

# **Social determinants of health: challenges and opportunities in rural America**

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Rural & Minority Health Research Center

November 17, 2020



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## **Overview**

- Defining our terms
- Rural disparities
- Planning a way forward



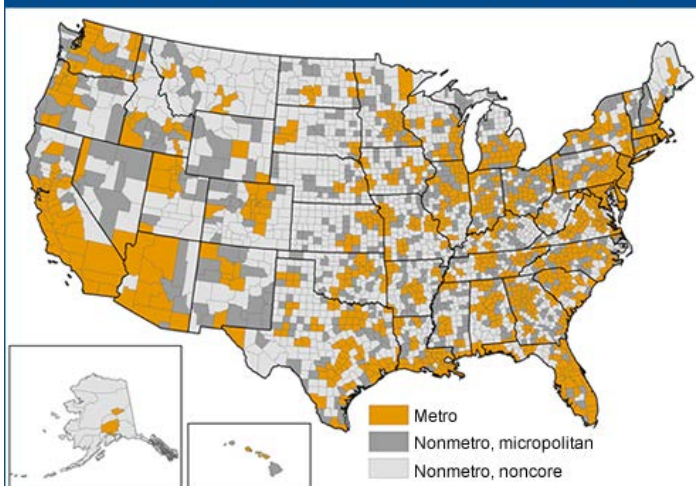
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## Defining: what does “rural” mean?

- Rural areas are defined by population and distance:
  - Smaller populations
  - Greater distances

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Metro, nonmetro micropolitan, and nonmetro noncore counties, 2013



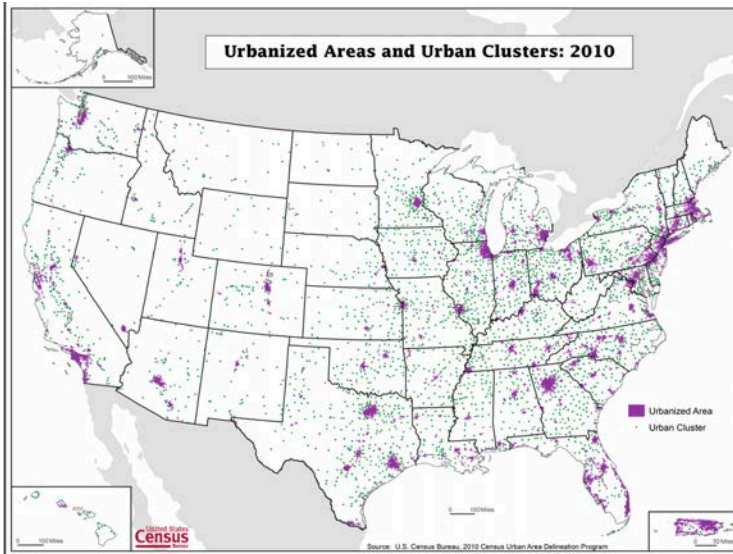
Source: USDA, Economic Research Service using data from the U.S. Census Bureau.

<https://gis-portal.data.census.gov/arcgis/apps/MapSeries/index.html?appid=7a41374f6b03456e9d138cb014711e01>

### Definitions: the rural US

- County-level definitions are based on an urban area of  $\geq 50,000$  people
- County-level definitions omit 54% of Census-defined rural people

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<https://gis-portal.data.census.gov/arcgis/apps/MapSeries/index.html?appid=7a41374f6b03456e9d138cb014711e01>

## Definitions: the rural US

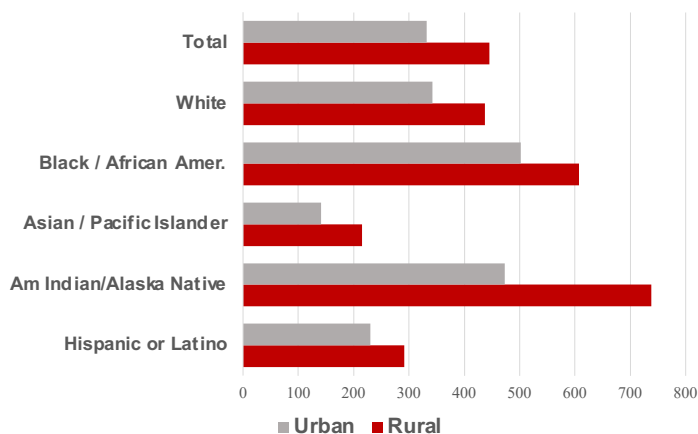
- Census tract definitions are more granular
- ...but have no one in charge

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## Rural disparities in health & outcomes

Age adjusted death rates, adults aged 25-64 years, 2017, by county of residence and race/ethnicity



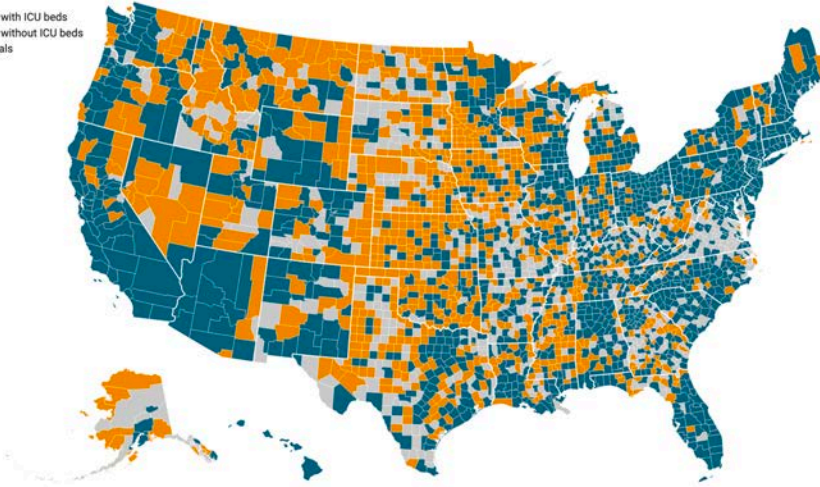
Research documents higher age-adjusted death rates for children, working age adults, and older adults in rural than in urban counties

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## Rural health care infrastructure gaps

■ Hospitals with ICU beds  
■ Hospitals without ICU beds  
■ No hospitals



Notes: This analysis includes the most recent reports, from FY 2018 and 2019. Some hospitals may have closed since then. Some hospitals may have made errors in their reporting, and in several cases KHN has manually adjusted the data. In some cases, beds in small satellite hospitals are reported in the main hospital's filing. Hospitals for veterans run by the Department of Defense are not included in this analysis.

