Center *for* Rural Health

Population Health: Equity, Disparities, and Rural Health

NURS 565 Rural Populations and Rural Health

February 15, 2022

UND College of Nursing and Professional Disciplines

Presented by Brad Gibbens, Acting Director and Assistant Professor

Center *for* Rural Health
The University of North Dakota
School of Medicine & Health Sciences

1

Center *for* Rural Health

- 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

ruralhealth.und.edu

2

2

3

3

Center *for* Rural Health

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

4

4

Center *for* Rural Health

What is this whole "community thing" and rural health?

5

5

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 **heath 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

Center *for* Rural Health
The University of North Dakota
School of Medicine & Health Sciences

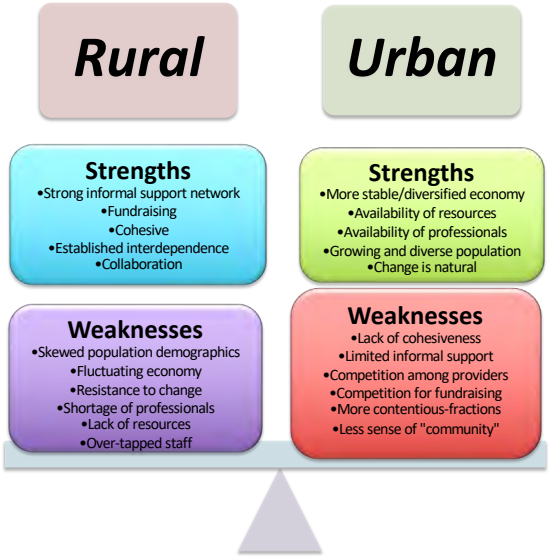
6

6

Stutsman County

7

Rural and Urban Strengths and Weaknesses



8

8

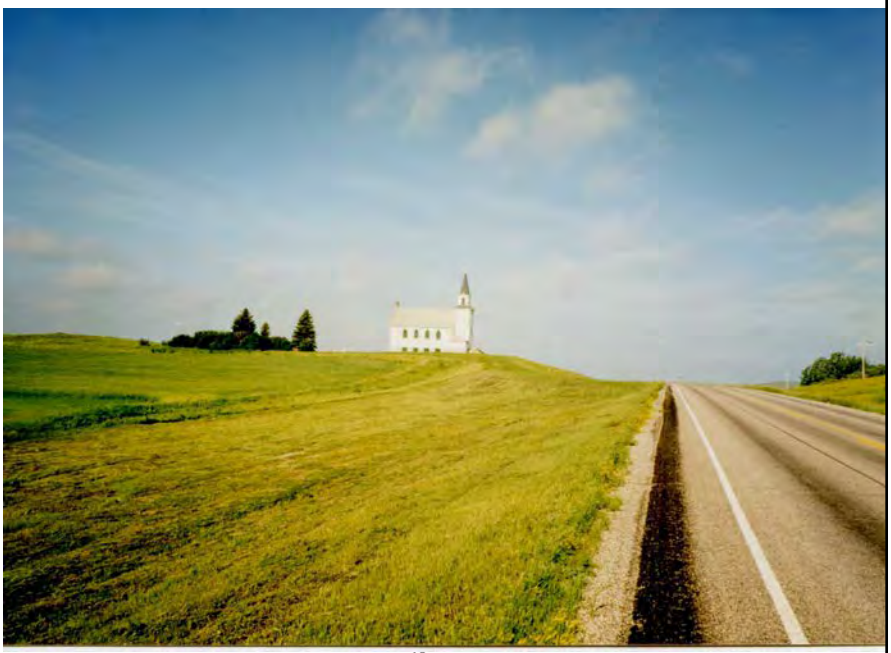
Center *for* Rural Health

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.

9

9



10

10

Center *for* Rural Health

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

11

11

Center *for* Rural Health

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?

12

12

Center *for* Rural Health

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.

13

13

Center *for* Rural Health

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).

14

14

Factors Contributing to Health

Outside Health Care System	Related to the Health Care System	
Societal Factors	**Care Delivery**	**Regulatory Environment**
• 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 • Patience choice • Morbidity rates • Transportation availability	• 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	• 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*

Center *for* Rural Health
The University of North Dakota
School of Medicine & Health Sciences

15

16

16

Center *for* Rural Health

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."

17

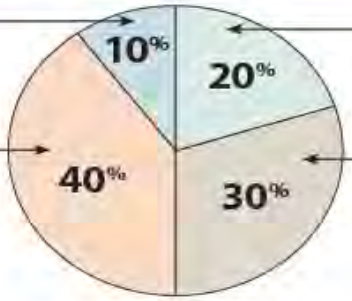
17

Social Determinants of Health

Population Health

Physical Environment
Environmental quality
Built environment

Socio-Economic Factors
Education
Employment
Income
Family/social support
Community safety



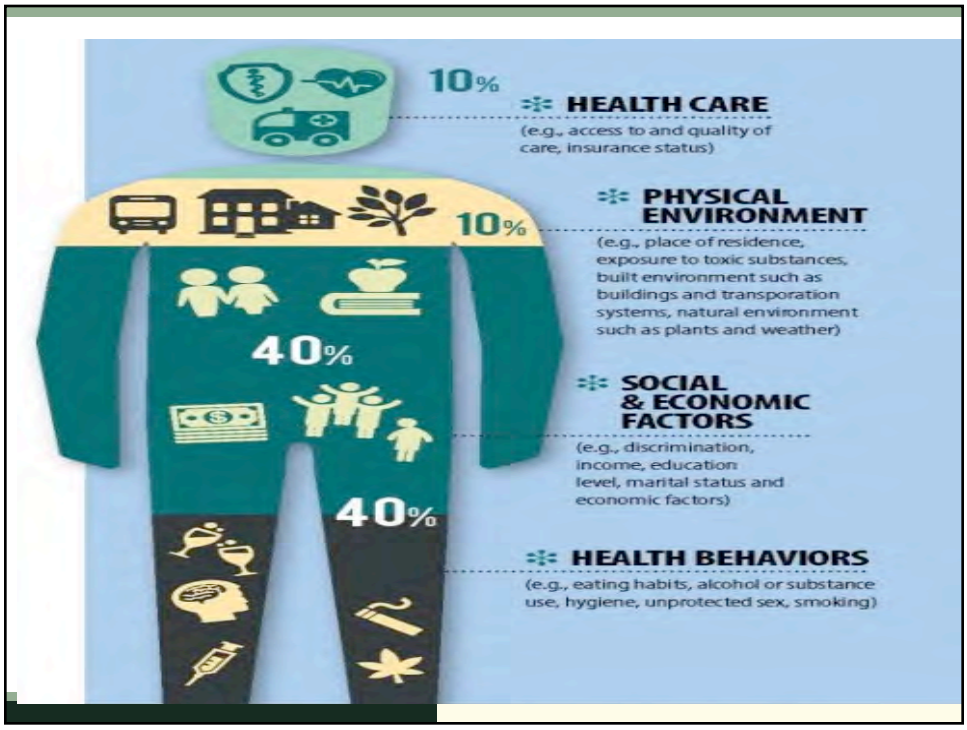
Health Care
Access to care
Quality of care

