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Access to Rural Maternity Care

- 28 million reproductive-age women live in rural US communities
- Half a million babies born in rural hospitals each year
- Declining access to obstetric services at rural hospitals
  - In 1985, 24% of rural counties lacked OB services
  - By 2002, this number had risen to 44%
- Distance to maternity care is correlated with outcomes (NICU, infant mortality)
Who Takes Care of Rural Mothers?

• Hospitals with lower birth volume (<240 births per year) are more likely to have family physicians and general surgeons attending deliveries
• Hospitals with a higher birth volume more frequently have obstetricians and midwives attending deliveries
• Employment of physicians decreases as birth volume increases
• ¾ of rural hospitals with <300 births a year have shared nurse staff
• Midwives attend deliveries in 1/3 of rural hospitals
• Workforce challenges reported by surveyed hospitals are related to their rural location and low birth volume.
Rural Obstetric Unit and Hospital Closures

• What is the scope of obstetric unit and hospital closures resulting in loss of obstetric services in rural US counties between 2004-2014?
# Data Sources

<table>
<thead>
<tr>
<th>Level</th>
<th>Source</th>
<th>Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital-level</td>
<td>American Hospital Association Annual Survey</td>
<td>2003-2014</td>
</tr>
<tr>
<td>County-level</td>
<td>Area Health Resources Files</td>
<td>2004, 2014</td>
</tr>
<tr>
<td></td>
<td>US Census data</td>
<td>2000, 2010</td>
</tr>
<tr>
<td>Individual-level</td>
<td>Restricted Use Natality Detail File (NDF) with county identifiers</td>
<td>2004-2014</td>
</tr>
</tbody>
</table>
Methods

• Measurement of closure status:
  – Counties without obstetric services during 2004-2014
  – Counties with continual obstetric services
  – Counties experiencing full closures of obstetric services

• Analysis:
  – County-level multivariate regression, focusing on correlates of full closures
Number of Rural Hospitals with OB Services, 2004-2014

Micropolitan
Noncore

<table>
<thead>
<tr>
<th>Year</th>
<th>Micropolitan</th>
<th>Noncore</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>641</td>
<td>608</td>
</tr>
<tr>
<td>2014</td>
<td>453</td>
<td>591</td>
</tr>
</tbody>
</table>

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RESEARCH CENTER
Number of Rural Counties with OB Services, 2004-2014
Percent of Rural Counties with Hospital OB Services, 2004-2014
Counties with Lower Birthrates Had Higher Odds of Losing OB Services

<table>
<thead>
<tr>
<th>County-level Number of Annual Births</th>
<th>Adjusted Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=90</td>
<td>8.32</td>
</tr>
<tr>
<td>91-200</td>
<td>3.49</td>
</tr>
<tr>
<td>201-400</td>
<td>1.75</td>
</tr>
<tr>
<td>&gt;400</td>
<td>1</td>
</tr>
</tbody>
</table>
Counties with More Black Residents Had Higher Odds of Losing OB Services

<table>
<thead>
<tr>
<th>Group</th>
<th>Adjusted Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>1</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>4.73</td>
</tr>
<tr>
<td>AIAN</td>
<td>1.57</td>
</tr>
<tr>
<td>Asian</td>
<td>0.02</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.32</td>
</tr>
<tr>
<td>Others</td>
<td>4.06</td>
</tr>
</tbody>
</table>
Higher Workforce Supply was Associated with Lower Odds of Losing OB Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Adjusted Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBGYN per 1,000 females aged 15-44</td>
<td>0.86</td>
</tr>
<tr>
<td>Family physicians per 1,000 county residents</td>
<td>0.88</td>
</tr>
</tbody>
</table>
Variability Across States

- More than two-thirds of rural counties in FL (78%), NV (69%), and SD (66%) had no in-county hospital obstetric services.
- Rural counties in SC (25%), WA (22%), and ND (21%) experienced the greatest decline in access.
- ND (15%), FL (17%), and VA (21%) had the lowest percentage of rural counties with continual hospital obstetric services.
  - Closures in rural noncore areas of ND and VA
  - Closures in micropolitan areas of FL
Key findings on rural maternity care access

- More than half of rural counties have no hospital-based obstetrics services
  - 9% of rural counties lost OB services between 2004-2014
  - Most vulnerable communities: black, low-income, shortage areas, remote, stingy Medicaid programs
The Way Forward – Federal Policy

• Federal policy efforts to address workforce shortages.
  – Improving Access to Maternity Care Act

• Federal policy efforts to improve maternity care quality
  – Quality of Care for Moms and Babies Act
The Way Forward – State Policy

- Medicaid policy
- State scope of practice laws
- State and local efforts
  - Subsidies; “home-grown” rural workforce
  - Education and training; rotations that include obstetrics in rural areas
  - Capacity building/training: CME support
  - Telemedicine for obstetrics
  - Housing and transportation support for rural families
  - Insurance regulation/costs
    (for hospitals, doctors)
The Goal for Rural Communities

• Workable solutions to the challenges that rural communities face to ensure maternity care access and quality
For Additional Information


Hung P, Kozhimannil KB, Casey M, Moscovice IS. Why are obstetric units in rural hospitals closing their doors? Health Services Research, 2016; 51(4):1546-60.

Thank You!

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