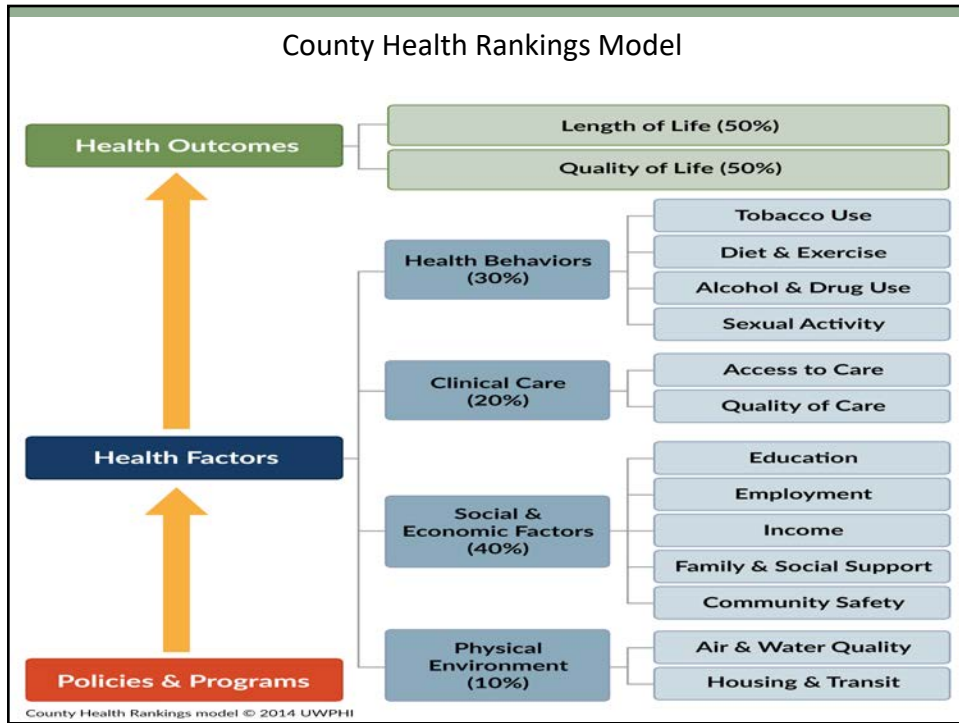


SOURCE: Schroeder, SA. (2007). We Can Do Better — Improving the Health of the American People. *NEJM*. 357:1221-8.

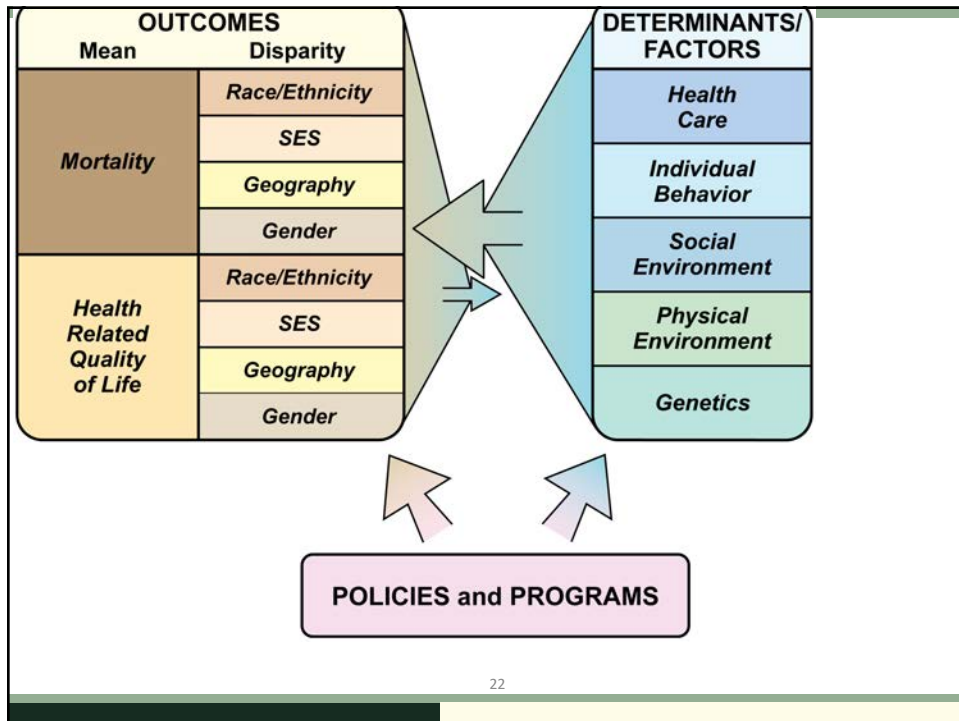


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Population Health in the Affordable Care Act

- Provisions to expand insurance coverage by improving access to the health care delivery system (Medicaid expansions, state insurance exchanges “Marketplace”, support for community health centers, NHSC, safety net)
- Improving the quality of the care delivered (National Strategy for Quality Improvement, **CMS Center for Medicare and Medicaid Innovation**, and establishment of the Patient-Centered Outcomes Research Institute)

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Population Health in the Affordable Care Act

- **CMS Innovation Center** – development and testing of innovative health care payment and service delivery models (better care, better health, and lowered costs through improvements in the health system)
 - **Alternative Payment Models**
 - This is value based or movement from “volume to value” (care coordination).
 - Accountable Care Organizations (ACO)- Shared Savings is most common- 7 CAHs in ND (477 Shared Savings Medicare ACOs nationally 2021-down from 517).
 - MACRA and MIPS (system change an alternative payment models – clinicians).
 - Continuous change and evolution since 2014.
 - ✓ A range of ACO models and shifts to consolidation.
 - ✓ In 2019 five new Primary Care Initiatives (PCI) – grow out of Comprehensive Primary Care + (Volume to value for clinical providers)
 - Simultaneous focus on increase quality and lowering cost.
 - Accepting risk – Trump administration was “risk on steroids” and continues with Biden.
- **BCBSND Blue Alliance**

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Population Health Impacted by 2021 Infrastructure Act

- \$1.2 trillion – physical infrastructure that can improve population health
- “Once in a generation investment...think long term”
- Focus
 - Clean drinking water – replace lead water pipes
 - Roads and bridges
 - Air quality
 - Plug orphan oil wells
 - High speed internet –broadband – telehealth access
 - Electric transmission –invest in a clean energy power grid

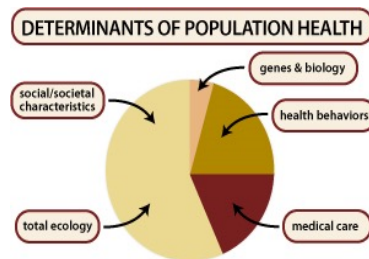
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Population Health Provides the Best Definitional Framework