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## “Social Determinants of Health”

- CDC definition: *“the conditions in which people are born, grow, live, work and age as well as the complex, interrelated social structures and economic systems that shape these conditions.”*
- WHO definition: *“the social, physical and economic conditions that impact upon health”*
- **Excluded:** biological factors, such as BrCa gene

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## Picking apart these words

- **Social:**
  - Society has created these conditions
  - These conditions can be changed
- **Determinants:**
  - Horrible word.
  - Influences, challenges ... let's find a better term

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## This is not a linear story

## Everything links to everything else

And nearly all elements  
are the result of human  
choice

Image created at <https://www.wordclouds.com/>

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## Using the WHO Elements of SDOH

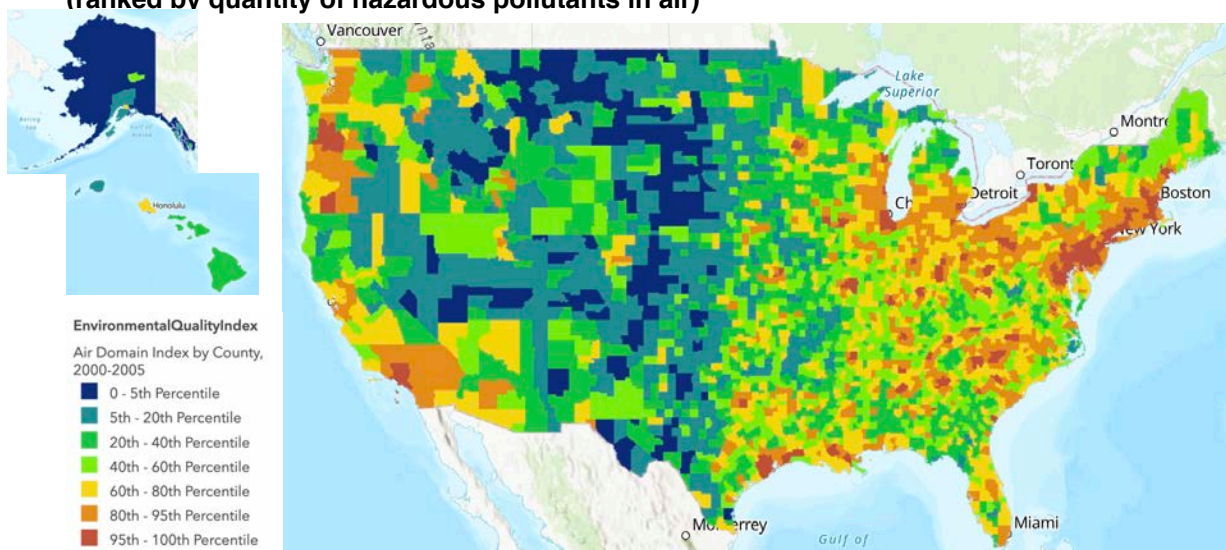
- Physical
- Economic
- Social

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## Physical: Air quality

(ranked by quantity of hazardous pollutants in air)



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## Physical: Motor Vehicle Crash Fatalities, 2018

- Rural areas contain about 19% of the US population, but generate:
  - **30%** of vehicle miles travelled (VMT)
  - **45%** of all traffic fatalities
  - VMT death rates **twice as high as urban**: 1.68 per million VMT versus 0.68 per million VMT
- Simple answers? Nope.
  - Crashes with alcohol involvement: 29% for both
  - Observed seat belt use: 90.1% rural, 89.4% urban



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## Physical: built environment

More than 20 percent of fatalities nationwide occur at intersections and more than 80 percent of rural intersection fatalities are at unsignalized intersections.

In Iowa, intersection crashes account for 30 percent of severe crashes, with 40 percent of those crashes occurring in rural areas (Iowa DOT 2013).

A list of general resources developed in Iowa to reduce rural intersection crashes is found [here](#).

**Summary of Rural Intersection Countermeasures**



***It's not  
just seat  
belt use***

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<https://ctre.iastate.edu/research-synthesis/intersections/>

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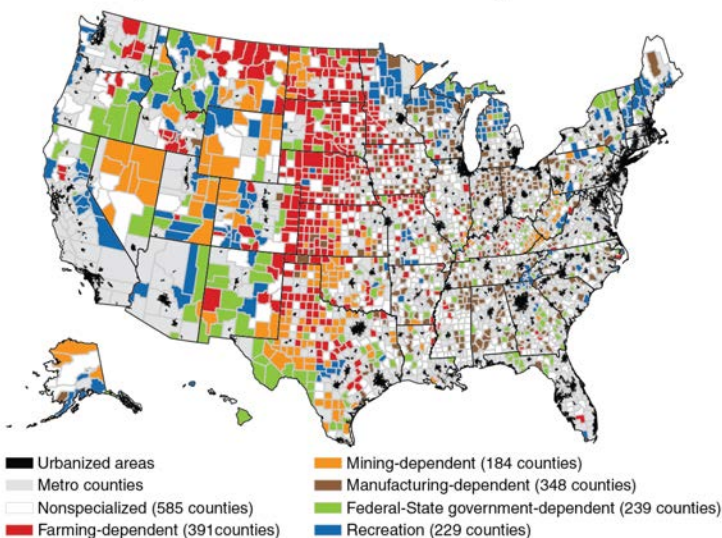
## Economic considerations

- Nature of the rural economy:  
the jobs it supports
- Occupational hazards



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Note: The 2015 county typologies use data from 2010-2012.

[https://www.ers.usda.gov/webdocs/charts/81423/December16\\_Feature\\_Kusmin\\_fig01.png?v=9934.5](https://www.ers.usda.gov/webdocs/charts/81423/December16_Feature_Kusmin_fig01.png?v=9934.5)

## Economic: rural diversity

Agriculture and recreation are seasonal industries.

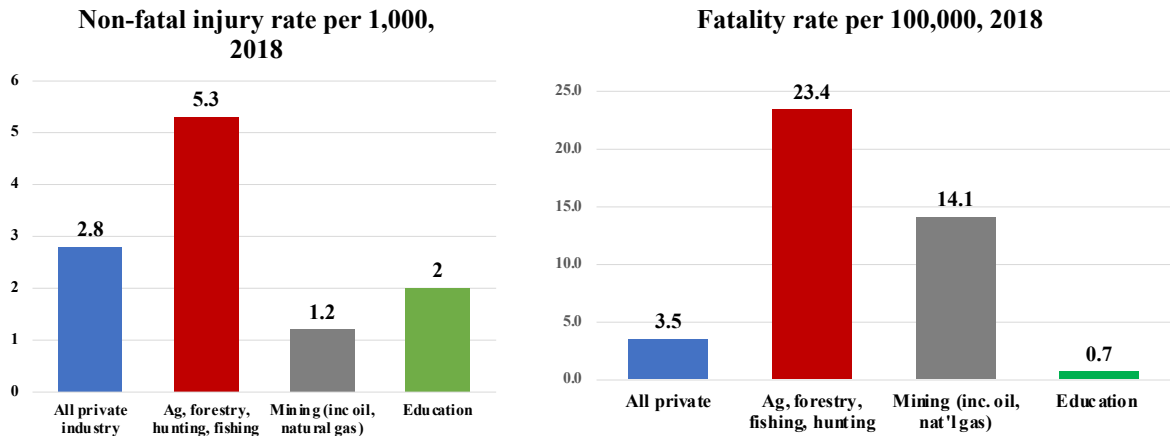
Mining and agriculture experience global price volatility

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## Diverse industries, diverse injury risks



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## Notice anything?

