Why Rural in Discussion of Social Determinants?

Rural people are classified by federal agencies as an underserved population.

Circumstances in rural include specific social determinants: overcrowded and inadequate housing, transportation to services, low-income populations, racial and ethnic diversity.
Quick Overview of Methods

Categories of counties: metropolitan, micropolitan, noncore

Sources of data

How we portray the data
Iowa and Missouri
Metropolitan, Micropolitan, and Noncore Counties

Counties are classified using Urban Influence Codes (UIC) which are based on urban core populations and affiliations of nonurban counties.

- Counties in a metropolitan area of 50,000 residents or more.
- Counties in a micropolitan area of 10,000 – 50,000 residents.
- Counties in a noncore area.
Data Sources

COVID-19 Incidence and Mortality
Johns Hopkins University COVID-19 Data Repository

Population Characteristics
2018 American Community Survey 5-year estimates

Hospital Characteristics
2018 Annual Survey of the American Hospital Association
CMS Hospital Cost Reports

Pharmacy Types and Locations
National Council of Prescription Drug Programs – January 2021
Learning from Experience: Critical Questions to Ask and Answer

How did (and does) the virus spread in rural places?

What has been (and is) the impact on populations and providers, including effects on persons based on personal characteristics?

How are rural places bringing the virus under control – vaccination roll out?

What should we learn from the experience of dealing with the pandemic in rural communities?
Spread of the Virus in Rural Counties
COVID-19 Incidence Rates: 7-day moving average
4/1/2020 - 4/18/2021

Case counts from Johns Hopkins University CSSE COVID-19 Data
https://github.com/CSSEGISandData/COVID-19
Population based on 2018 ACS 5-yr estimates.
COVID-19 Mortality Rates: 7-day moving average
4/1/2020 - 4/18/2021

Death counts from Johns Hopkins University CSSE COVID-19 Data
https://github.com/CSSEGISandData/COVID-19
Population based on 2018 ACS 5-yr estimates.

Rural Policy Research Institute (RUPRI)
University of Iowa, College of Public Health
Metropolitan and Nonmetropolitan COVID-19 Incidence Rates
Rolling 7-day Averages
3-Month Period Ending: 4/18/2021

Legend
- Metropolitan
- Nonmetropolitan

Rural Policy Research Institute (RUPRI)
University of Iowa, College of Public Health
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Metropolitan and Nonmetropolitan COVID-19 Mortality Rates
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- Metropolitan
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Rural Policy Research Institute (RUPRI)
University of Iowa, College of Public Health
Data source: Johns Hopkins University CSSE COVID-19 Data
https://github.com/CSSEGISandData/COVID-19
Note: On April 17, Missouri removed 11,454 double-counted cases. Because of the way Johns-Hopkins implemented this data change, Missouri data for the most recent week may not show the true picture. The report on the following page is from the two-week period that ended the day before this data change.
Iowa and Missouri
All County Confirmed COVID-19 Cases
Week-to-Week Count Changes:
4/3/2021 – 4/16/2021
Impact on Providers

Initial financial impacts from diverting to handle surge

Financial impact eased with CARES Act and later with return of elective procedures

Do not know the ultimate fall out from that

Illustrate the challenge in rural with following slides from 2020 on hospital bed availability in rural counties
COVID-19 and hospital beds

1) Proportion of county types with acute care beds and ICU beds.
2) Refresher on the three "surges" we've seen
3) Cases/bed at each of the three surges, and "today"
U.S. Counties and Hospital Beds

Metropolitan
- w/ Acute beds: 159
- No hospital beds: 225

Micropolitan
- w/ Acute/ICU beds: 782
- No hospital beds: 67

Noncore
- w/ Acute beds: 692
- No hospital beds: 420

rupri
RURAL POLICY RESEARCH INSTITUTE
COVID-19 Incidence Rates: 7-day moving average
4/1/2020 - 4/18/2021

Case counts from Johns Hopkins University CSSE COVID-19 Data
https://github.com/CSSEGISandData/COVID-19
Population based on 2018 ACS 5-yr estimates.
Impact on Rural Populations: Where We Saw Particular Hot Spots

Skilled nursing facilities

Populations working in meat processing plants

Counties with interstate truck stops

Places with outbreaks because of particular circumstances (Sturgis motorcycle rally)
Impact on Population Groups: An Early Analysis
## County Characteristics at ‘Peak’ Periods - Counties with Lowest Rates and Highest Rates

