Issues in Rural Healthcare

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Why me?
Defining Rural

There is no single definition of rural, but two definitions widely used:

1. **U.S. Census Bureau**
   - All population, housing & territory not within a urban area (<2,500 people)
   - 19.3% of population and over 95% of land area is rural (2010 Census)

2. **Office of Management and Budget**
   - Counties that do not meet the criteria for Metropolitan:
     - Metropolitan: at least 1 urbanized area of 50,000+ people & adjacent territory with high social/economic integration with the core
   - 15% of population and 72% of land area is rural (2010 Census)
What does rural mean for health?
Rural Health Disparities

Regardless of definition, rurality emerges as a significant factor in health disparities.

Compared to urban counterparts, rural residents are more likely to:

- Report a fair to poor health status
- Be obese
- Not meet CDC physical activity recommendations
- Be uninsured
- Have deferred care because of cost
- Not comply with cancer screening guidelines
- Have diabetes and asthma

Rural subdivided into “micropolitan”, “small rural adjacent to metro area” or “remote rural” to demonstrate potential effects of levels of rurality.

2009 Behavioral Risk Factor Surveillance Survey (BRFSS)

BRFSS is a collaborative project of the CDC and all US states and territories.

- Measures several behavioral risk factors in the adult population 18+ yrs.
- Very large sample size!
  \[ n = 219,479,823 \] (weighted)
- Significant differences between rural and non-rural for each variable shown \( p < .05 \)

<table>
<thead>
<tr>
<th>Variables and Factors</th>
<th>% Rural</th>
<th>% Non-rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>42,365,517</td>
<td>177,114,306</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>81.3</td>
<td>65.6</td>
</tr>
<tr>
<td>African American</td>
<td>6.2</td>
<td>10.9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6.6</td>
<td>15.2</td>
</tr>
<tr>
<td>Other</td>
<td>5.8</td>
<td>8.2</td>
</tr>
<tr>
<td>18-34 Years</td>
<td>28.4</td>
<td>30.4</td>
</tr>
<tr>
<td>35-64 Years</td>
<td>51.8</td>
<td>53</td>
</tr>
<tr>
<td>&gt;= 65 Years</td>
<td>19.8</td>
<td>16.6</td>
</tr>
<tr>
<td>&lt;High School</td>
<td>11.8</td>
<td>10.4</td>
</tr>
<tr>
<td>Completed High School</td>
<td>63.5</td>
<td>52.7</td>
</tr>
<tr>
<td>College Graduate</td>
<td>24.6</td>
<td>36.9</td>
</tr>
<tr>
<td>Married/Living w/ Partner</td>
<td>66.4</td>
<td>63.9</td>
</tr>
<tr>
<td>Household Income &lt;$35,000</td>
<td>43.6</td>
<td>35.1</td>
</tr>
</tbody>
</table>

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Lutfiyya MN, Chang LF, Lipsky MS. A cross-sectional study of US rural adults' consumption of fruits and vegetables: do they consume at least five servings daily? BMC Public Health 2012;12:280. (Table)
2009 BRFSS
Behavioral Health Factors

Chronic disease largely caused largely by modifiable risk factors\(^3\) including:
- tobacco use
- poor diet (linked to obesity)
- physical inactivity (linked to obesity)
- alcohol consumption
- uncontrolled high blood pressure
- hyperlipidaemia
- access to medical care

Rural populations experience these risk factors in unequal proportions\(^2\)