Roll over protection structures (roll bars) were optional from 1967 – 1985

Required from 1985 on

**Regulatory action  
can reduce risks**

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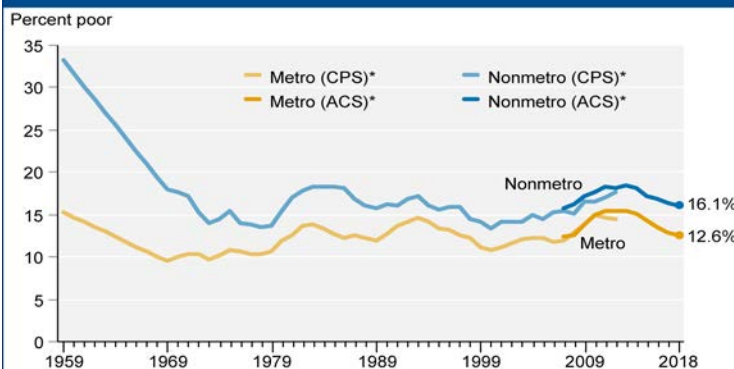
## Social conditions

- Poverty and its many intersections
  - Food insecurity
- Education
- Race/ethnicity

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## Poverty

Poverty rates by metro/nonmetro residence, 1959-2018

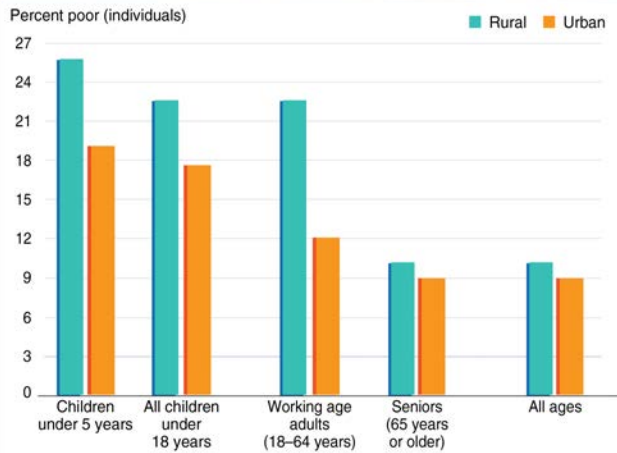


Note: Metro status of some counties changed in 1984, 1994, 2004, 2014, and 2018.  
 \*CPS poverty status is based on family income in prior year and ACS poverty status is based on family income in the past 12 months.  
 Source: USDA, Economic Research Service using data from the U.S. Census Bureau's Current Population Survey (CPS) 1960-2013 and annual American Community Survey (ACS) estimates for 2007-18.

Rural has  
been poorer  
for a long time

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Poverty rates in rural and urban areas by age group, 2017



Notes: Rural (nonmetro) status determined by the 2013 metropolitan area designations from the Office of Management and Budget. Federal poverty thresholds vary by household composition. For a family of two adults and one child, the poverty line in 2017 was an annual income of \$19,730.  
Source: USDA, Economic Research Service using data from the U.S. Census Bureau, 2017 American Community Survey.

## Households with children are vulnerable

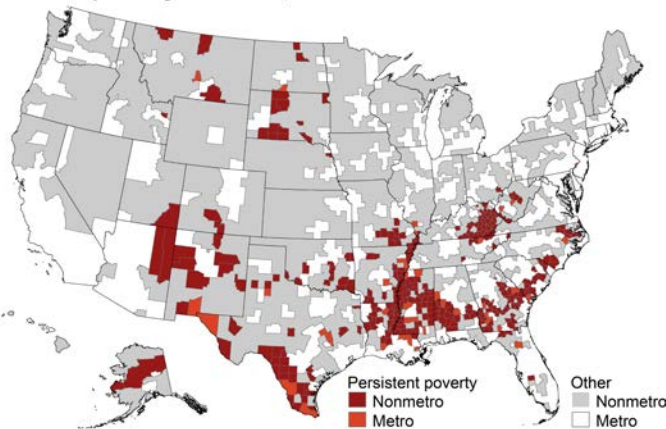
Among households with children in 2016, 30% of rural v 25% of urban reported economic hardship

(Crouch et al, *JRH*, 2019)

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Persistent poverty counties, 2015 edition



Persistent poverty counties are those where 20 percent or more of county residents were poor, measured by the 1980, 1990, 2000 censuses, and the 2007-11 American Community Survey.

Note that county boundaries are drawn for the persistent poverty counties only.  
Source: USDA, Economic Research Service using data from U.S. Census Bureau.

## Persistent poverty,

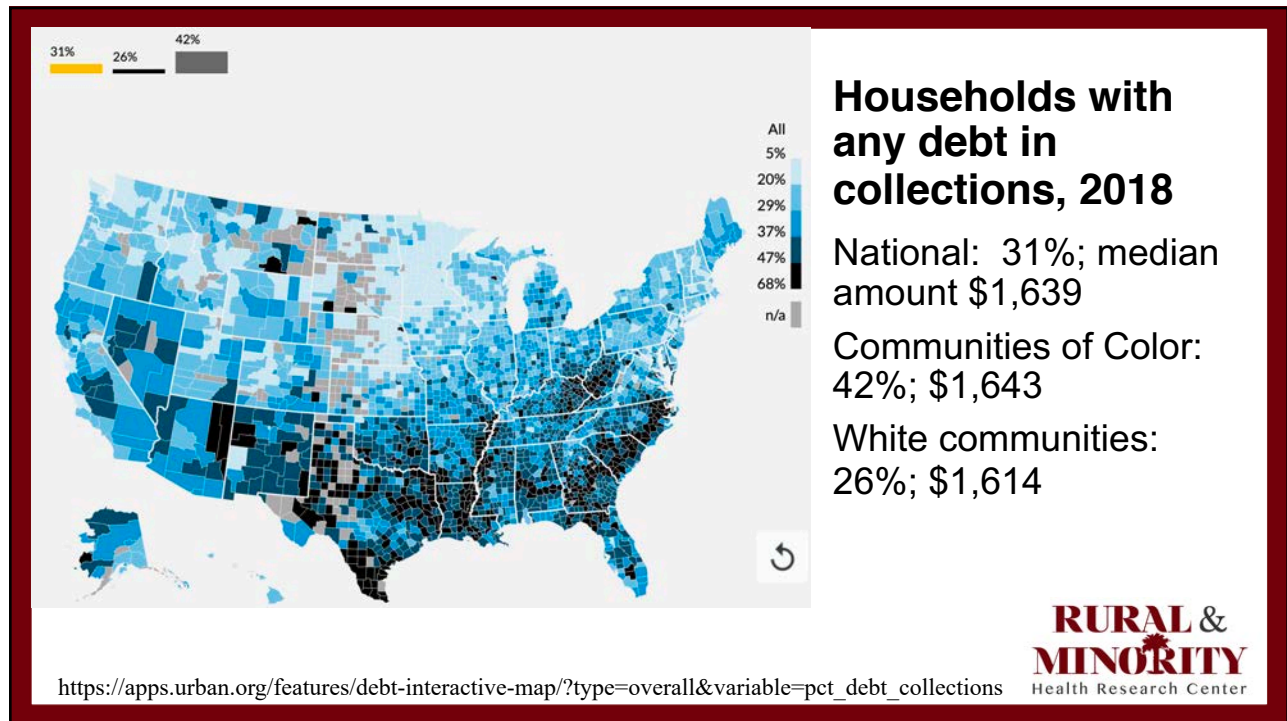
high rates of poverty that persist for > 20 years,

is almost exclusively a rural phenomenon:

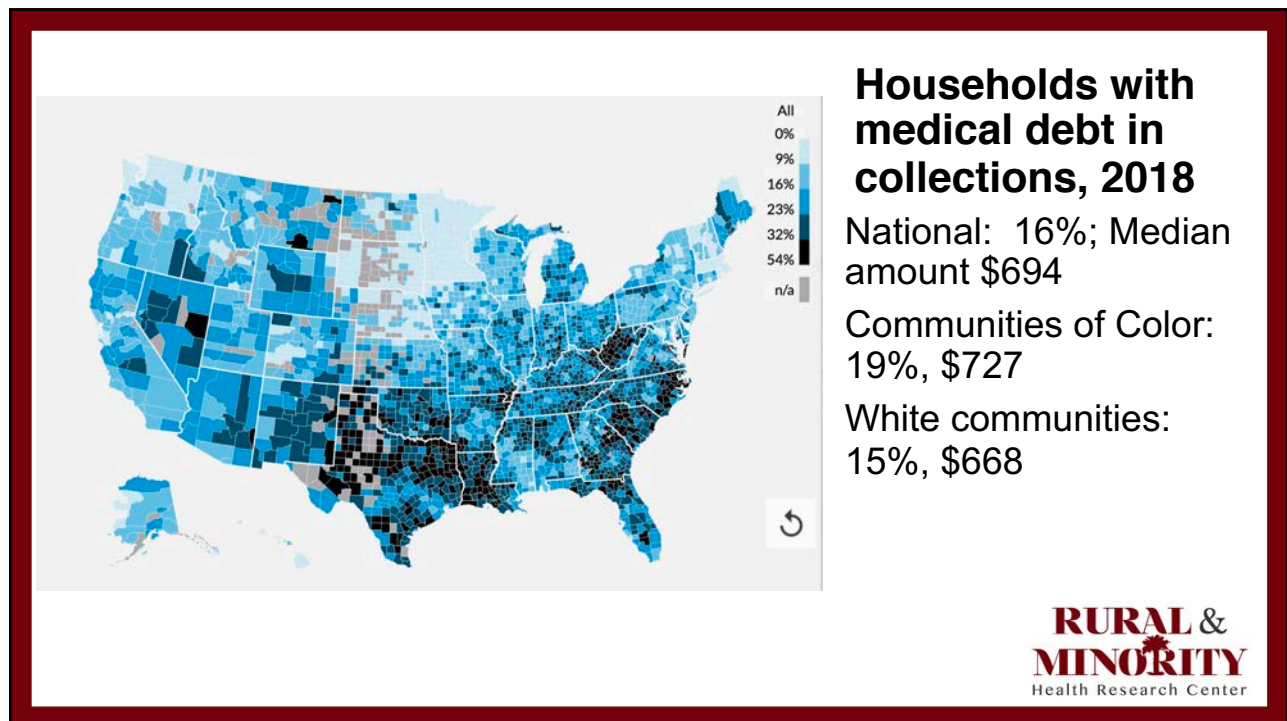
**86% of persistent poverty counties are rural (301/351)**

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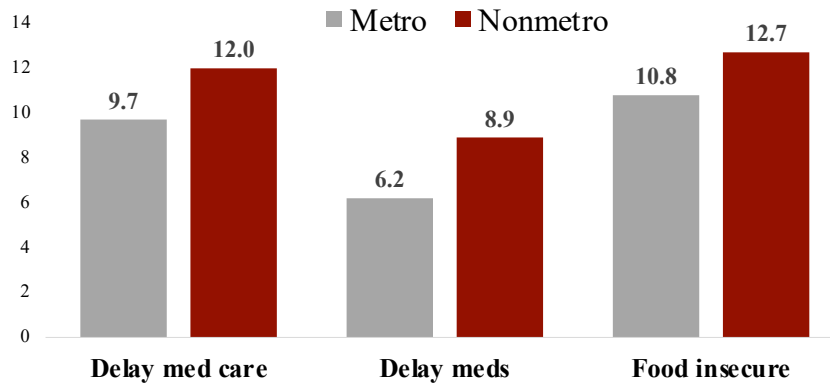
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## Self-care lower in rural counties

Proportion of adults reporting selected actions or experiences, by residence, 2017



<https://www.cdc.gov/nchs/hus/contents2018.htm#Table>

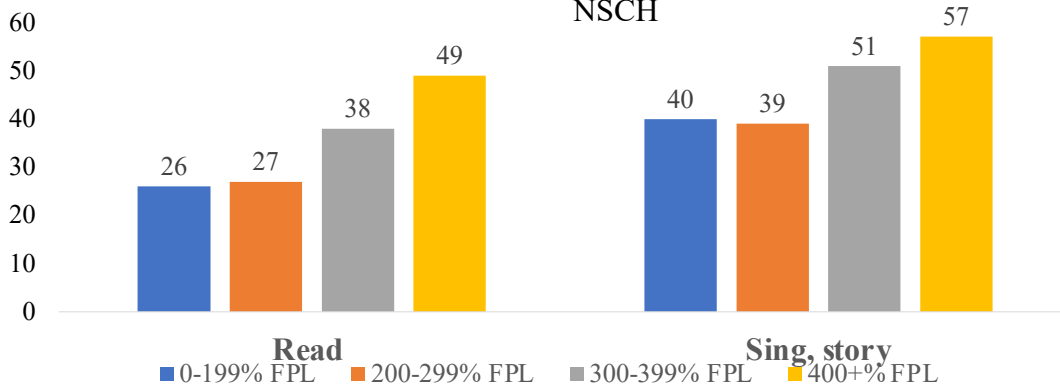
Higher poverty may partly explain higher difficulties with care, health

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## Poverty affects parenting

Percent of parents/guardians who report reading or singing/story telling to their child, children ages 0 – 5, by income, 2017-2018  
NSCH



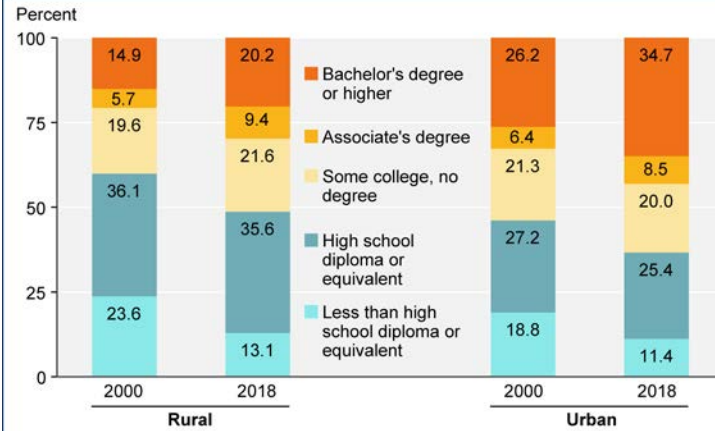
Thanks Elizabeth Crouch for this data analysis; Nov 10, 2020

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Educational attainment in rural and urban areas, 2000 and 2018



Note: Educational attainment for adults 25 and older. Urban and rural status is determined by Office of Management and Budget's 2015 metropolitan area definitions.  
 Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, Census 2000 and 2018 American Community Survey.