Health Behaviors
Tobacco use
Diet & exercise
Alcohol use
Unsafe sex

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

18

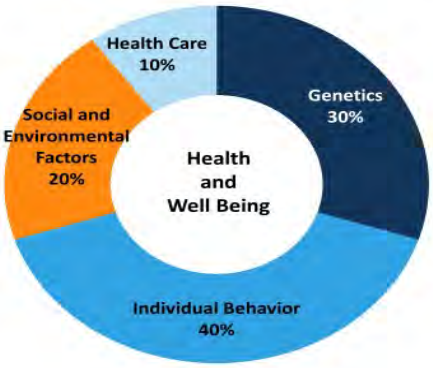
18



19

Figure 1

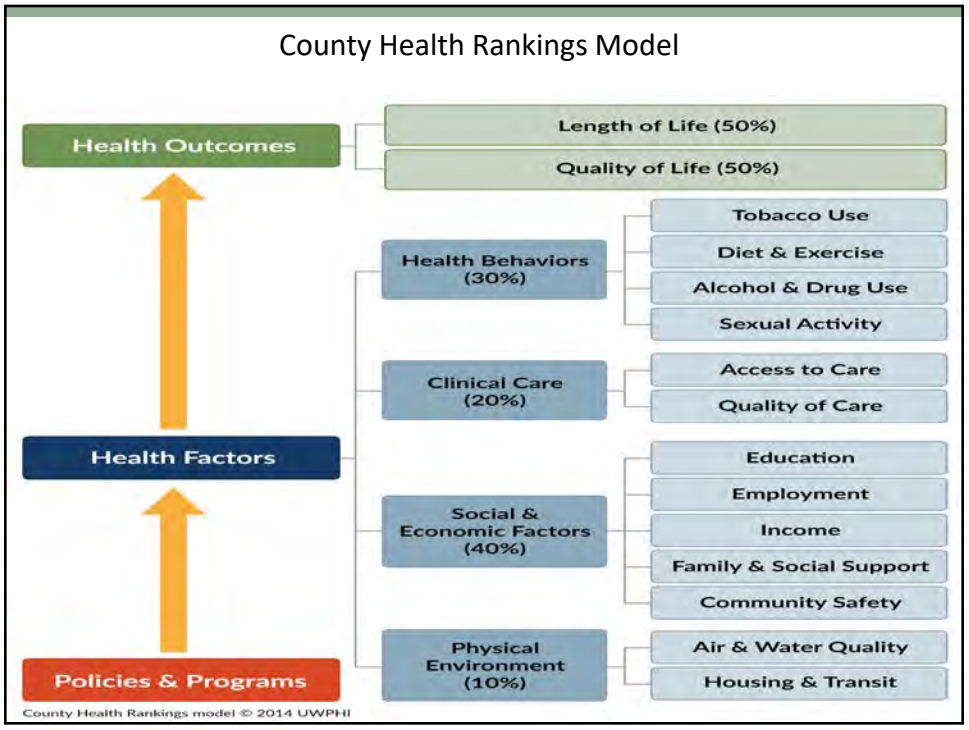
Impact of Different Factors on Risk of Premature Death



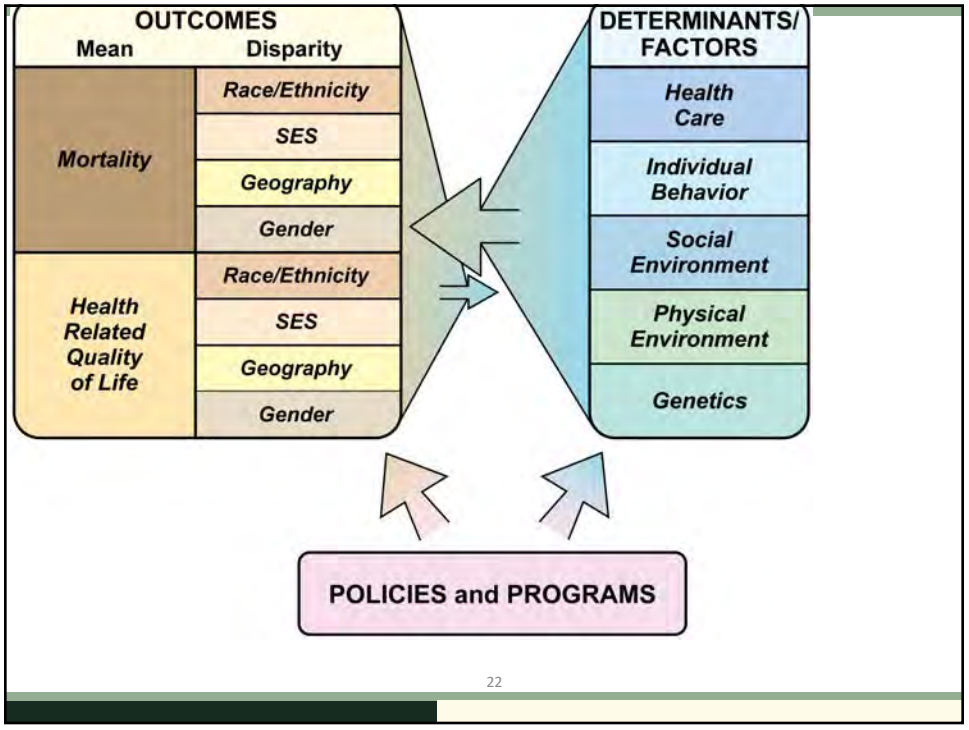
SOURCE: Schroeder, SA. (2007). We Can Do Better — Improving the Health of the American People. *NEJM*. 357:1221-8.

20

20


County Health Rankings Model
Health Outcomes
Length of Life (50%)
Quality of Life (50%)
Health Behaviors (30%)
Tobacco Use
Diet & Exercise
Alcohol & Drug Use
Sexual Activity
Clinical Care (20%)
Access to Care
Quality of Care
Health Factors
Social & Economic Factors (40%)
Education
Employment
Income
Family & Social Support
Community Safety
Physical Environment (10%)
Air & Water Quality
Housing & Transit
Policies & Programs
County Health Rankings model © 2014 UWPHI

21


OUTCOMES
Mean
Disparity
Mortality
Race/Ethnicity
SES
Geography
Gender
Health Related Quality of Life
Race/Ethnicity
SES
Geography
Gender
DETERMINANTS/ FACTORS
Health Care
Individual Behavior
Social Environment
Physical Environment
Genetics
POLICIES and PROGRAMS
22

22

23

23

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)