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<th>% Non-rural</th>
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</thead>
<tbody>
<tr>
<td>n=42,365,517 n=177,114,306</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5 Fruit/Vegetable Servings Daily</td>
<td>78.8</td>
<td>75.6</td>
</tr>
<tr>
<td>BMI &lt; 25</td>
<td>32.8</td>
<td>37.2</td>
</tr>
<tr>
<td>BMI 25- &lt; 30</td>
<td>36.6</td>
<td>36.2</td>
</tr>
<tr>
<td>BMI &gt;=30</td>
<td>30.6</td>
<td>26.6</td>
</tr>
<tr>
<td>Inactive</td>
<td>51.1</td>
<td>50.3</td>
</tr>
<tr>
<td>Have Health Insurance</td>
<td>83</td>
<td>85</td>
</tr>
<tr>
<td>Have A Personal Physician</td>
<td>81.9</td>
<td>80.5</td>
</tr>
<tr>
<td>Routine Checkup in last 12 Mo</td>
<td>65.8</td>
<td>68.2</td>
</tr>
<tr>
<td>Deferred Medical Care due to Cost</td>
<td>15.5</td>
<td>14.7</td>
</tr>
<tr>
<td>Reported Health Good To Excellent</td>
<td>81.7</td>
<td>84.7</td>
</tr>
<tr>
<td>Reported Health Fair To Poor</td>
<td>18.3</td>
<td>15.3</td>
</tr>
</tbody>
</table>

2. Lutfiyya MN, Chang LF, Lipsky MS. A cross-sectional study of US rural adults' consumption of fruits and vegetables: do they consume at least five servings daily? BMC Public Health 2012;12:280. (Table)
Food stamp usage – program feeds 1 in 8 Americans 1 in 4 children

NY Times 11/28/2009
Food Stamp Usage Across the Country

The number of food stamp recipients has climbed by about 10 million over the past two years, resulting in a program that now feeds 1 in 8 Americans nearly 1 in 4 children. Related Article »

<table>
<thead>
<tr>
<th>All recipients</th>
<th>Children</th>
<th>Whites</th>
<th>Blacks</th>
<th>Change since 2007</th>
</tr>
</thead>
</table>

Percentage of children in each county who receive food stamps, June 2009

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Teton County, Mont.
Percentage on food stamps
All people 5%
Children N.A.
Whites 5%
Blacks 0%
Change since 2007 +24%

Oregon
Governor Ted Kulongoski has led efforts to promote food stamp use — in 2007, he spent a week living on $3 a week in grocery money. In rural Jefferson County, where unemployment last spring topped 19 percent, nearly half the children get aid.

Humphreys County, Miss.
East Carroll Parish, La.
In Humphreys County, nearly two-thirds of its children get aid. Across the Mississippi River, in East Carroll Parish, Louisiana, the share is the nation's highest: 75 percent.

Tennessee
The Tennessee program reaches more than 60 percent of those eligible for aid. Statewide, a third of the children receive food stamps, including about half in the city of Memphis.
Issues in Rural Health: Accessibility Distance to Care

Rural residents are more likely to live further from health services

Public transit less common in rural areas and access to personal transportation is lower among the elderly, rural residents with disabilities and the poor\(^4\)

**Consequences of this distance and lack of transportation\(^5\):**

- More missed or delayed healthcare appointments
- Disrupted treatment and services for chronically ill patients
- Travel distance and related costs impact patients’ health decisions
- Travel time spent on healthcare can have negative physical and mental impact
- Use of some medications, like insulin, declines with distance to care

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About 20% US population in rural areas

...only 10% of physicians practice in rural areas\(^6\)

Specialists are even less accessible to rural residents

- **40 specialists per 10,000** people in rural areas (vs. 134 per 10,000 people in urban areas)\(^7\)

- Table 1 reports number of physicians per 100,000 people by specialty and residence area\(^8\) (rural residence = D & E)

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Rural Physician Shortage...Intensified

Nearly 30% of rural primary care physicians are at or nearing retirement age
...while only 20% are under age 40

Rural population of those 55-75 is continuing to grow
...increasing demand for healthcare, as medical needs tend to grow with age

A larger proportion of low-income rural residents (vs urban) were uninsured prior to the Affordable Care Act
...this will likely result in millions of rural residents qualifying for Medicaid depending on state of residence

1978 examination of workload, background and motivation of rural Australian doctors\textsuperscript{12,13} Surveyed 134 doctors in Queensland towns with \( \leq 4 \) medical practitioners

Greater patient load for rural practitioners\textsuperscript{12}

- 80\% of were available 17-24 hours per day
- 55\% routinely available after 12pm on Saturday
- 53\% considered workload excessive (247 patient/week vs. 159 Australian average)

Greater variety of work performed for rural practitioners\textsuperscript{12}

- 65\% performed surgery (including appendectomy and herniorrhaphy)
- 43\% performed between 21-50 deliveries per year