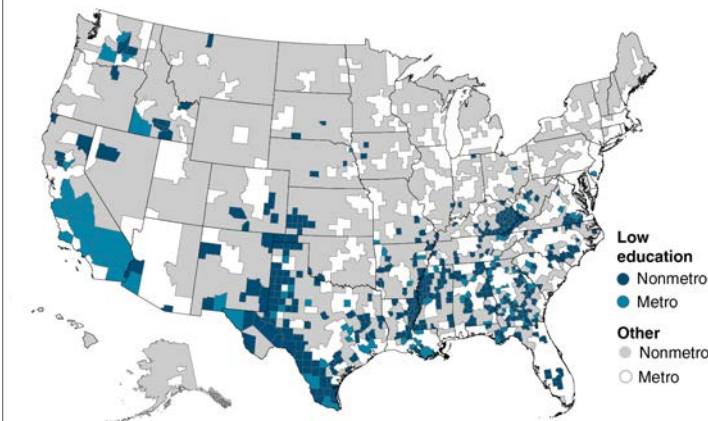
## Education is a key correlate of multiple outcomes

Lower educational attainment in rural counties is a complex combination of both local education systems and outmigration

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Low-education counties, 2015 edition



Low-education counties are those where 20 percent or more of county residents age 25-64 did not have a high school diploma or equivalent, determined by the American Community Survey 5-year average data for 2008-12. Note that county boundaries are drawn for the low-education counties only.  
 Source: USDA, Economic Research Service using data from U.S. Census Bureau.

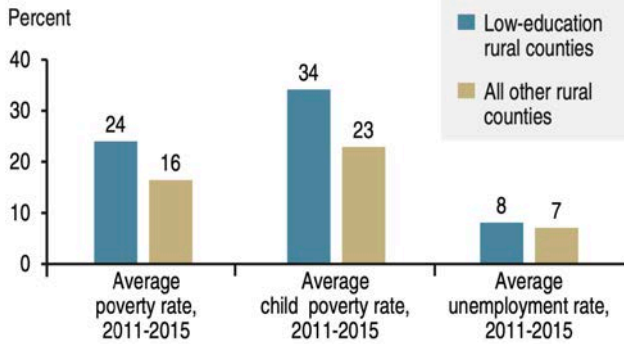
## Low education rural counties

Education has implications for health literacy, as well as for financial outcomes

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### Economic outcomes for low-education rural counties and all other rural counties, 2011-15



Source: USDA, Economic Research Service using data from the U.S. Census Bureau, 2011-2015 American Community Survey and Bureau of Economic Analysis' Regional Economic Information System.  
Note: 2013 metropolitan area definitions from the Office of Management and Budget apply.

## Poverty higher in low-education counties

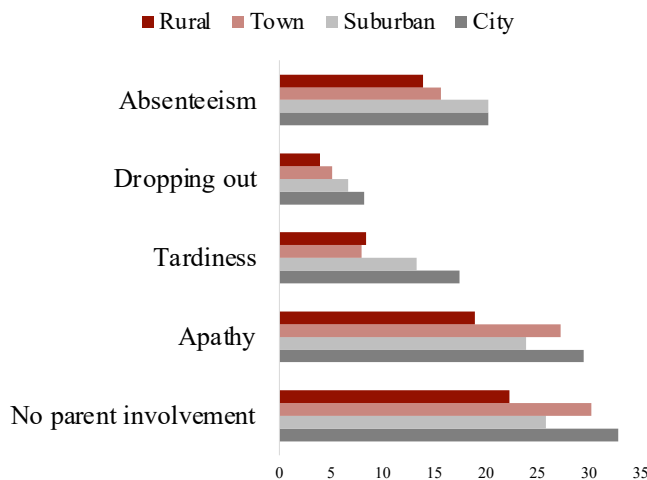
Low education definition:  $\geq 20\%$  of adults age 25-64 lack high school diploma: (467 counties)

**79% of low education counties are rural (369)**

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### Percent of teachers reporting selected student problems, 2011-2012 NCES



## Students aren't a problem, but...

Average educator salaries (2015 data)

- Urban: \$73,357
- Suburban: \$74,153
- Rural: \$69,797

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**"The past is never dead. It's not even past."\***

\*Faulkner, *Requiem for a Nun*

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## **All SDOH are entangled with race and racial discrimination**

- Definition: race is a social construct
- Historically in the US, race has been used to create categories of person
- Persons classified as “non-white” are more exposed to racial discrimination and bias, across multiple economic and social sectors, than white individuals

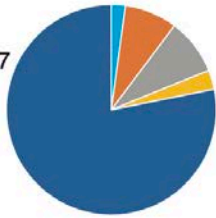
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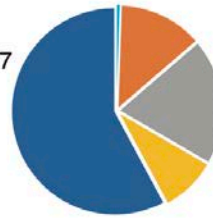
## Rural America: less diverse than urban overall, but ...

Racial/ethnic minorities make up 22 percent of the nonmetro population compared with 42 percent in metro areas

Nonmetro  
population  
shares, 2017



Metro  
population  
shares, 2017



American Indian  
Black  
Hispanic  
Other  
White

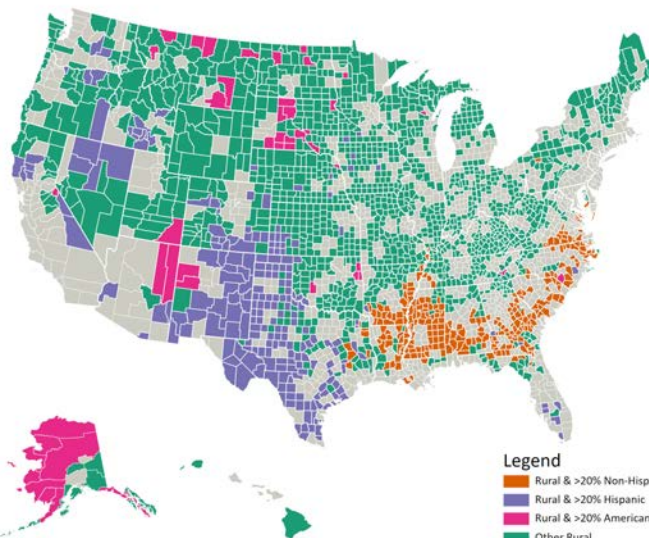
Note: Statistics for Whites, Blacks, and American Indians include only non-Hispanic residents. Residents included in the Hispanic category may be of any race. Groups with relatively few nonmetro residents (Asians, Pacific Islanders, and those reporting multiple races) are combined into a single category (Other).