24

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**

25

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

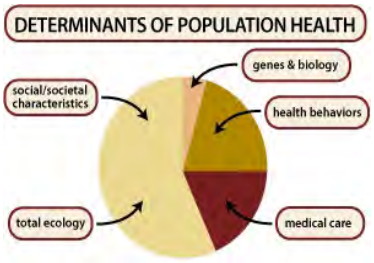
26

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



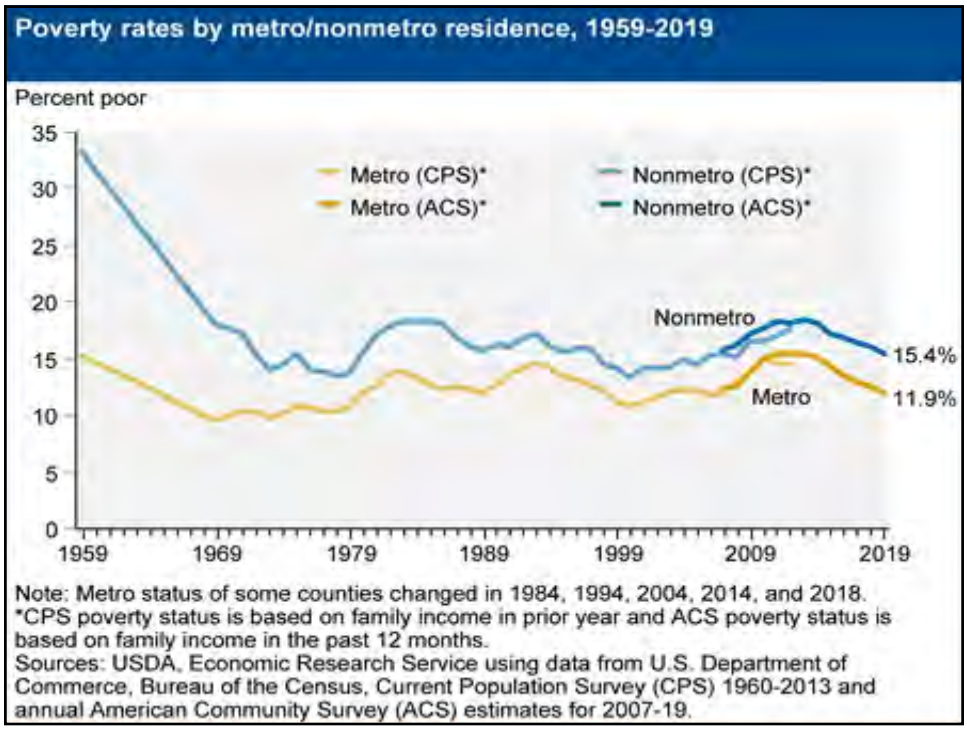
27

28

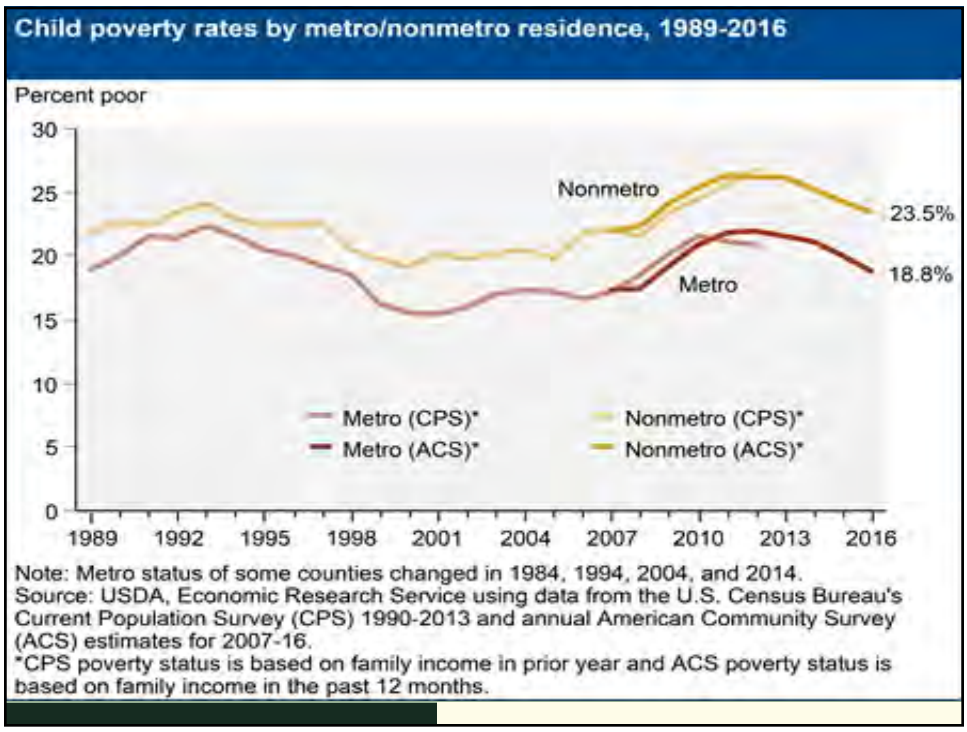
Social and Economic Factors of SDOH

Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

29



30

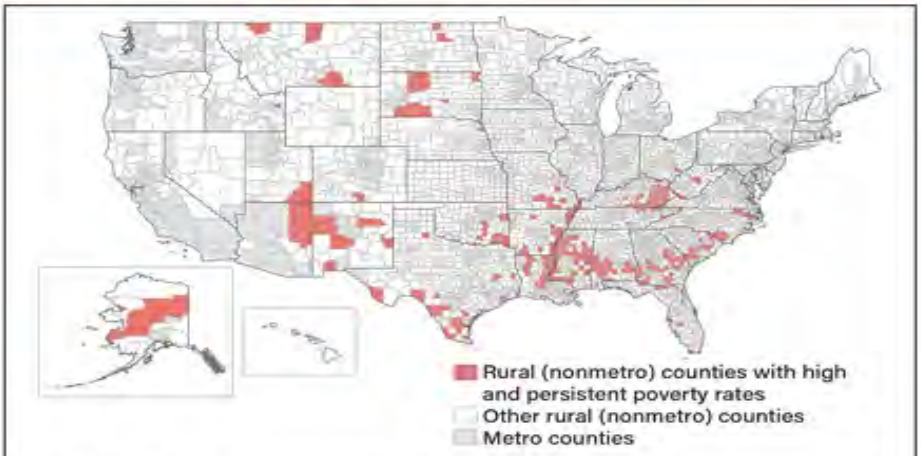

Child poverty rates by metro/nonmetro residence, 1989-2016
Percent poor
30
25
20
15
10
5
0
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
Nonmetro
23.5%
Metro
18.8%
Metro (CPS)*
Metro (ACS)*
Nonmetro (CPS)*
Nonmetro (ACS)*
Note: Metro status of some counties changed in 1984, 1994, 2004, and 2014.
Source: USDA, Economic Research Service using data from the U.S. Census Bureau's Current Population Survey (CPS) 1990-2013 and annual American Community Survey (ACS) estimates for 2007-16.
*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.

31

32

High and persistent poverty rates in U.S. rural counties, 2019

USDA Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE



Notes: **High and persistent poverty county** = county designated as persistent poverty (over the 30-year period ending with 2007-11) in the USDA, Economic Research Service County Typology Codes 2015 edition and high poverty in the current period (2015-2019). Nonmetro (rural) status determined by 2013 metropolitan area designations from the U.S. Office of Management and Budget.

Source: USDA, Economic Research Service using 1980, 1990, and 2000 decennial census data and American Community Survey 5-year estimates for 2007-2011 and 2015-2019.

33

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% or 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).*

Center *for* Rural Health
The University of North Dakota School of Medicine & Health Sciences