### Noncore Counties

<table>
<thead>
<tr>
<th>Population Characteristic / Quintile</th>
<th>April 2020</th>
<th>July 2020</th>
<th>Dec. 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
</tr>
<tr>
<td>Percent White</td>
<td>94.3%</td>
<td>80.7%</td>
<td>95.2%</td>
</tr>
<tr>
<td>Percent Black or African American</td>
<td>0.6%</td>
<td>8.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Percent Hispanic</td>
<td>3.3%</td>
<td>2.8%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Percent people in group quarters</td>
<td>2.0%</td>
<td>1.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Median household income</td>
<td>$48,110</td>
<td>$41,108</td>
<td>$48,500</td>
</tr>
<tr>
<td>Percent uninsured</td>
<td>9.3%</td>
<td>11.4%</td>
<td>8.9%</td>
</tr>
</tbody>
</table>

### Micropolitan Counties

<table>
<thead>
<tr>
<th>Population Characteristic / Quintile</th>
<th>April 2020</th>
<th>July 2020</th>
<th>Dec. 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
</tr>
<tr>
<td>Percent White</td>
<td>92.1%</td>
<td>86.0%</td>
<td>94.0%</td>
</tr>
<tr>
<td>Percent Black or African American</td>
<td>1.2%</td>
<td>3.6%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Percent Hispanic</td>
<td>3.7%</td>
<td>4.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Percent people in group quarters</td>
<td>2.1%</td>
<td>2.6%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Median household income</td>
<td>$48,567</td>
<td>$46,738</td>
<td>$51,386</td>
</tr>
<tr>
<td>Percent uninsured</td>
<td>8.5%</td>
<td>11.1%</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

### Metropolitan Counties

<table>
<thead>
<tr>
<th>Population Characteristic / Quintile</th>
<th>April 2020</th>
<th>July 2020</th>
<th>Dec. 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
</tr>
<tr>
<td>Percent White</td>
<td>91.9%</td>
<td>74.0%</td>
<td>90.9%</td>
</tr>
<tr>
<td>Percent Black or African American</td>
<td>1.5%</td>
<td>11.8%</td>
<td>2.4%</td>
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<tr>
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<td>3.7%</td>
<td>5.9%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Percent people in group quarters</td>
<td>1.6%</td>
<td>2.0%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Median household income</td>
<td>$54,506</td>
<td>$61,518</td>
<td>$59,285</td>
</tr>
<tr>
<td>Percent uninsured</td>
<td>8.1%</td>
<td>7.7%</td>
<td>5.9%</td>
</tr>
</tbody>
</table>
Getting the Pandemic Under Control: Vaccines to the Rural Population

Very mixed picture across states and over time

Contribution from RUPRI related to effective use of pharmacies as an outlet – data on next slide(s)
Nonmetropolitan County Pharmacy Availability
All Retail Pharmacies

*Includes independent, chain, franchise, and government pharmacies that provide pharmaceutical medications.

Data source: National Council of Prescription Drug Programs 1/2021

Rural Policy Research Institute (RUPRI)
University of Iowa, College of Public Health
Nonmetropolitan County Pharmacy Availability

*Partner* Chain/Franchise Pharmacies*

*Includes independent, chain, franchise, and government pharmacies that provide pharmaceutical medications.

Includes only pharmacies affiliated with HHS partner chains/networks.

Data source: National Council of Prescription Drug Programs 1/2021
Nonmetropolitan County Pharmacy Availability
‘Partner’ or Other Pharmacies with Immunization Service*

*Includes independent, chain, franchise, and government pharmacies that provide pharmaceutical medications. Includes pharmacies affiliated with HHS partners, or other pharmacies that provide immunizations.

Data source: National Council of Prescription Drug Programs 1/2021
Learning From Our Experience With the Pandemic

How health care providers responded
How a pandemic spreads in rural
Importance of thinking beyond single sites, communities
Importance of thinking of rural people and places differently
For further information

The RUPRI Center for Rural Health Policy Analysis
http://cph.uiowa.edu/rupri

The RUPRI Health Panel
http://www.rupri.org

Rural Telehealth Research Center
http://ruraltelehealth.org/

The Rural Health Value Program
http://www.ruralhealthvalue.org
Keith Mueller, PhD

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For more than 30 years, the Rural Health Research Centers have been conducting policy-relevant research on healthcare in rural areas and providing a voice for rural communities in the policy process.

The Rural Health Research Gateway ensures this research lands in the hands of our rural leaders.

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