Source: USDA, Economic Research Service using data from U.S. Census Bureau, Population Estimates Program.

Source: USDS, Rural America at a Glance, 2018 edition

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Legend

Rural & >20% Non-Hispanic Black  
Rural & >20% Hispanic  
Rural & >20% American Indian/Alaska Native  
Other Rural  
Urban

### Non-white populations: regionally concentrated

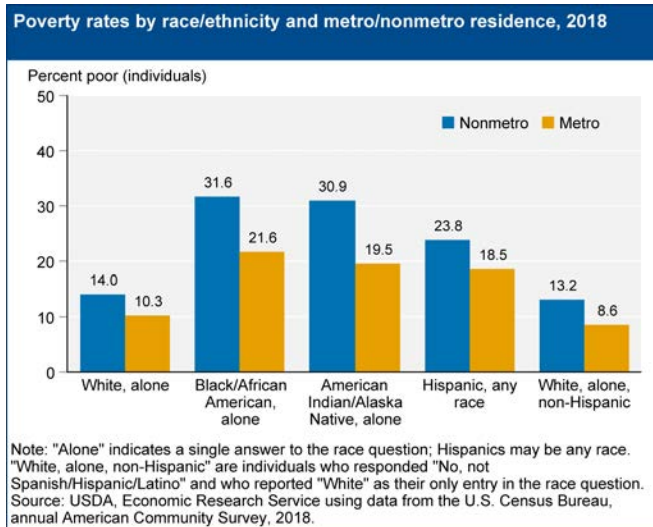
Map shows counties where indicated non-white populations are more than 20% of the population

Zahnd et al, forthcoming

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## Poverty varies with both residence and race



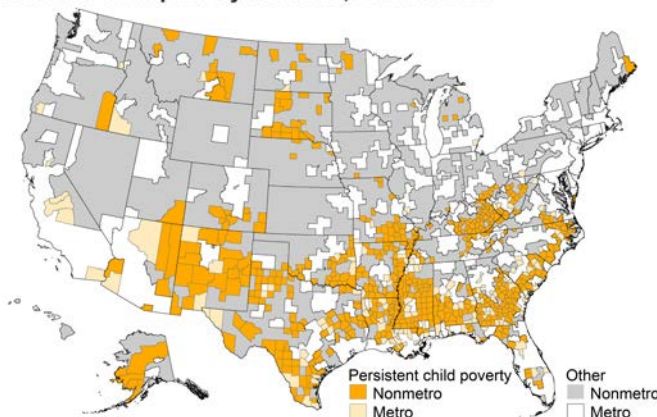
Rural non-white populations experience both residence based **and** racial/ethnicity-based disparities

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## Persistent child poverty rates

Persistent child poverty counties, 2015 edition



Persistent child poverty counties are those where 20 percent or more of county related children under 18 were poor, measured in the 1980, 1990, 2000 censuses, and the 2007-11 American Community Survey.

Note that county boundaries are drawn for the persistent child poverty counties only. Source: USDA, Economic Research Service using data from U.S. Census Bureau.

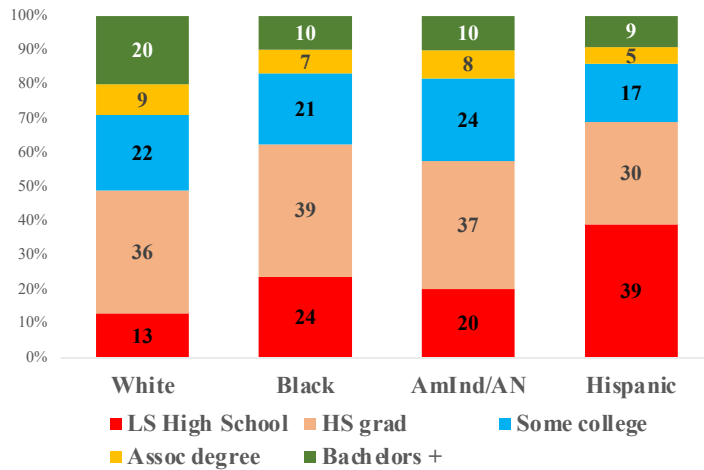
Persistent child poverty rural counties are disproportionately those with relatively high non-white populations

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## Educational attainment of rural adults aged 25 years and older, by race/ethnicity, 2015



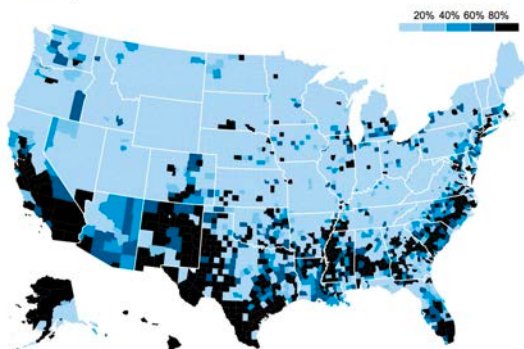
Rural non-white adults are less likely to have continued their education after high school

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## Education: segregated public schools

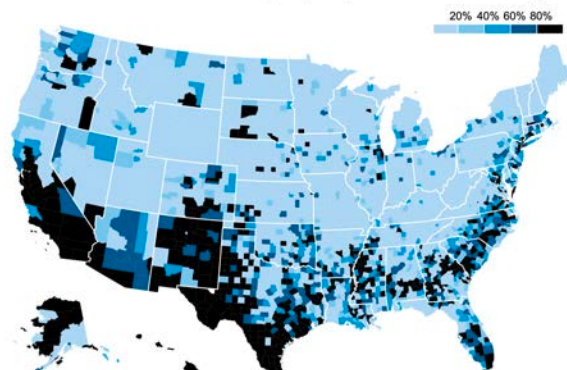
Share of black kids attending majority-nonwhite schools (2011-12)



Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), Public Elementary/Secondary School Universe Survey Data, 2011-12. Notes: Race shares do not add to 100%.

Embed this map (Click the box, Ctrl + C to Copy): <https://apps.urbaninstitute.org/map/#/2011-12/blackkids>

Share of Latino kids attending majority-nonwhite schools (2011-12)



Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), Public Elementary/Secondary School Universe Survey Data, 2011-12. Notes: Race shares do not add to 100%.