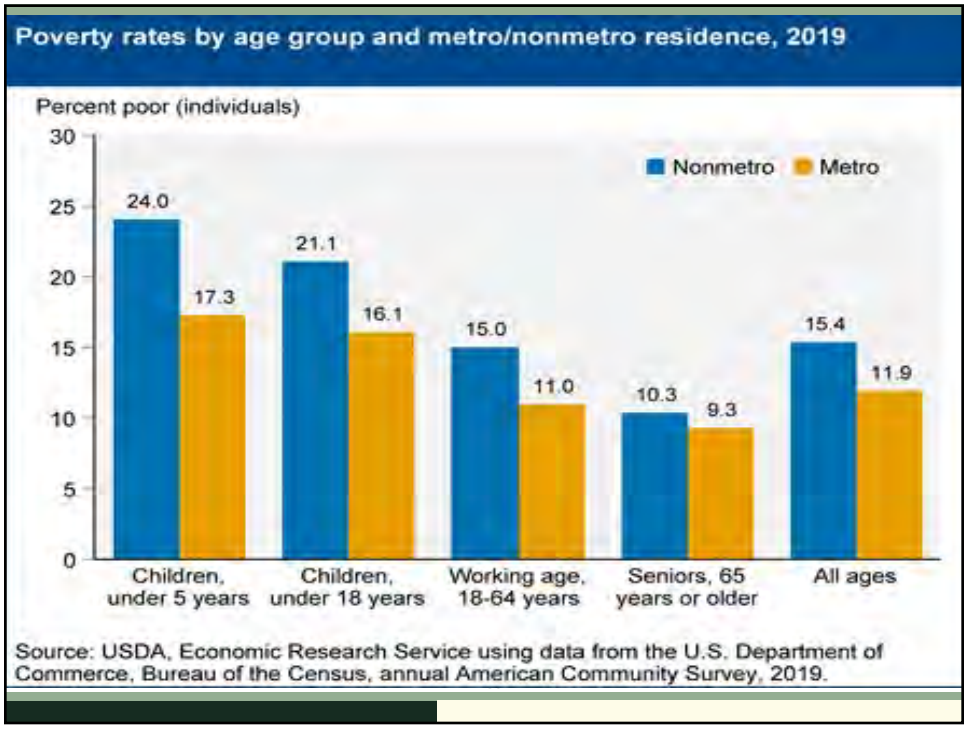
34

34

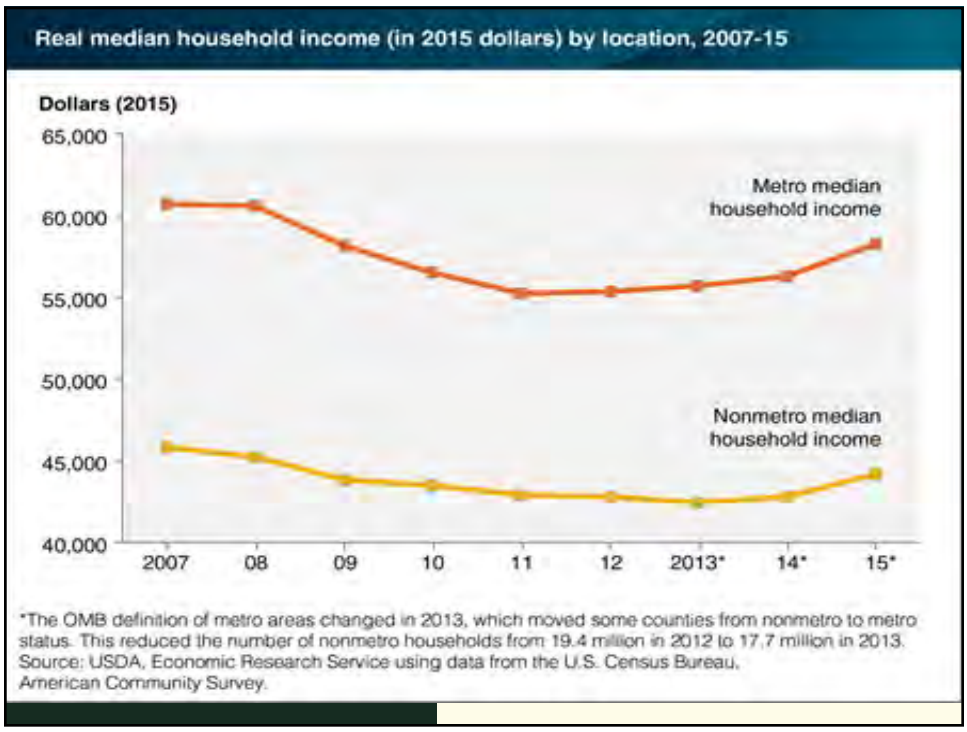

RAILROAD CROSSING

35

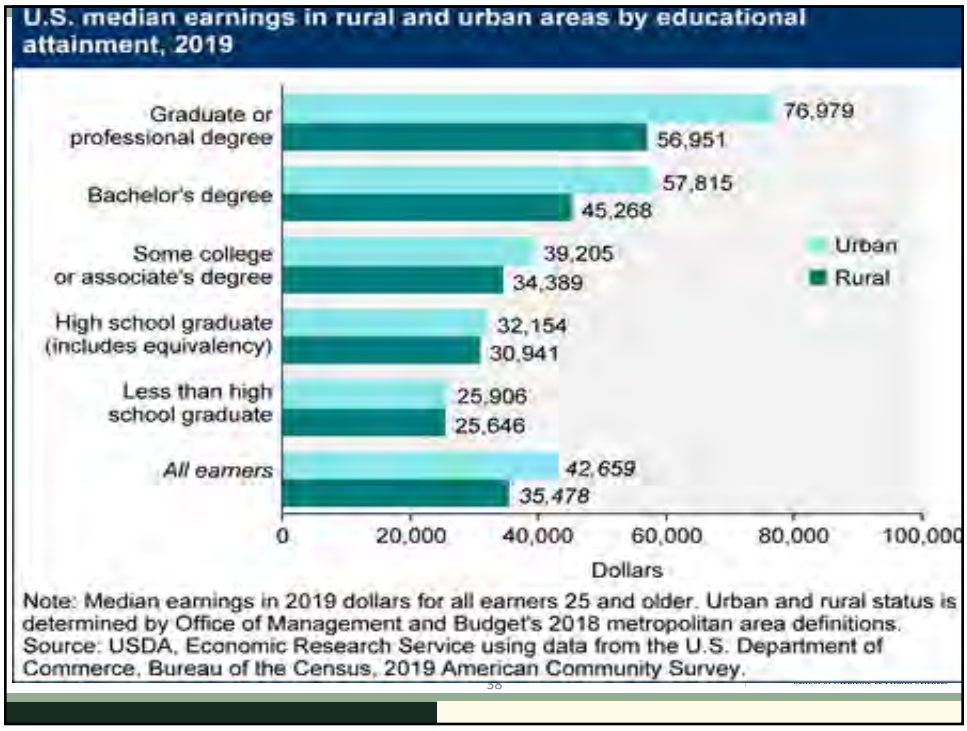
35


Poverty rates by age group and metro/nonmetro residence, 2019
Percent poor (individuals)
30
25
20
15
10
5
0
Nonmetro
Metro
24.0
17.3
21.1
16.1
15.0
11.0
10.3
9.3
15.4
11.9
Children, under 5 years
Children, under 18 years
Working age, 18-64 years
Seniors, 65 years or older
All ages
Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census, annual American Community Survey, 2019.

36


Real median household income (in 2015 dollars) by location, 2007-15
Dollars (2015)
65,000
60,000
55,000
50,000
45,000
40,000
Metro median household income
Nonmetro median household income
2007
08
09
10
11
12
2013*
14*
15*
*The OMB definition of metro areas changed in 2013, which moved some counties from nonmetro to metro status. This reduced the number of nonmetro households from 19.4 million in 2012 to 17.7 million in 2013.
Source: USDA, Economic Research Service using data from the U.S. Census Bureau, American Community Survey.

37


U.S. median earnings in rural and urban areas by educational attainment, 2019
Graduate or professional degree
76,979
56,951
Bachelor's degree
57,815
45,268
Some college or associate's degree
39,205
34,389
High school graduate (includes equivalency)
32,154
30,941
Less than high school graduate
25,906
25,646
All earners
42,659
35,478
Urban
Rural
0
20,000
40,000
60,000
80,000
100,000
Dollars
Note: Median earnings in 2019 dollars for all earners 25 and older. Urban and rural status is determined by Office of Management and Budget's 2018 metropolitan area definitions.
Source: USDA, Economic Research Service using data from the U.S. Department of Commerce, Bureau of the Census, 2019 American Community Survey.

38

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.

39

39

40

Physical Environment Factors of SDOH

Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

41

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.

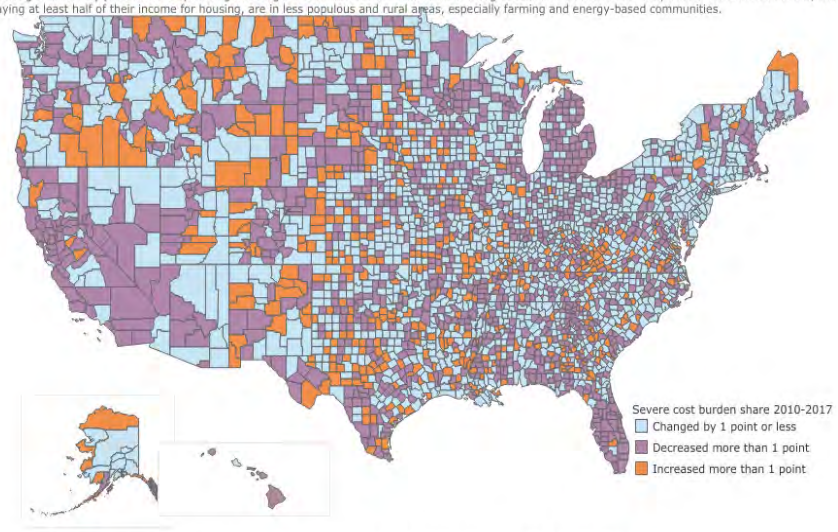
(Source: Rural Health Information Hub -RHI Hub)

Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

42

Affordability Crisis Spreads to Rural America

Housing affordability problems are spreading from big cities to rural areas. Areas with the largest recent increases in severely cost-burdened households, those paying at least half of their income for housing, are in less populous and rural areas, especially farming and energy-based communities.