It focuses on measurable outcomes from multiple sectors

- Clinical outcomes
- Education levels
- Poverty rates
- Environmental factors

Creating a holistic picture of a community's health



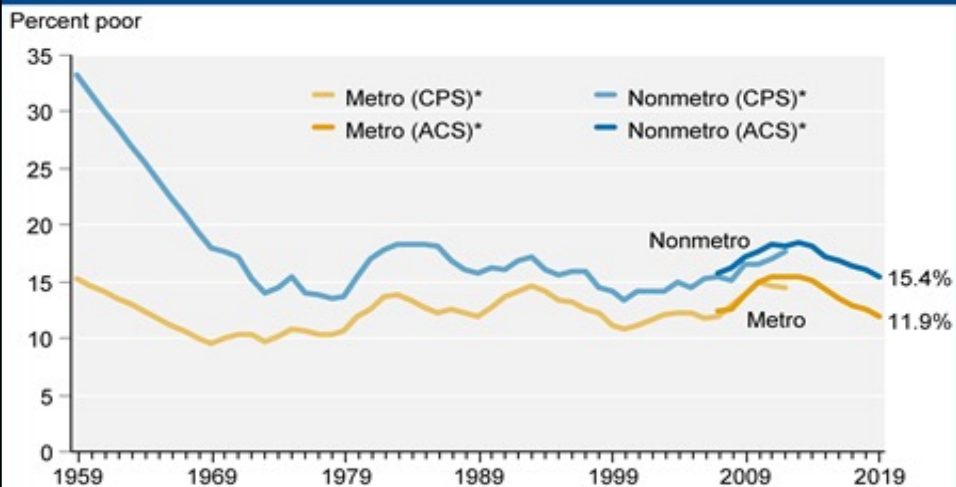
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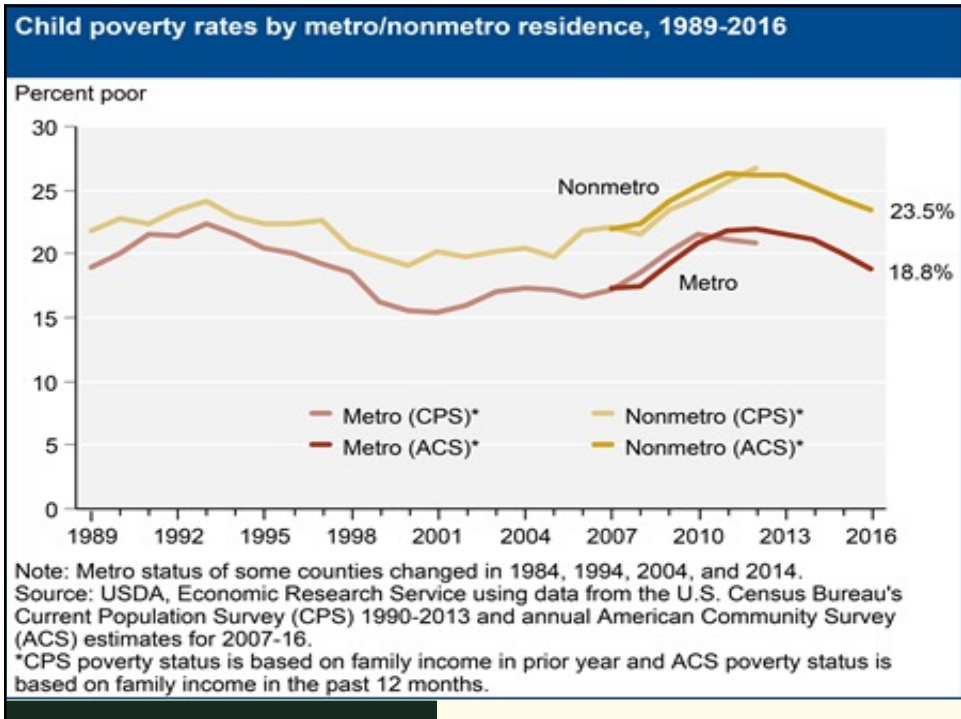
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Social and Economic Factors of SDOH

Poverty rates by metro/nonmetro residence, 1959-2019



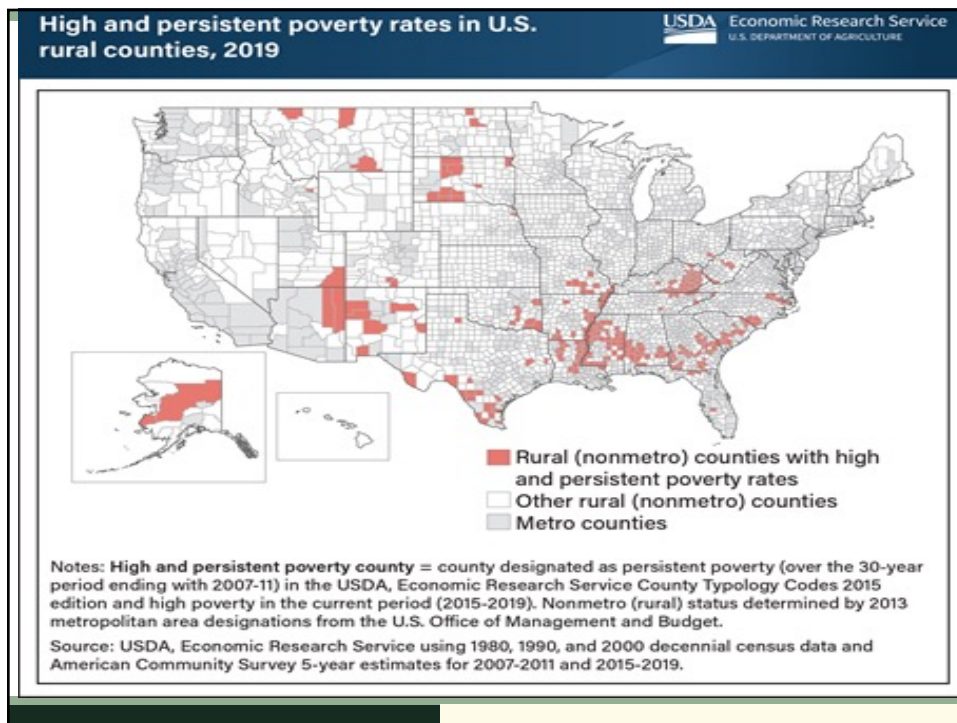
Note: Metro status of some counties changed in 1984, 1994, 2004, 2014, and 2018.
*CPS poverty status is based on family income in prior year and ACS poverty status is based on family income in the past 12 months.
Sources: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS) 1960-2013 and annual American Community Survey (ACS) estimates for 2007-19.



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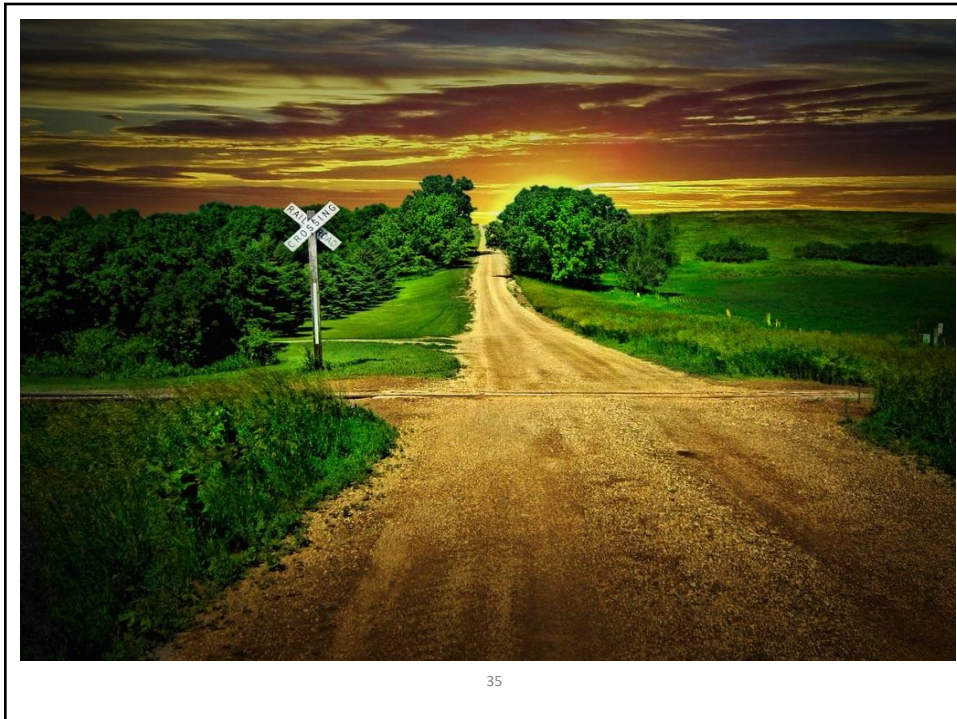