38% spent ≥10 yrs of childhood in rural setting
>40% joined rural practice <3 yrs after graduation
31% intend to leave rural practice within 5 yrs

Ranked Greatest Attraction:
38% Variety of Practice
19% Interest of Work
15% Independence
11% Raising Family in Country Setting
3% Access to Hospitals
3% Surgical and Obstetric Opportunities

<table>
<thead>
<tr>
<th>Attractions suggested to Rural Practitioners</th>
<th>Response* of Rural Practitioners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attraction</td>
</tr>
<tr>
<td>Interest of work</td>
<td></td>
</tr>
<tr>
<td>Variety of practice</td>
<td>91.0%</td>
</tr>
<tr>
<td>Access to hospitals</td>
<td>90.3%</td>
</tr>
<tr>
<td>Independence</td>
<td>75.4%</td>
</tr>
<tr>
<td>Surgical and obstetric opportunities</td>
<td>83.1%</td>
</tr>
<tr>
<td>Relatively low practice and housing costs</td>
<td>61.2%</td>
</tr>
<tr>
<td>Prestige of doctor in community</td>
<td>32.8%</td>
</tr>
<tr>
<td>Raising family in a country setting</td>
<td>61.2%</td>
</tr>
<tr>
<td>Others</td>
<td>27.6%</td>
</tr>
</tbody>
</table>

Rural Physician Shortage... An International, Historic Issue

Disadvantages reported by rural doctors:

78% Restricted continuing education opportunities
76% Difficulty covering for holidays and education
72% Professional isolation
72% Insufficient time off call
55% Poor educational opportunities for their children

Prime reason for choosing practice:

31% Practice conditions
21% Geographic location

Implications (1978 recommendations!):
Increase medical student exposure to rural practice
Increase accessibility of continuing ed to rural practitioners
Increase availability of adequate relief for time off

As in many states, IL population mainly in/around large cities (e.g., Chicago metropolitan counties in upstate).

IL is the 5th most populous state and mimics the racial ethnic makeup of the nation as a whole

The Downstate portion is mostly rural with a few small and medium urban areas

Downstate poverty rates higher than the rest of the state

Rural Delta counties have rates 50% higher than the state average.

The Illinois Example

- Compared to the rest of the state and the nation, Southern IL Delta residents
  - Have higher risk for cancer incidence, morbidity, and mortality.
  - Have shorter life expectancies and more chronic health problems
- All Delta counties are Medically Underserved or Health Professional Shortage Areas

- Downstate residents have higher rates of:
  - lung and bronchus cancer (both sexes)
  - colorectal cancer (males only)
  - kidney cancer (males only)
  - melanoma (both sexes)

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Downstate Male</th>
<th>Downstate Female</th>
<th>Upstate Male</th>
<th>Upstate Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung/Bronchus</td>
<td>100.9</td>
<td>67.9</td>
<td>79.4</td>
<td>58.5</td>
</tr>
<tr>
<td>Colorectal</td>
<td>59.3</td>
<td>42.7</td>
<td>52.7</td>
<td>39.2</td>
</tr>
<tr>
<td>Kidney</td>
<td>26.3</td>
<td>-</td>
<td>20.9</td>
<td>-</td>
</tr>
<tr>
<td>Melanoma</td>
<td>25.3</td>
<td>17.1</td>
<td>17.9</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Illinois State Cancer Registry, data as of November 2011

Age-Adjusted Death Rates* for Missouri & Illinois (2007 - 2011) All Cancer Sites

*Deaths per 100,000; All Races (includes Hispanic), Both Sexes, All Ages
Age-Adjusted Death Rates* for Missouri & Illinois (2007 - 2011) All Cancer Sites

*Deaths per 100,000; All Races (includes Hispanic), Both Sexes, All Ages
To address these disparities, WUSTL School of Medicine has developed several rural partnerships in Missouri and Illinois.