Source: American Community Survey five-year average data for 2006-2010 and 2013-2017, *Stateline* analysis

43

Rural Transportation Challenges

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

Center *for* Rural Health
The University of North Dakota School of Medicine & Health Sciences

44

44

45

Health Care Factors on SDOH

Center *for* Rural Health
The University of North Dakota School of Medicine & Health Sciences

46

General Observations on the Health Care System

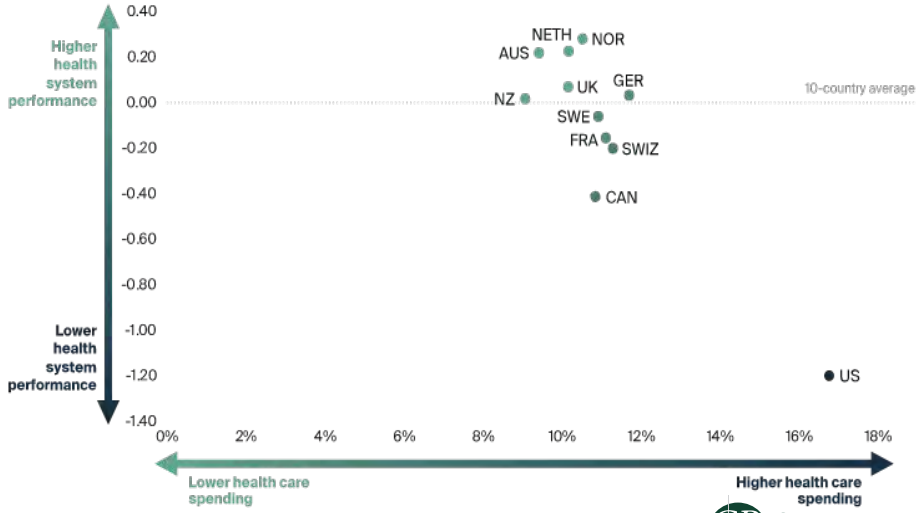
- Most people give too much credit to health care/clinical care when thinking of their health and not realizing it is likely 10-20% of health status.
- US spends more on health care than any other country at about $4 Trillion a year ($12,000 per capita vs. Germany, $6,700; France, $5,500; Canada, $5,400; 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.

Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

47

47

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



Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

48

48

Center *for* Rural Health

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

49

50

Health Behavior Factors on SDOH

Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

51

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 heath care **all influence health behaviors.**

Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

52

53

Center *for* Rural Health

Rural Mortality

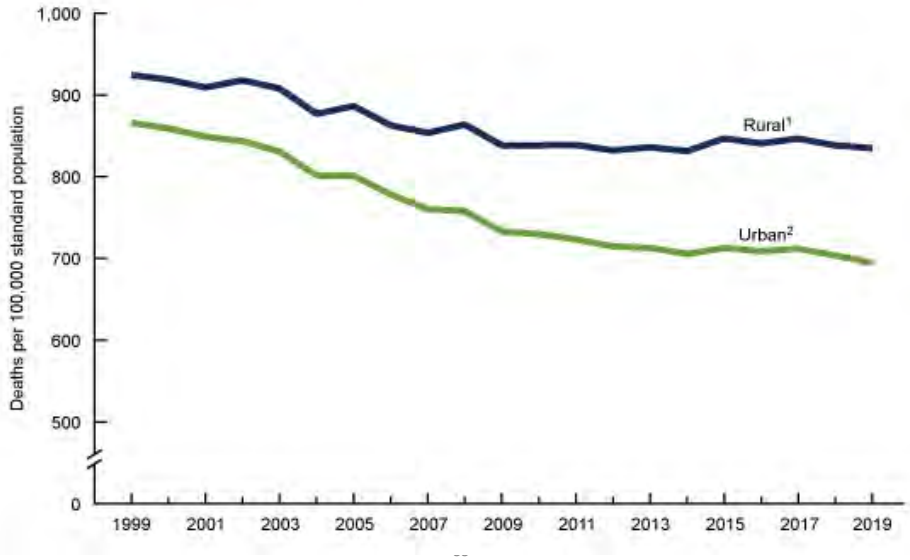
- Cause-specific mortality is often higher in rural counties than urban counties
- Risk factors contribute to high mortality rates in rural areas
  - Smoking
  - Obesity
  - Physical inactivity
- High mortality rates and risk factors are a reflection of the physical and social environment in which people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

54

Center *for* Rural Health
The University of North Dakota
School of Medicine & Health Sciences

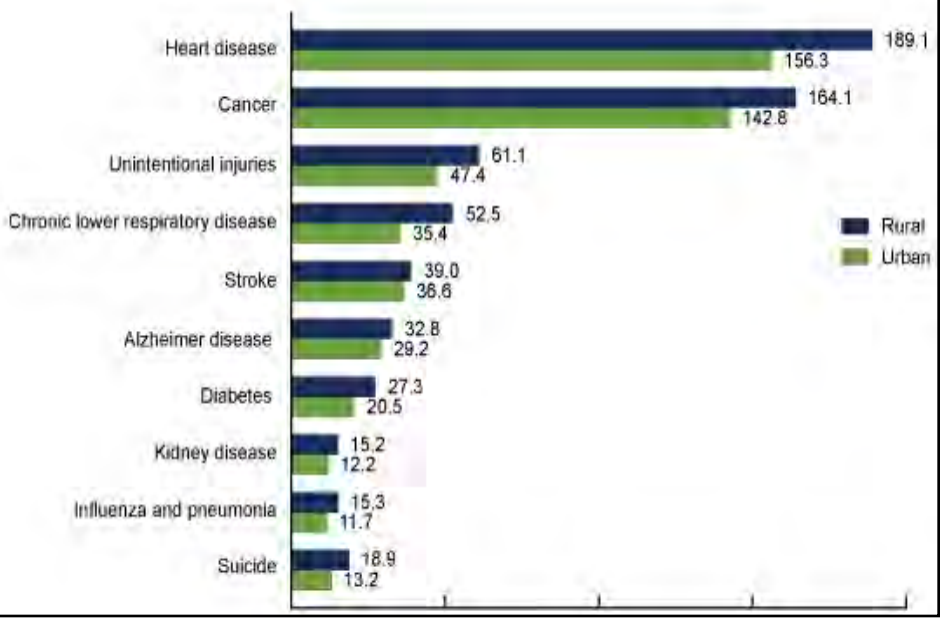
54

Age-adjusted death rates, by urban-rural classification: United States, 1999–2019



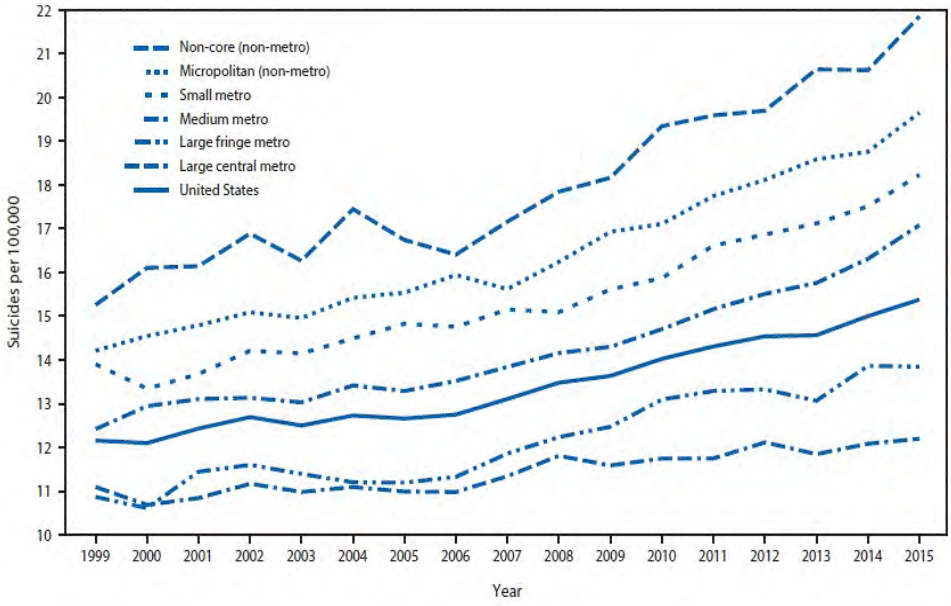
55

Age-adjusted death rates for the 10 leading causes of death, by urban-rural classification: United States, 2019