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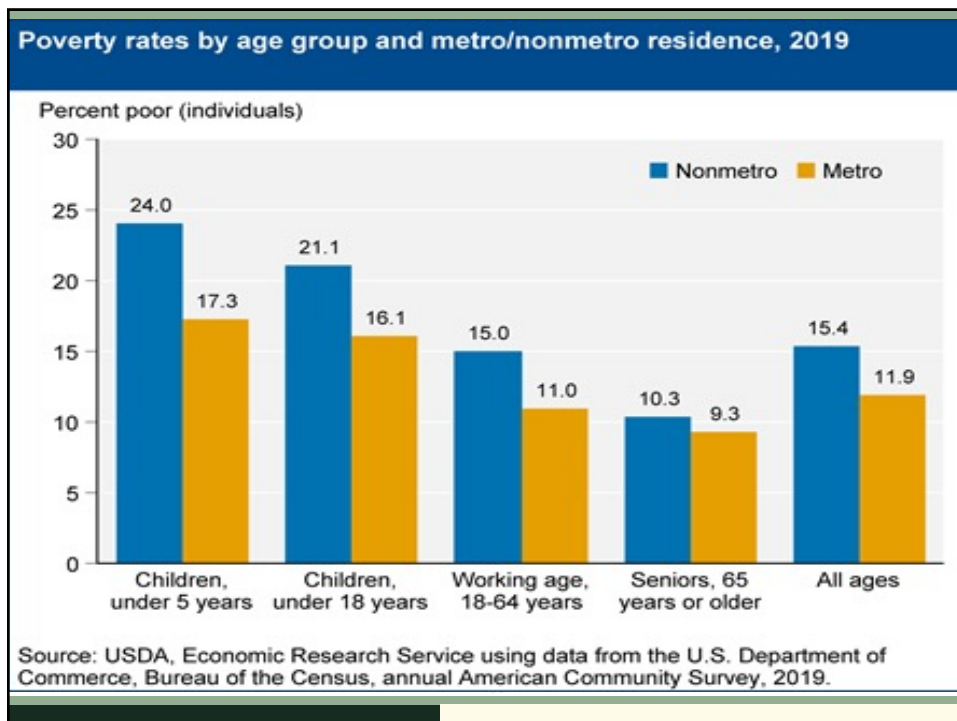
SDOH for Rural American Indian and Alaska Natives

- **Rural American Indian/Alaska Native (AI/AN) populations experience both personal and community disadvantages.** In 2016, rural AI/AN were:
 - More likely to live in poverty (29%) than their rural white peers (10%).
 - More likely to live in counties falling into the highest quartile in the US for the proportion of households in poverty (61% of rural AI/AN rural residents versus 46% of rural white residents).
 - More likely to live in persistent poverty counties (37%) of rural AI/AN versus 9% of rural white residents).
 - Rural AI/AN adults were much more likely to live in counties where > 16% of the population lacked health insurance (55% versus 19%).
 - Rural AI/AN age adjusted mortality rates were higher than those of white residents.
 - Prevalence of self reported poor/fair health was 23% for AI/AN versus 16% for white residents.
 - Higher obesity – 35% vs. 31%.
 - (Source: *Rural and Minority Health Research Center, University of South Carolina, July 2019*).

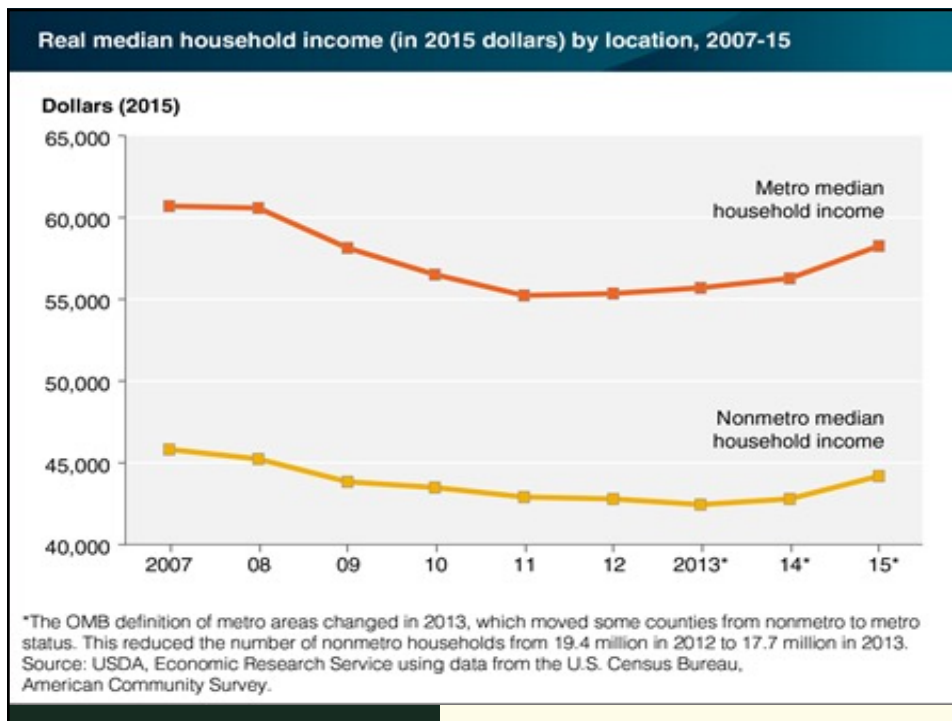
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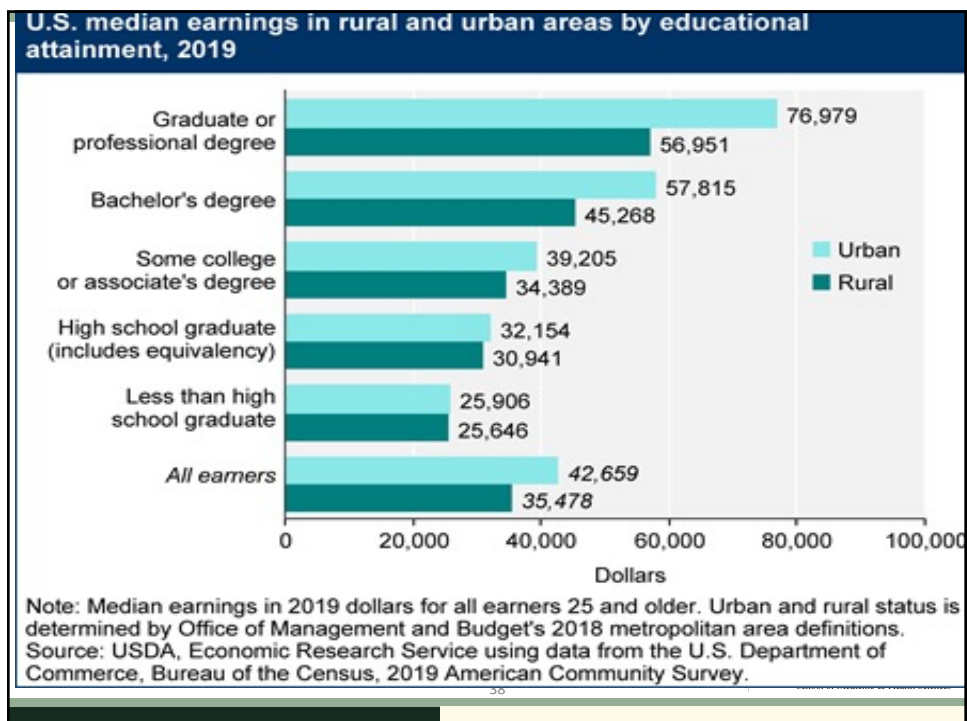
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Socio-Economic Impact on Health Access

- Poverty, income, education, and employment status contribute to:
 - Health insurance coverage- affordability, access
 - The ability to pay out-of-pocket costs such as co-pays and prescription drug costs
 - Time off from work to go to an appointment
 - A means of transportation to visit a healthcare provider
- The skills to effectively communicate with healthcare providers
- An expectation that they will receive quality care, whatever their race/ethnicity or income level.