<https://www.urban.org/urban-wire/americas-public-schools-remain-highly-segregated>

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# Transitioning

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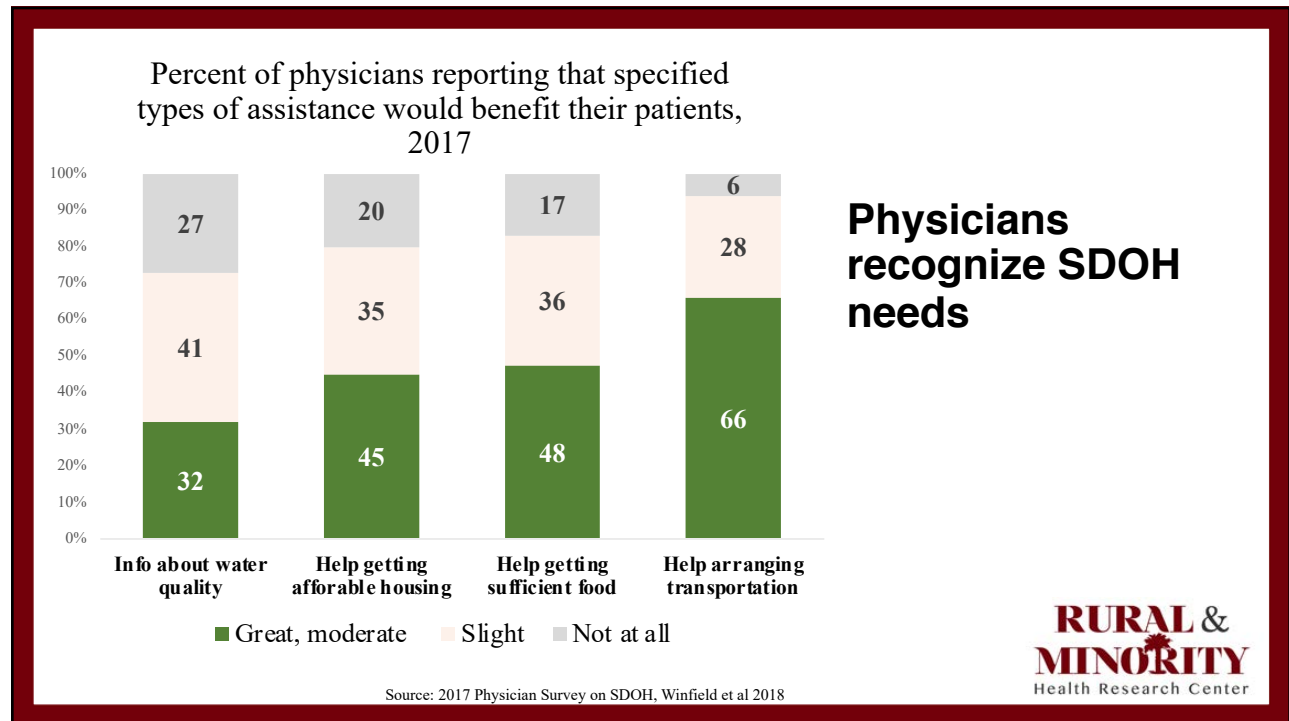
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## Moving to action

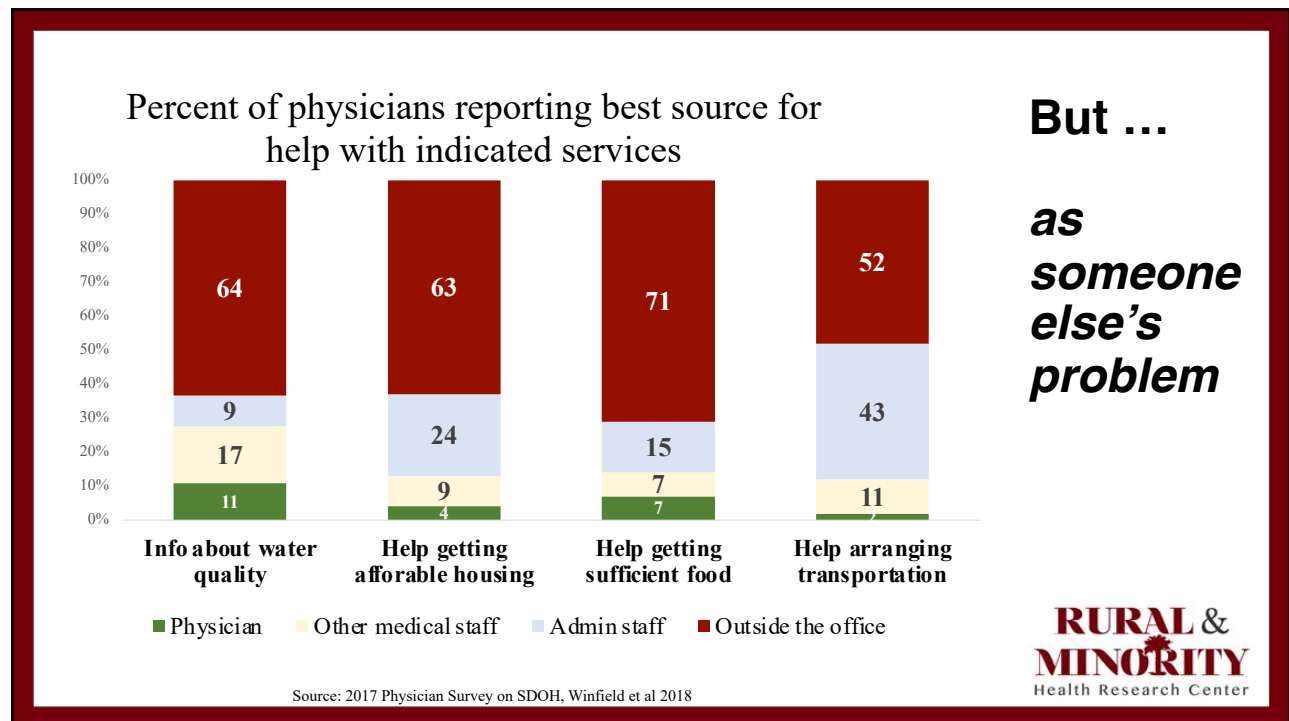
- Clinician responsibilities:
  - Recognize SDOH
  - Appropriately consider SDOH when interacting with patient, prescribing
- Clinician and community responsibilities
  - Identify SDOH disparities
  - Address SDOH disparities

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## All of us are in this, all of us are needed

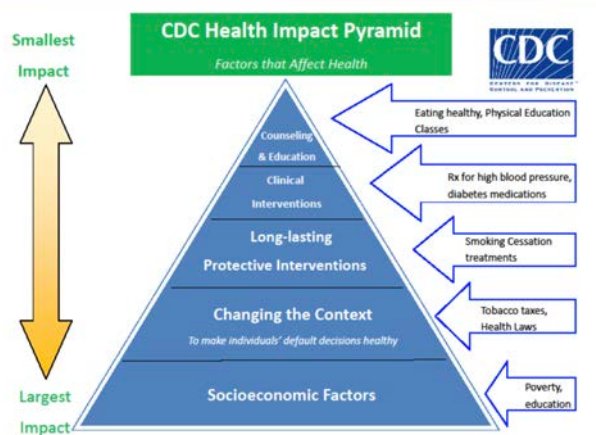
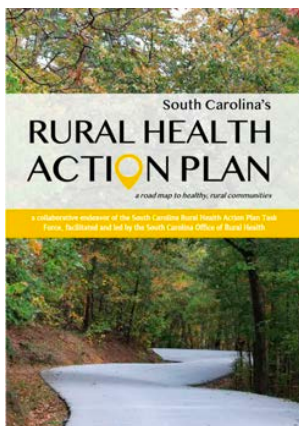