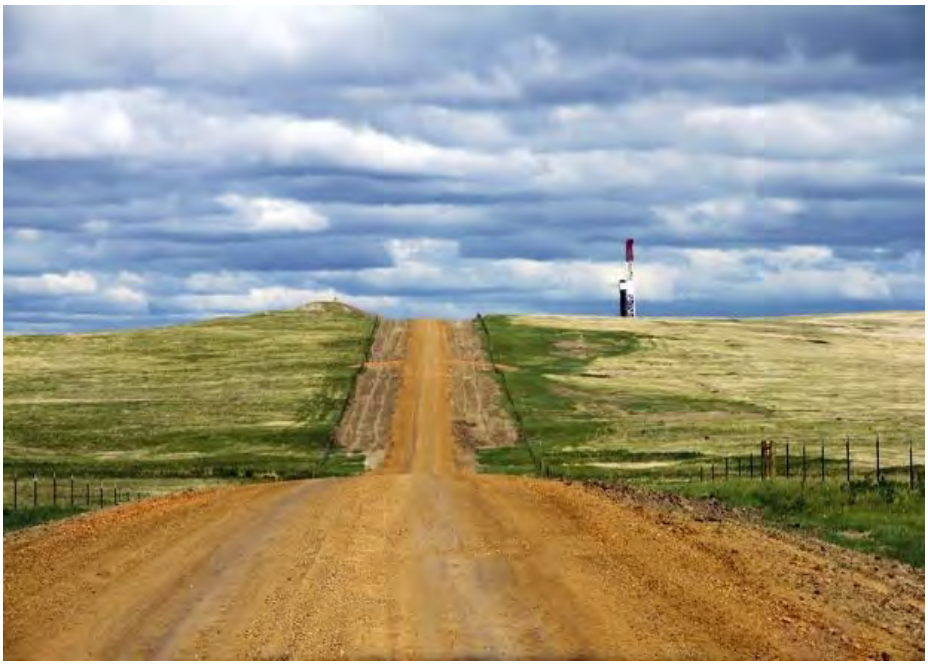


56

Suicide rates* by level of county urbanization† — United States, 1999–2015



57



58

58

59

59

Center *for* Rural Health

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?

60

60


nicefunny.com
OPPORTUNITY

61

61


AD-DIVIDE COUNTY COURT HOUSE-1917

62

62

63

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

64

Center *for* Rural Health
The University of North Dakota
School of Medicine & Health Sciences

64

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)

65

65

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

66

66

67

Center *for* Rural Health

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

68

68

Center *for* Rural Health

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

69

69

Center *for* Rural Health

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

70

71

71

Customized Assistance

RHIhub Rural Health Information Hub

info@ruralhealthinfo.org

1-800-270-1898

Tailored Searches of Funding Sources for Your Project

Foundation Directory Search

FREE Service!

72

Wolf Mountain Prairie

73

Rural Health Research Gateway

Gateway provides easy and timely access to research conducted by the Rural Health Research Centers

ruralhealthresearch.org

This free online resource connects you to:

- Research and Policy Centers
- Products & Journal Publications
- Fact Sheets
- Policy Briefs
- Research Projects
- Email Alerts
- Experts
- Dissemination Toolkit

Per Ostmo, MPA, Program Director
Tel: (701) 777-6522 • per.ostmo@UND.edu

Connect with us

info@ruralhealthresearch.org
facebook.com/RHRGateway
twitter.com/rhrgateway

Funded by the Federal Office of Rural Health Policy, Health Resources and Services Administration

74

75

76

Contact us for more information!

Center for Rural Health
UND School of Medicine and Health Sciences
1301 N. Columbia Road, Stop 9037
Grand Forks, North Dakota 58202-9037
Brad Gibbens (brad.gibbens@und.edu)
701.777.2569 (desk)
701.777.3848 (CRH Main #)
ruralhealth.und.edu

Center for Rural Health
The University of North Dakota
School of Medicine & Health Sciences

77

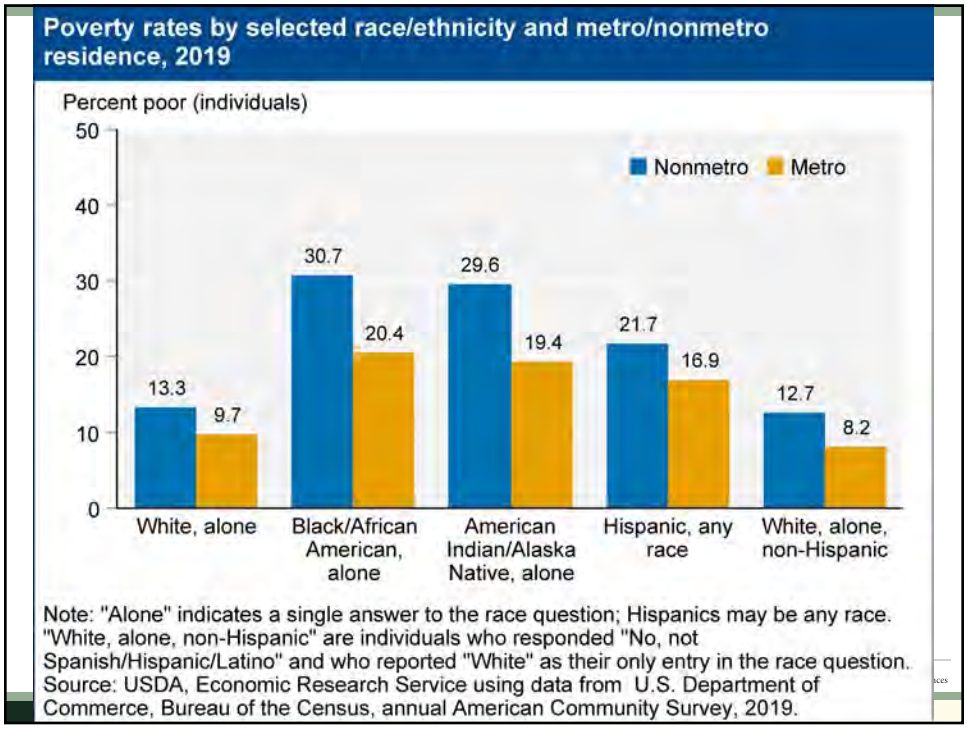
Additional Slide

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

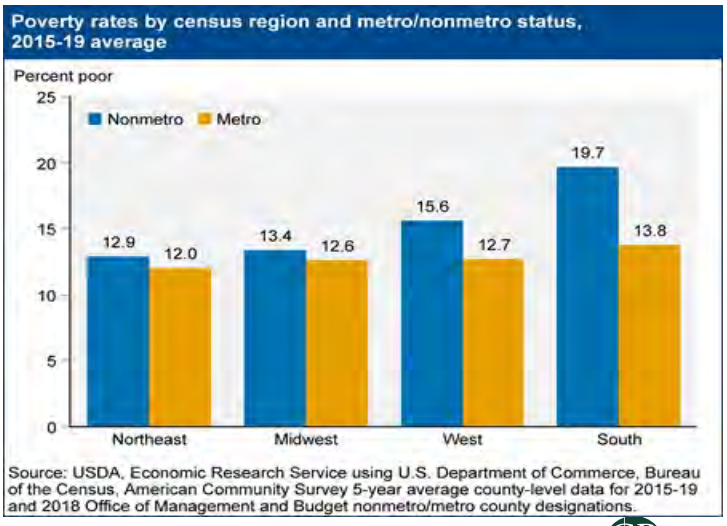
Center for Rural Health
The University of North Dakota
School of Medicine & Health Sciences