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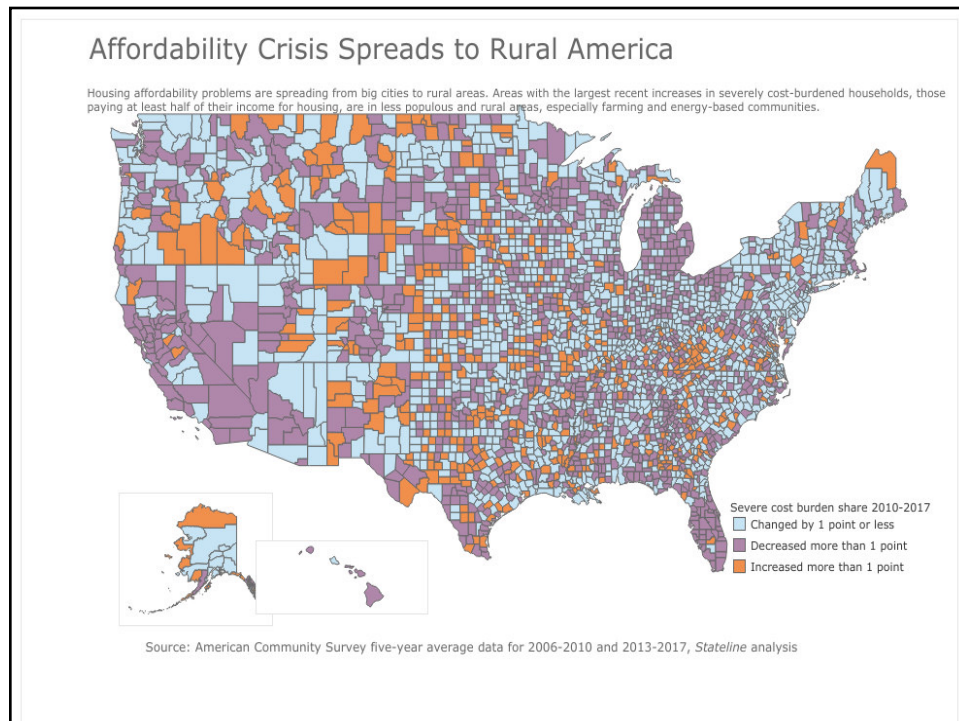
Physical Environment Factors of SDOH

Rural Housing Challenges

Some of the key housing concerns that impact health include:

- Plumbing and wastewater systems (or lack thereof), which can impact water quality and contribute to illness.
- Heating and cooling methods, which impact indoor air quality and safety, for example through the use of kerosene heaters.
- Lack of smoke alarms, carbon dioxide, and carbon monoxide detectors.
- Weatherization needs and energy costs, which impact whether a house can be maintained at a temperature healthy to its inhabitants.
- Safety concerns such as lead-based paint, mold, and pests.
- Overcrowding, which can spread communicable disease and also negatively influences issues such as substance abuse and domestic violence.
- Rural minorities are twice as likely as non-Hispanic whites to live in **substandard housing**.
- Rural renters are more likely to live in substandard housing and to experience multiple housing problems related to affordability, quality deficiencies, and crowding, compared to rural homeowners.


(Source: Rural Health Information Hub -RHI Hub)



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Rural Transportation Challenges

- **University of Minnesota Rural Health Research Center- Key Informant interviews from 50 states (2017)**
- **Issues**
 - Infrastructure
 - Geography
 - Funding
 - Accessibility
 - Political Support



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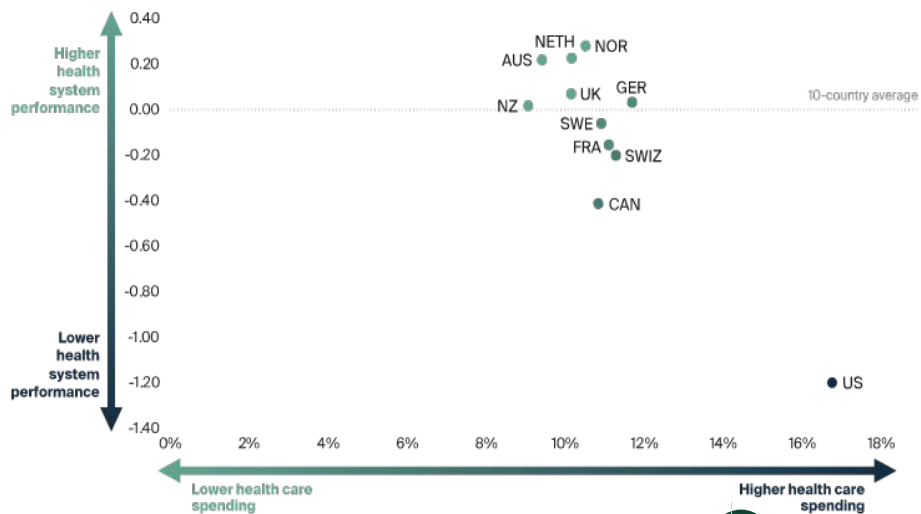
Health Care Factors on SDOH

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General Observations on the Health Care System

- Most people give too much credit to health care/clinical care when thinking of their health and not realizing it is likely 10-20% of health status.
- US spends more on health care than any other country at about \$4 Trillion a year (\$12,000 per capita vs. Germany, \$6,700; France, \$5,500; Canada, \$5,400; United Kingdom, \$5,200; and Japan, \$4,700. (2020 data). (Source Commonwealth Fund)
- 19% of US GDP – Germany, 11%; Canada, 11%, and GB, 10%.
- We spend more yet health outcomes are lower.
 - Lower life expectancy with the US at 78.6 years and Switzerland at 83.6 years. (Varies by race). American Indian is about 73 years.
 - US has highest chronic disease burden.
 - US has highest suicide rate.
 - US has highest rates of obesity.
 - US residents visit medical providers less frequently.
 - US second highest rate of hospitalization for hypertension and diabetes.

Health Care System Performance Compared to Spending (August 2021 Commonwealth Fund)





Common Rural ND Health Care Issues
Contributing to Population Health Concerns
(System and Infrastructure Focus)

- Health Workforce (Pandemic implications)
- Access to and availability of care
- Financial concerns facing rural hospitals and health systems - viability
- Quality of Care
- Telehealth –availability, infrastructure, acceptance, HIT
- Networks – rural hospitals, urban hospitals, clinics, others
- Emergency Medical Services – workforce, viability, adapting to quality measures, collecting data
- Community and Economic Development
- Health System Reform – Medicaid Expansion, 340 B, “volume to value”

Sources: 2008 Flex Rural Health Plan, 2009 Environmental Scan, and community presentation feedback surveys 2008-2019

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Health Behavior Factors on SDOH


General Observations on Rural Health Behaviors

- **Health behaviors include activities** like physical activity, diet and nutrition, social engagement, safety, avoiding tobacco and other harmful substances, and other actions that contribute to general health and quality of life (Determinants of Health in Rural Communities, Henning-Smith).
- Rural have **limited access to healthy food** and fewer opportunities to be physically active compared to urban.
- Rural residents **higher rates of smoking, higher risk jobs, higher sedentary life style, and lower rates of maintaining healthy body weight** (Henning-Smith).
- Can lead to **greater rates of obesity**, high blood pressure, diabetes, and cancer.
- Can lead to **higher rates of poor health outcomes and mortality** (Henning-Smith).
- Consider how socio-economic, physical, and health care **all influence health behaviors**.