Some past and current collaborations are listed, but we continue to seek new rural partners:

1. P20 Rural Cancer Disparities Partnership
2. Breast Cancer Screening in Rural Areas
3. Health Literacy, Kidney Cancer and Smoking
4. Colon Cancer Screening Follow-Up
5. Colon Cancer Screening in Community Health Centers
NIH grant that supports the establishment of a partnership between the Southern Illinois University School of Medicine and Siteman/WUSTL

Aims:
- Plan, prioritize, and implement a collaborative partnership in cancer-related and cancer-disparities research, and researcher training, education, and career development that is relevant to the population of Downstate Illinois.
- By doing so, the Partnership will contribute to reducing and eventually eliminating these rural cancer disparities.

Explore the Partnership online at: [http://www.ruralcancerdisparities.wustl.edu/](http://www.ruralcancerdisparities.wustl.edu/)
Laying the Groundwork for Improvements to the Diagnostic Process for Breast Cancer Screening in Rural Areas

Dr. Rebecca Lobb, WUSTL Dept. of Surgery, Division of Public Health Sciences

Aims:
1. Learn how RHCs and FQHCs in rural areas assist women to complete diagnostic resolution after an abnormal mammogram.
2. Identify factors that support or hinder the process for diagnostic resolution.
3. Build relationships with key stakeholders who will be ultimately lead the improvement process.

47 RHCs and FQHCs in rural Southeast MO participated in the survey. The project is ongoing.
Disparities of Health Literacy in the Context of Kidney Cancer and Smoking

Dr. Erin Linnenbringer, WUSTL Dept. of Surgery, Division of Public Health Sciences
Dr. Shaheen Alanee, SIU School of Medicine, Division of Urology

Research approach: Survey 300 patients (ages 40+) from 5 urology and primary care clinics in St. Louis and central/southern IL regions

Aims - by geographic region (urban vs. rural):
1. Examine health literacy and cancer literacy
2. Investigate knowledge of the relationship between smoking and kidney cancer
3. Compare threshold for bother caused by general urologic symptoms

This is an ongoing pilot project funded by the P20 Rural Cancer Disparities Partnership.
Multilevel Intervention in Cancer Care Delivery: Building from the Problem of Follow-up to Abnormal Screening Tests

Dr. Rebecca Lobb and Dr. Aimee James
WUSTL Dept. of Surgery, Division of Public Health Sciences

Aims:
1. Assess workflow factors that influence activities to facilitate follow-up with colonoscopy after a positive FOBT in rural settings.
2. Evaluate the impact of a multi-level intervention that addresses patients, clinic, and health system factors to improve follow-up after positive FOBT.
3. Evaluate adoption of and fidelity to this intervention and implementation factors that act as moderators and mediators of the intervention.

This project is an NCI U01 application submitted in Nov 2015 and is awaiting review.
Co-developed methods and interventions with our partners at SIH and their clinical stakeholders.

Selected intervention strategies that were deemed **feasible, acceptable, sustainable, and promising** for improving screening and follow-up among the patient population.

Envision **future projects could implement similar strategies** to address screening and follow-up for other cancer types, or other chronic conditions.

Developed procedures and interventions to **appeal to other rural health systems**. A future study may evaluate the dissemination of this intervention approach in **other rural areas**.
(5) Colon Cancer Screening in Community Health Centers

A Systems-Level Intervention to Increase Colorectal Cancer (CRC) Screening in Community Health Centers
Dr. Aimee James; WUSTL Dept. of Surgery, Division of Public Health Sciences

Approach: Perform a cluster-randomized controlled trial randomizing 14 community health centers (CHCs) in the areas around St. Louis, Kansas City, and Southeast MO

Aim: develop, implement, & evaluate a systems-level intervention to increase CRC screening in CHCs serving populations disparately affected by CRC

Long-term goal: reduce CRC disparities by developing sustainable and disseminable implementation approaches that improve CRC screening across a variety of settings, particularly underserved.
Dr. Aimee James shares lessons learned working in various community settings...

“Appreciate the unique challenges of living in a rural area and providing care in that setting”

“Don't assume that all rural communities are alike.”

“Get to know the community and show that your interest is genuine (again, don't make assumptions).”

“Appreciate that there's lots of good things about rural living - it's not all bad!”

“The people there are experts about their communities and settings–we don't know everything.”