78

79

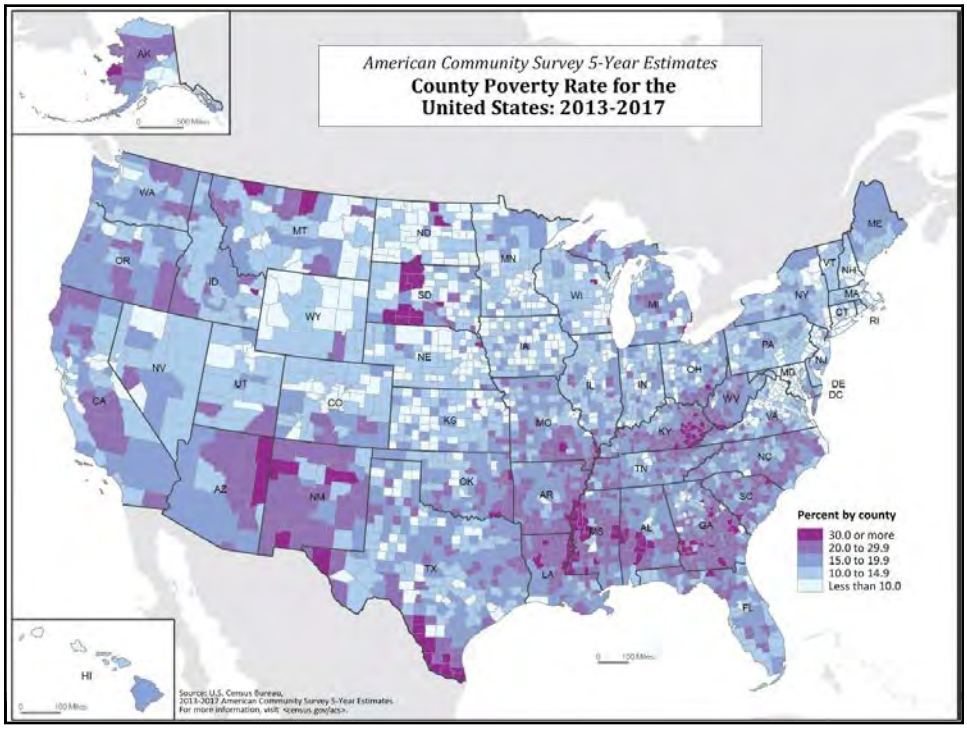

Poverty rates by selected race/ethnicity and metro/nonmetro residence, 2019
Percent poor (individuals)
50
40
30
20
10
0
Nonmetro
Metro
13.3
9.7
30.7
20.4
29.6
19.4
21.7
16.9
12.7
8.2
White, alone
Black/African American, alone
American Indian/Alaska Native, alone
Hispanic, any race
White, alone, non-Hispanic
Note: "Alone" indicates a single answer to the race question; Hispanics may be any race. "White, alone, non-Hispanic" are individuals who responded "No, not Spanish/Hispanic/Latino" and who reported "White" as their only entry in the race question.
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, annual American Community Survey, 2019.

80

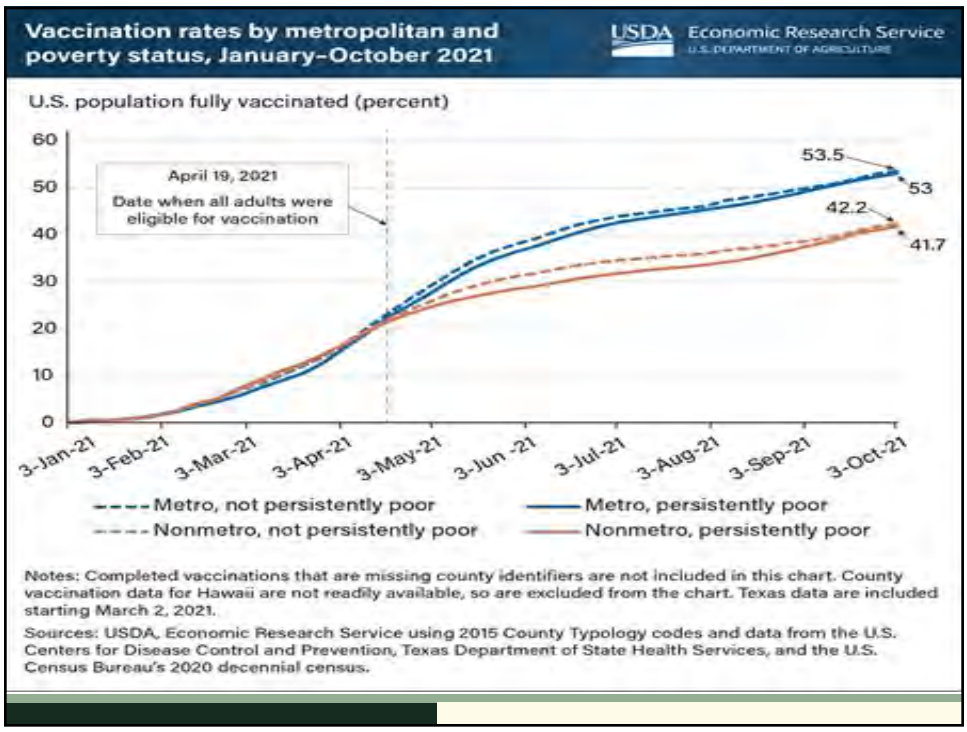


Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

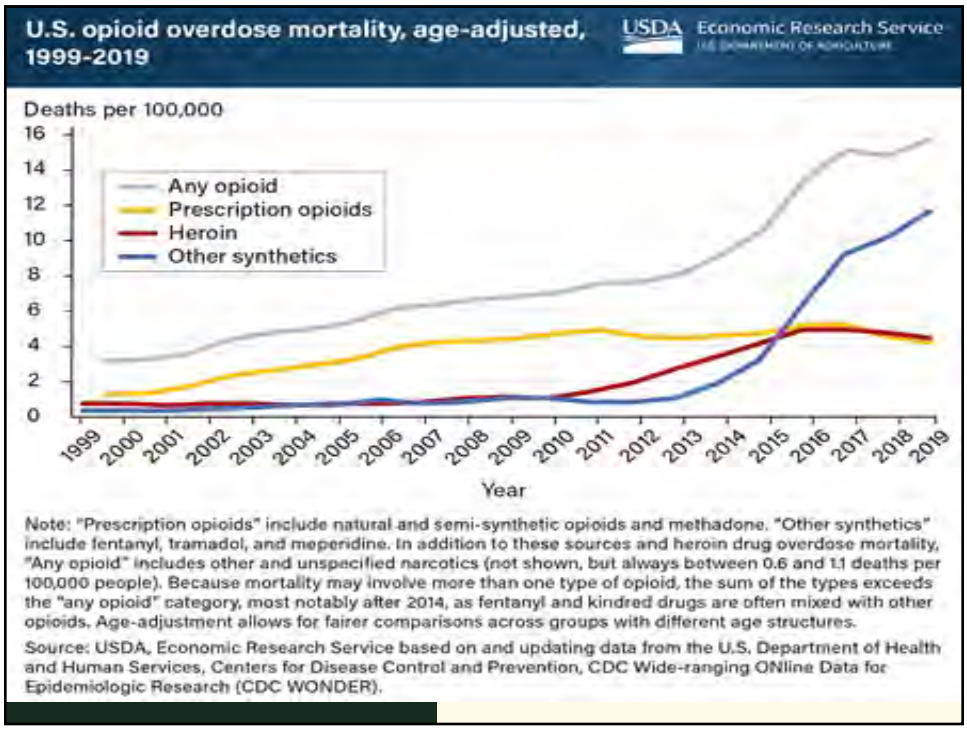
81



82

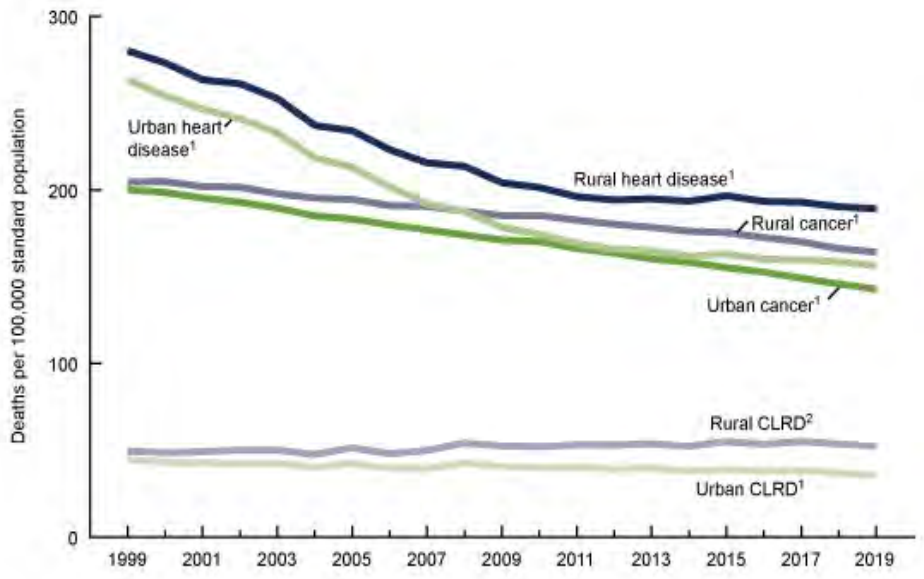

Vaccination rates by metropolitan and poverty status, January–October 2021
USDA Economic Research Service
U.S. population fully vaccinated (percent)
60
50
40
30
20
10
0
April 19, 2021
Date when all adults were eligible for vaccination
53.5
53
42.2
41.7
3-Jan-21
3-Feb-21
3-Mar-21
3-Apr-21
3-May-21
3-Jun-21
3-Jul-21
3-Aug-21
3-Sep-21
3-Oct-21
Metro, not persistently poor
Metro, persistently poor
Nonmetro, not persistently poor
Nonmetro, persistently poor
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.