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Rural Mortality

- Cause-specific mortality is often higher in rural counties than urban counties
- Risk factors contribute to high mortality rates in rural areas
 - Smoking
 - Obesity
 - Physical inactivity
- High mortality rates and risk factors are a reflection of the physical and social environment in which people live and work

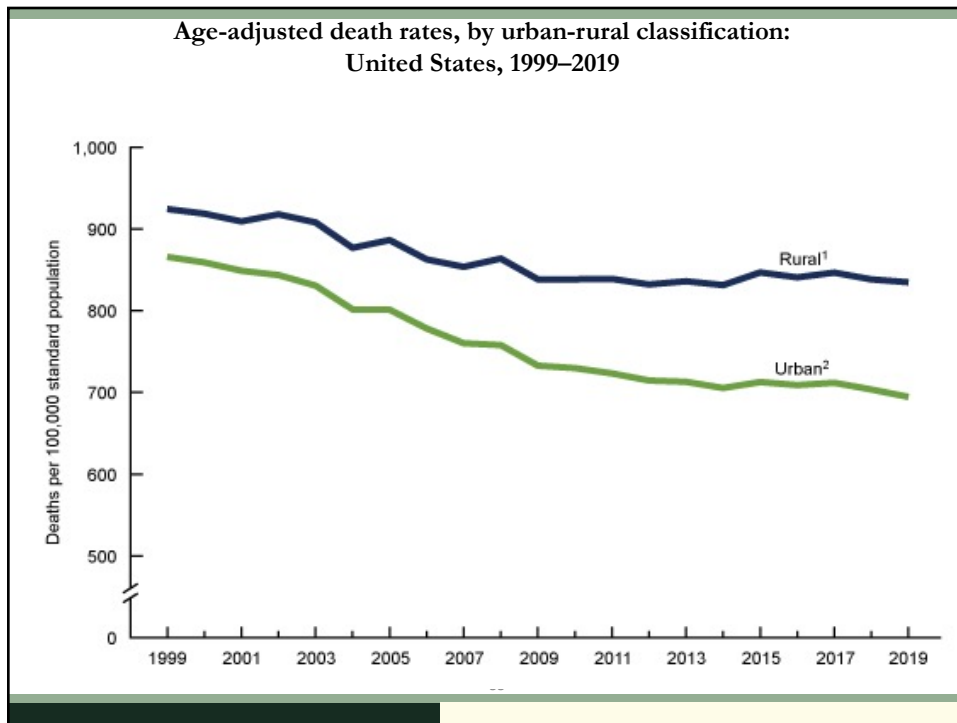


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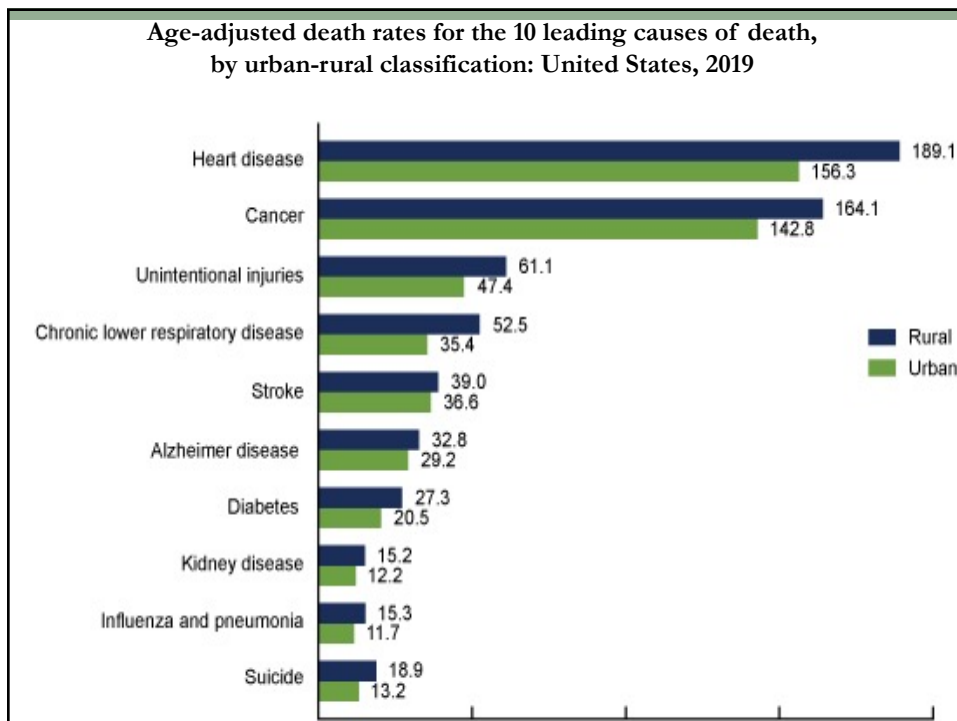
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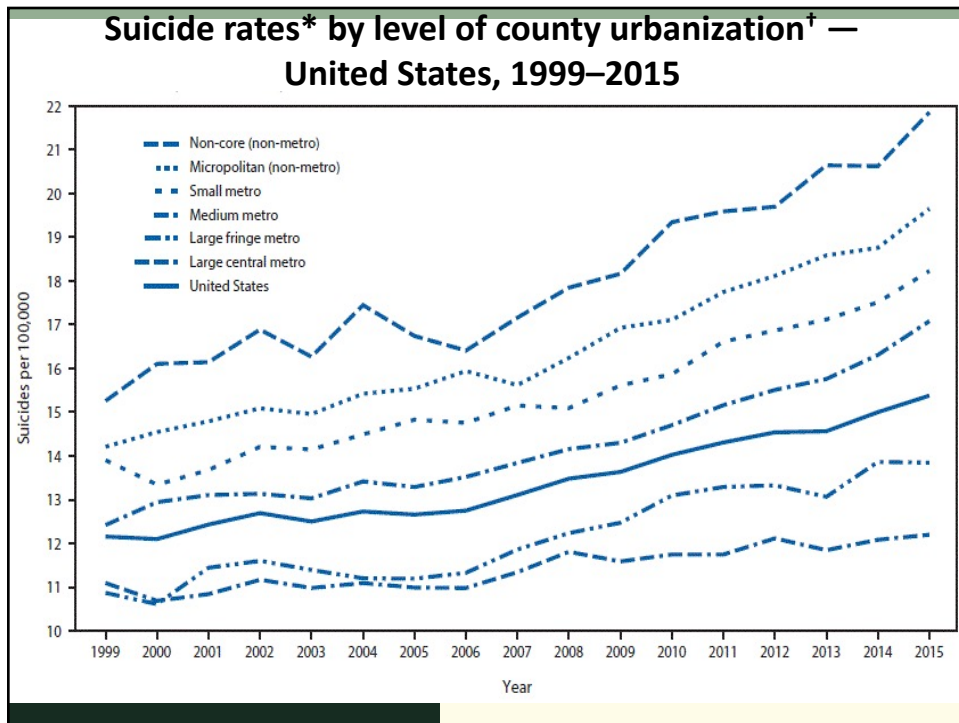
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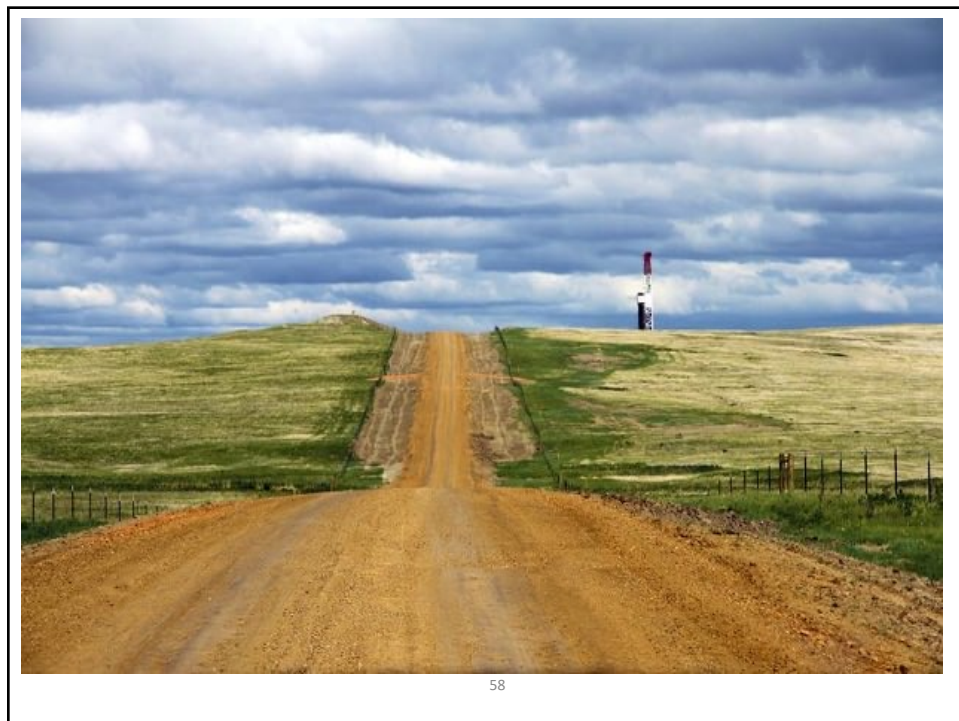
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Ok, I get the rural and community angle, and I get the population health and determinants of health but how do rural communities and providers respond to issues?