**Rural intersectoral  
collaborative  
efforts**

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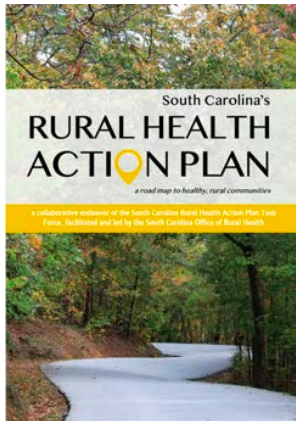
## Find a convener and go for it: SC RHAP



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## Broad involvement



**Amy Martin, DrPH**  
MUSC College of Dental Medicine

**Ben Washington**  
SC Commission for Minority Affairs

**Beth Franco**  
Ear-Scout Move More SC

**William Anderson, MD\***  
USC School of Medicine

**Bonnie Anagnost**  
SC Rural Infrastructure Authority

**Carlton Milnes\***  
Edgefield County Hospital

**Carmen Wilson**  
Alliance for a Healthier SC

**Chris Oandine, MD**  
Abbeville Area Medical Center

**Chris Stead**  
Fullerton Foundation

**Christian Barnes-Young**  
Tri-County Community MHC

**Darrell Byrd McPherson**  
Darlington County First Steps

**David Condon**  
SC Free Clinic Association

**David Gurr, MD**  
SC Area Health Education Consortium

**David Porter**  
Abbeville County Resident

**Deidra Singleton**  
SC Department of Health and Human Services

**Doug Taylor**  
SC Campaign to Prevent Teen Pregnancy

**Fred Leyda**  
Blount Human Services Alliance

**George Johnson\***  
SC Office of Rural Health Board Chairperson

**Graham Adams, PhD\***  
SC Office of Rural Health

**Joann Place**  
USC Arnold School of Public Health

**Jon Probst, PhD\***  
SC Rural Health Research Center

**JR Green, PhD**  
Fairfield County School District

**Julie Smithwick**  
PKSOn

**Karen Nichols**  
Upper Midlands Rural Health Network

**Kathy Schwartzing**  
Palmetto Care Connections

**Kent Whitton**  
Greenville Health System-Oronoke EMS

**Kristina Wing**  
Veterans Affairs Office of Rural Health

**Lathana Woodard**  
SC Primary Health Care Association

**Lisa Hollaway**  
The Duke Endowment

**Lisa Davis**  
SC Department of Health and Environmental Control

**Lydia Hensick**  
LogistiCare

**Mark Jordan\***  
SC Department of Health and Environmental Control Office of Primary Care

**Maya Puck**  
USC Institute of Medicine and Public Health

**Michelle Cardwell**  
USDA Rural Development

**Michelle Mapp\***  
SC Community Loan Fund

**Nate Patterson, DrPH**  
Health Care Policy Analyst

**Pat Littlejohn**  
SC Center for Fathers and Families

**Paul Schumacher**  
Midland Health

**Rick Foster, MD**  
Alliance for a Healthier SC

**Ryan Barronagh**  
SC General Assembly

**Sandy Kammermann**  
John A. Martin Primary Health Care Center

**Sara Goldsby**  
SC Department of Alcohol and Other Drug Abuse Services

**Sarah Pinnam**  
SC Association for Community Economic Development

**Sam Williams**  
The Children's Trust of SC

**Susan Bowling\***  
Barr and Company

**Teresa Arnold**  
AARP

**Therese Kirby**  
SC Hospital Association

**Tim Kowalski, DO**  
Edward Via College of Osteopathic Medicine-Spartanburg

**Tricia Richardson**  
SC Thrive

**Virginia Berry White\***  
Family Solutions of the Low Country

**Walt Tobin, PhD**  
Orangeburg Calhoun Technical College

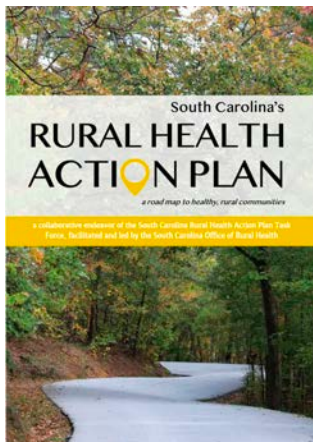
\*advising committee

**50-member task force: industry, education, providers, politics**

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## Focus on SDOH



### Community members:

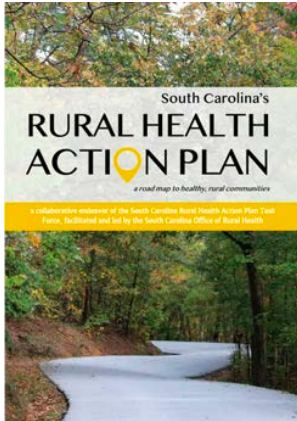
- Local school district, tech college heads
- SC Association for Community Economic Development
- SC Rural Infrastructure Authority
- USDA Rural Development
- SC Community Loan Fund

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## Meeting for a year to set goals



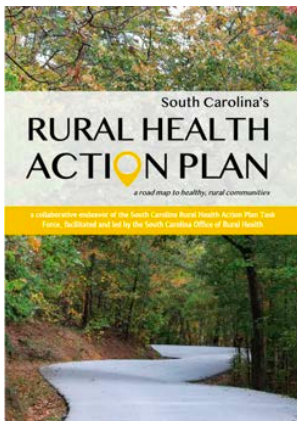
### 15 recommendations across 5 areas

- Health care access
- Community assets, leadership and engagement
- Economic development
- Education
- Housing

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## Rural Forward SC: Funded follow-up and feedback (2019)



- Health care access
- Community assets, leadership and engagement
- Economic development
- Education
- Housing

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## Wrap-up

- The prevalence of adverse SDOH conditions varies regionally and within states, but is generally higher in rural areas
- Finding solutions to problems with multi-sector roots will require extraordinary levels of cooperation and commitment.

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## Disclosures

- The presenter has no conflicts to disclose
- This presentation has been approved by Sam the rural health advoCATE.



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# Thanks!

- Our web site:
  - [rhr.sph.sc.edu](http://rhr.sph.sc.edu)
- Core funding from:
  - Federal Office of Rural Health Policy, Health Resources & Services Administration, USDHHS
- Contact:
  - [jprobst@sc.edu](mailto:jprobst@sc.edu)



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- Factsheets & Policy Briefs
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- Email Alerts
- Experts
- Dissemination Toolkit

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-  [twitter.com / rhrgateway](https://twitter.com/rhrgateway)

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

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