83


U.S. opioid overdose mortality, age-adjusted, 1999-2019
USDA Economic Research Service
Deaths per 100,000
16
14
12
10
8
6
4
2
0
Any opioid
Prescription opioids
Heroin
Other synthetics
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year
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).

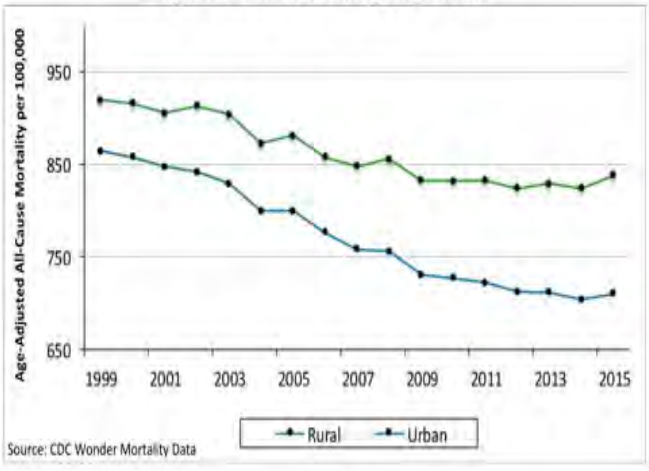
84

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



85

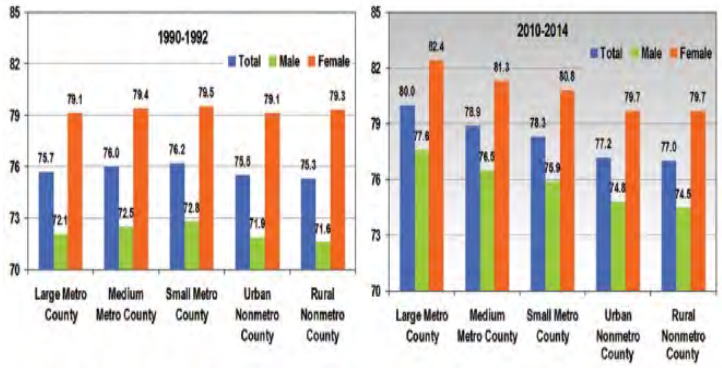
Figure 2: All-Cause U.S. Mortality Rate, 1999-2015



86

86

Life Expectancy at birth 199-1992 and 2010-2014



87

87

Community Benefit Examples that Show the Connection to Population Health

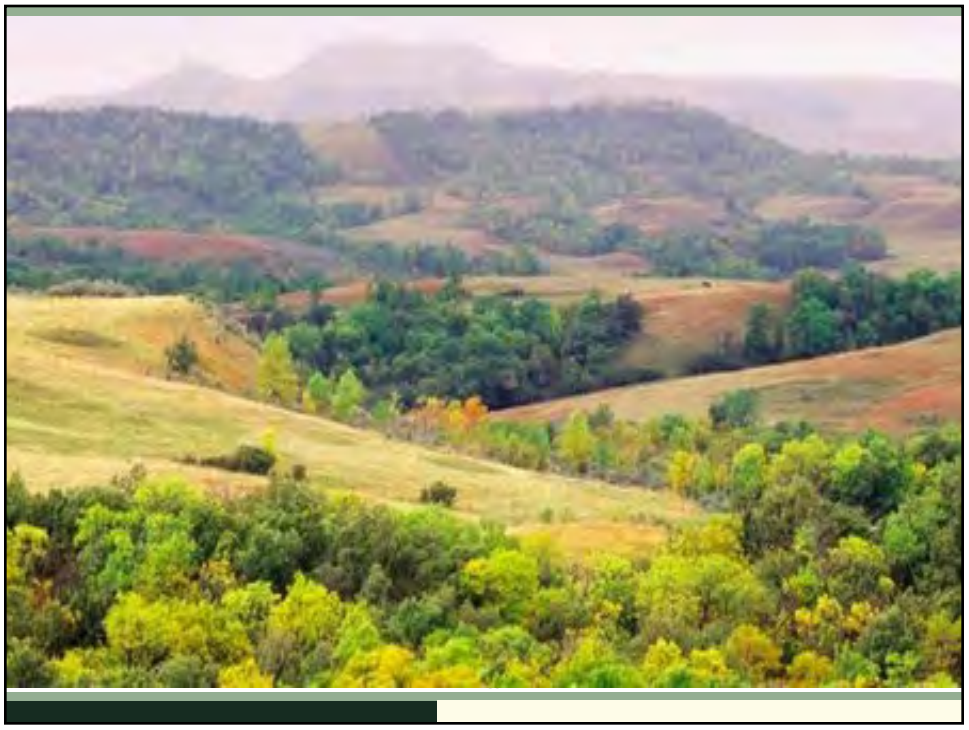
St. Francis Memorial Hospital (San Francisco) – gang ridden Tenderloin district – "**Corner Captains**" mothers of school children patrol area watching out for the children – part of **Safe Passage initiative** of **Tenderloin Health Improvement Partnership** funded by hospital – targeting social determinants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

Gang members leave the moms and kids alone

88

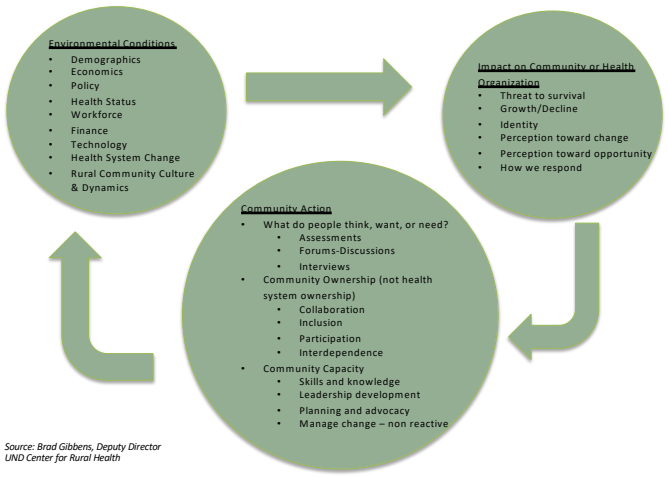
Center *for* Rural Health
The University of North Dakota
School of Medicine & Health Sciences

88



89

Rural Community Health Equity Model



Source: Brad Gibbens, Deputy Director UND Center for Rural Health

Center *for* Rural Health
The University of North Dakota School of Medicine & Health Sciences

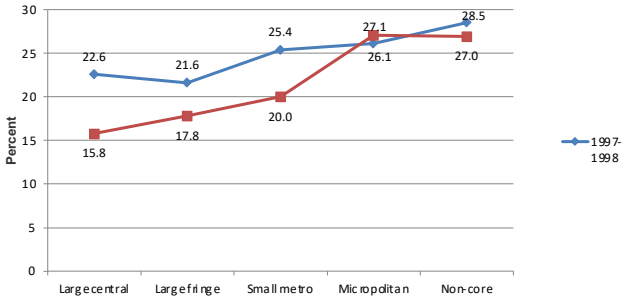
90

91

91

Risk Factors: Adult Smoking

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



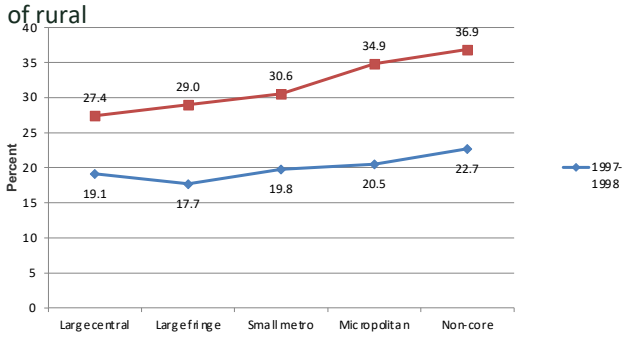
Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

92

92

Risk Factors: Obesity

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



Center for Rural Health
The University of North Dakota School of Medicine & Health Sciences

93