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Health Issues According to Rural North Dakotans 2020

- **CRH Community Health Needs Assessment Process (CHNA)** in 2017-2019 conducted with rural hospitals and many public health units (required under ACA for non-profit)
- All 36 CAHs reporting
- Top 2-5 ranked community health issues -139 needs ranked (3.9 per CHNA) -25 categories
- **Issues**

○ Substance Abuse	30 of 36 CAH communities
○ Mental Health	30 of 36 CAH communities
○ Attracting and retaining young families	16
○ Having enough child daycare services	11
○ Ability to retain primary care providers	11
○ Availability of resources elders in their homes	6
○ Not enough jobs with livable wages	5
○ Cancer	4
○ Obesity	4
○ Affordable Housing	3
○ Bullying/Cyberbullying	3
○ Cost of health insurance	3

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Rural ND Addressing Community Health (CHNA)

• Obesity and physical activity

- Community farmer's market
- Pilot wellness programs with hospital staff
- Monthly cooking classes
- 12 week weight management program
- Community run and/or walk
- Community access to school fitness center
- CDM monitor program
- Target fitness and exercise to elderly (stretching and movement)
- Step competitions (pedometers)



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Rural ND Addressing Community Health (CHNA)

• Healthcare workforce

- Increase use of social media
 - Create community marketing group – hospital, economic development, chamber of commerce
 - Support local students, financial support for nursing and medicine, and other health professions
 - Create local R & R committee with representatives from community – school, bank, business, realtor, church, younger people
 - Create a promotional video
 - Work with CRH workforce specialist



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Rural ND Addressing Community Health

- **Mental health**
 - Hire mental health nursing specialist in the hospital
 - Develop mental health screenings in schools
 - Connect to “Behavioral Health Bridge” at UNDSMHS and UNDCONPD <https://ruralhealth.und.edu/projects/behavioral-health-bridge>
 - Support groups
 - Work with university MSW, counseling, and psychology programs for student interns
 - Tele-mental health

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Rural ND Addressing Community Health (CHNA)

• Not Enough Jobs with Livable Wages

- Promote jobs in healthcare as they tend to provide high paying jobs. [Jobs.net website lists all jobs by North Dakota community](#)
- Create a liaison between hospital and area economic or jobs development corporation to promote economic impact of healthcare jobs. North Dakota CAHs have an average economic impact of \$6.4 million and contribute about 220 jobs to the community
- Start a local scholarship for health education with understanding recipient returns to the community for service for a specified period of time
- Focused community dialogue on job growth



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Rural ND Addressing Community Health (CHNA)

• Child Daycare Services

- Offer incentives in the form of subsidies for licensed home daycare providers and/or subsidies to employees
- Promote [Child Care Aware of North Dakota](#) as resource to find local child care centers
- Offer extended Clinic hours, in evenings and weekends, for working parents
- Offer hospital supported day care for healthcare employees



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Additional Slide

- **Not part of formal presentation but useful information**



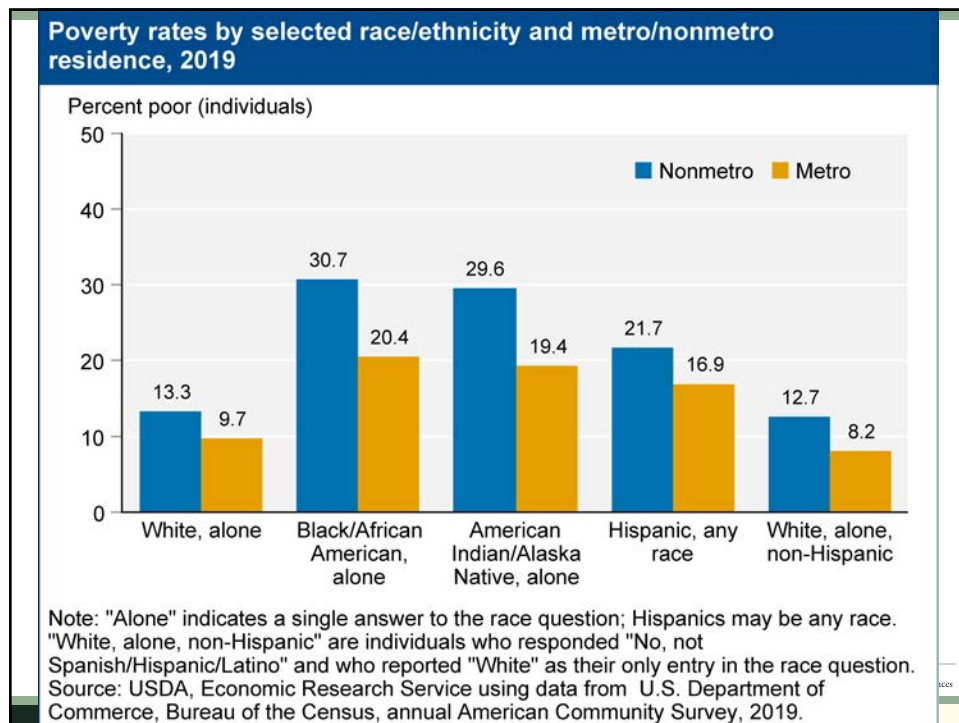
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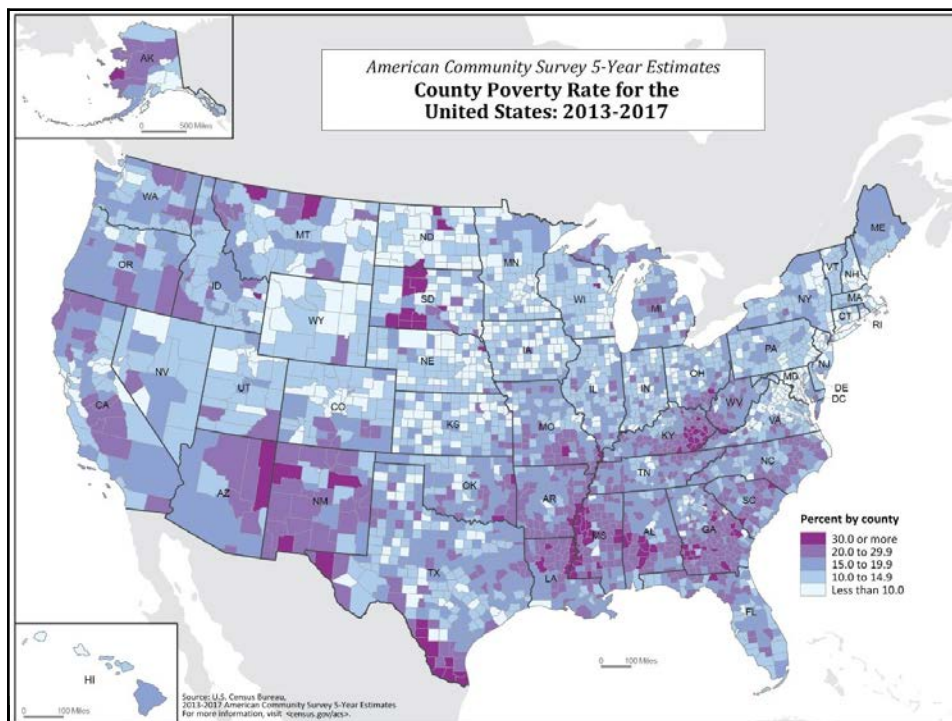
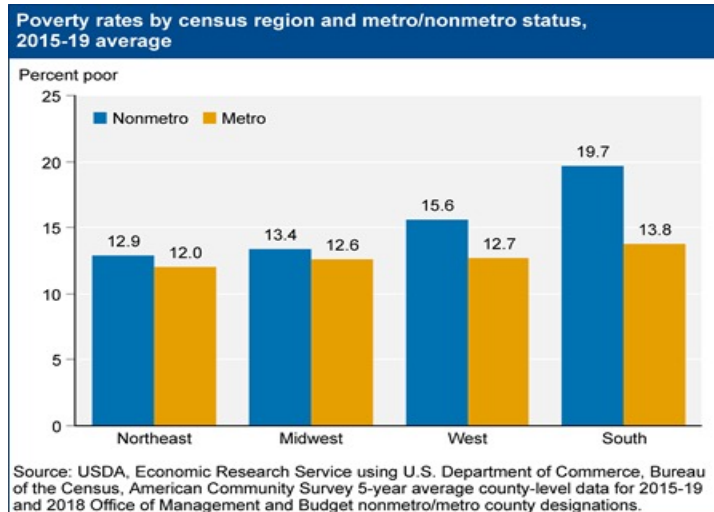
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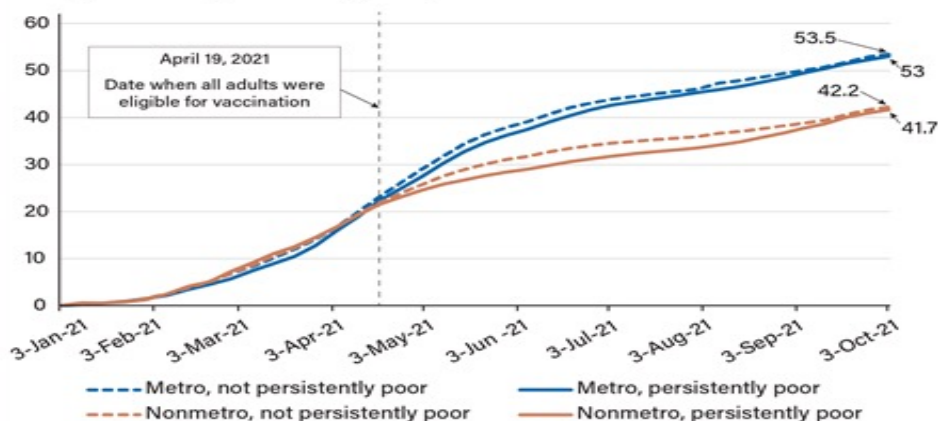
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Vaccination rates by metropolitan and poverty status, January–October 2021

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

U.S. population fully vaccinated (percent)



Notes: Completed vaccinations that are missing county identifiers are not included in this chart. County vaccination data for Hawaii are not readily available, so are excluded from the chart. Texas data are included starting March 2, 2021.

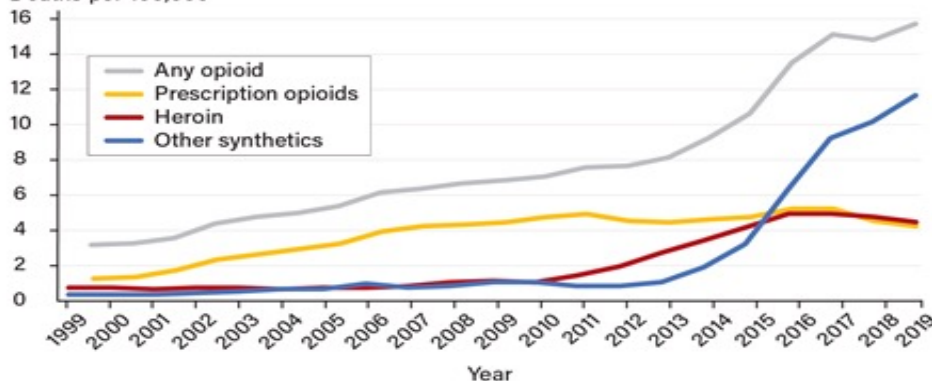
Sources: USDA, Economic Research Service using 2015 County Typology codes and data from the U.S. Centers for Disease Control and Prevention, Texas Department of State Health Services, and the U.S. Census Bureau's 2020 decennial census.

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U.S. opioid overdose mortality, age-adjusted, 1999–2019

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Deaths per 100,000

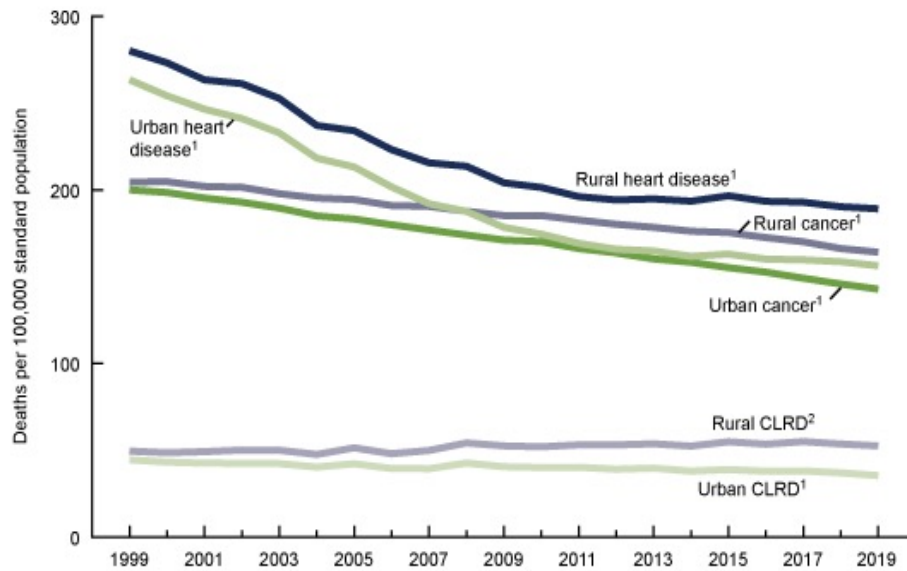


Note: "Prescription opioids" include natural and semi-synthetic opioids and methadone. "Other synthetics" include fentanyl, tramadol, and meperidine. In addition to these sources and heroin drug overdose mortality, "Any opioid" includes other and unspecified narcotics (not shown, but always between 0.6 and 1.1 deaths per 100,000 people). Because mortality may involve more than one type of opioid, the sum of the types exceeds the "any opioid" category, most notably after 2014, as fentanyl and kindred drugs are often mixed with other opioids. Age-adjustment allows for fairer comparisons across groups with different age structures.

Source: USDA, Economic Research Service based on and updating data from the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, CDC Wide-ranging Online Data for Epidemiologic Research (CDC WONDER).

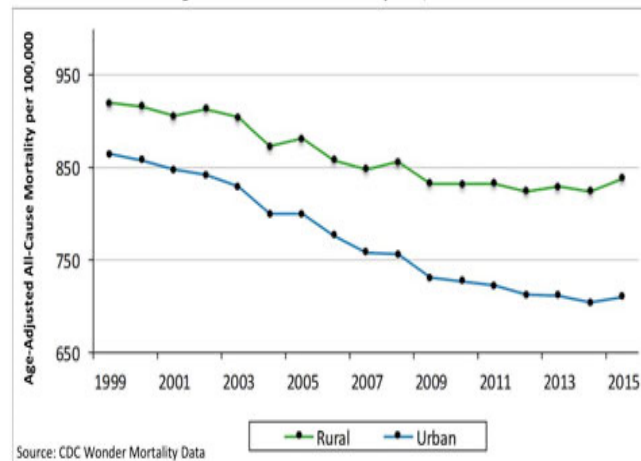
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Age-adjusted death rates for heart disease, cancer, and chronic lower respiratory disease, by urban-rural classification: United States, 1999–2019



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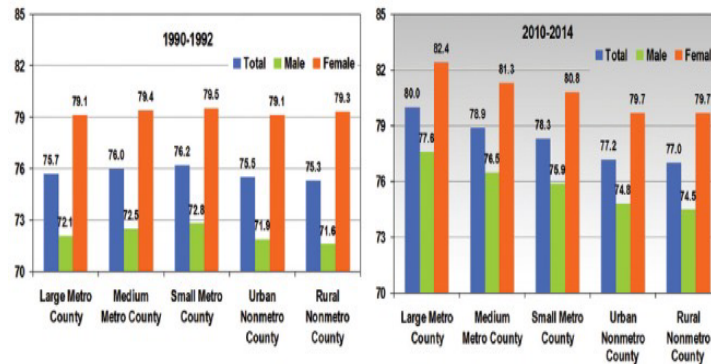
Figure 2: All-Cause U.S. Mortality Rate, 1999-2015



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Life Expectancy at birth 199-1992 and 2010-2014



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Community Benefit Examples that Show the Connection to Population Health

St. Francis Memorial Hospital (San Francisco) – gang ridden Tenderloin district – “**Corner Captains**” mothers of school children patrol area watching out for the children – part of **Safe Passage initiative** of **Tenderloin Health Improvement Partnership** funded by hospital – targeting social determinants of health such as violence, poverty, hunger, education, nutrition, and housing

Gang members leave the moms and kids alone

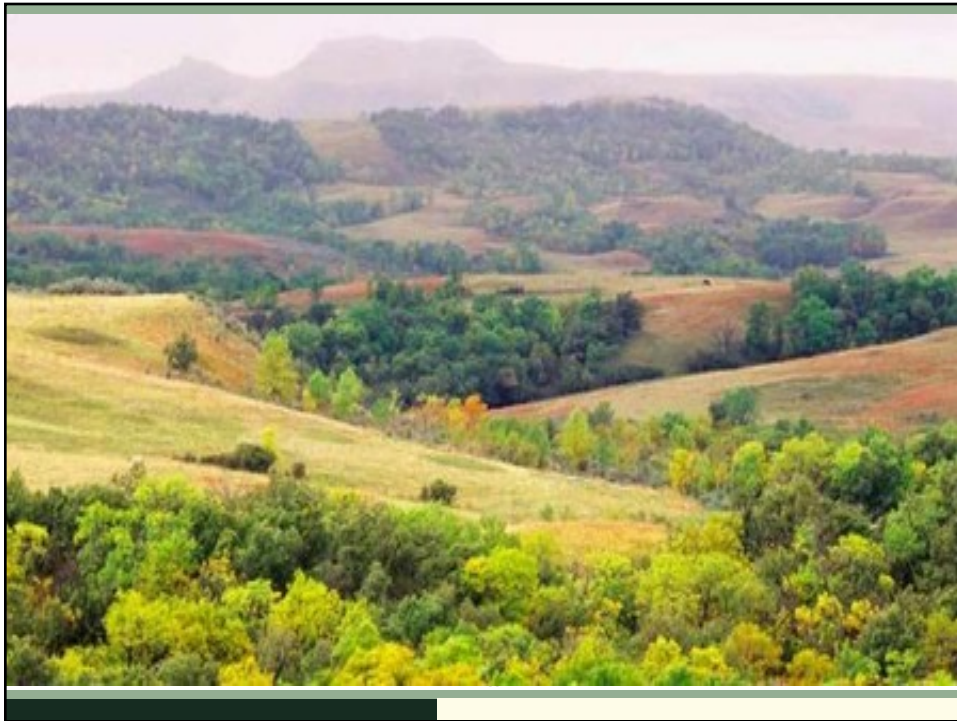


Center for
Rural Health

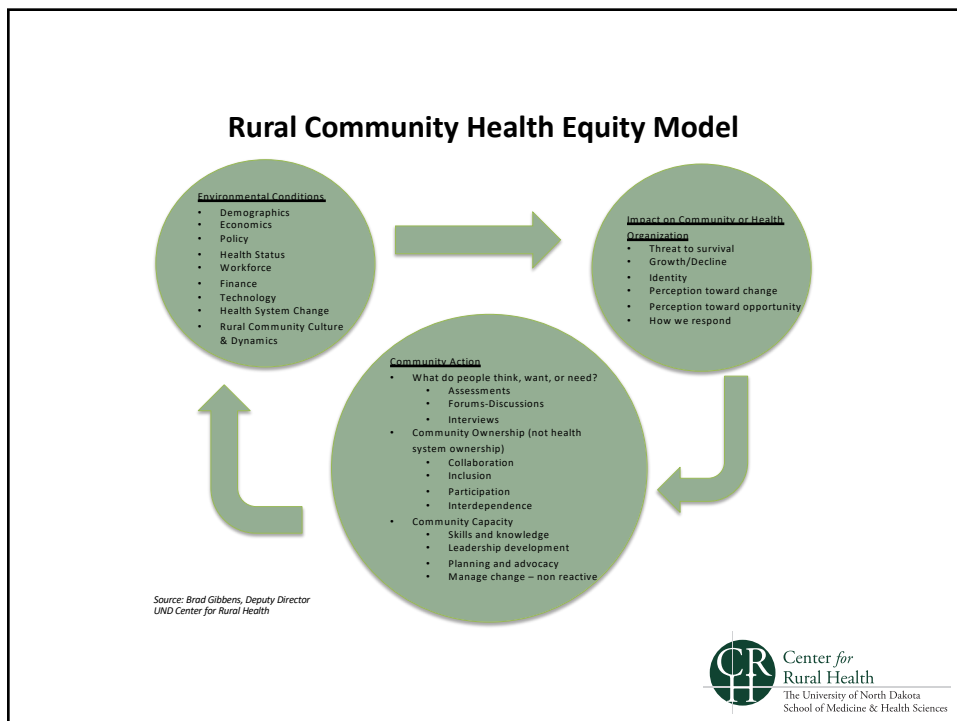
The University of North Dakota
School of Medicine & Health Sciences

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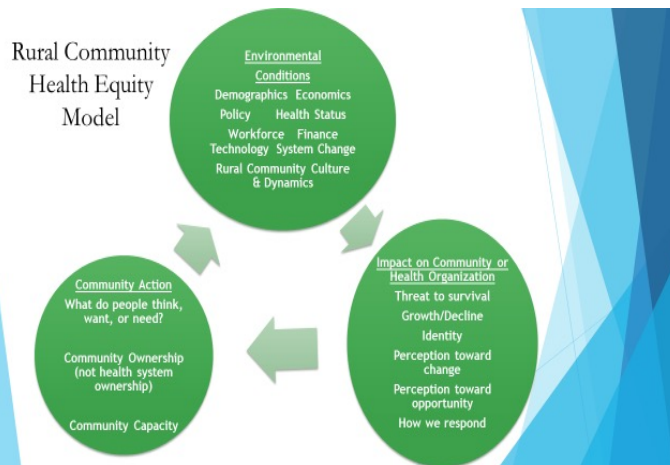
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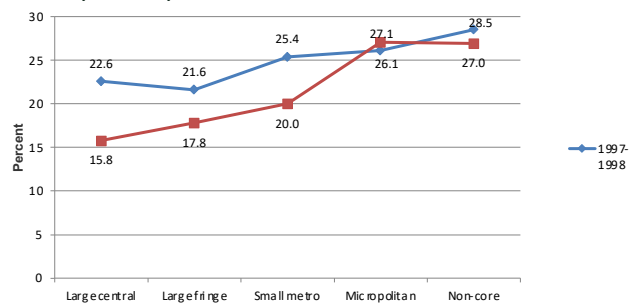


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Risk Factors: Adult Smoking

Cigarette smoking among persons 18 years of age and older by rurality



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Risk Factors: Obesity

Obesity among persons 18 years of age and older by type of rural

