

Closure of Hospital Obstetric Services Disproportionately Affects Less-Populated Rural Counties

Peiyin Hung, MSPH

Katy Kozhimannil, PhD

Carrie Henning-Smith, PhD

Michelle Casey, MS

Key Findings

Between 2004 and 2014:

- The percent of all rural counties in the U.S. that lacked hospital obstetric services increased from 45% to 54%, due to hospital and obstetric-unit closures.
- 179 rural counties (9% of all rural counties) lost access to in-county hospital obstetric services.
- Women living in rural noncore counties (areas with less than 10,000 residents) were disproportionately affected by the loss of hospital obstetric services.
- Only 40.2% of rural noncore counties had continual hospital obstetric services compared to 77.9% of micropolitan counties.

rhrc.umn.edu

Purpose

The purpose of this study was to analyze the scope of obstetric unit and hospital closures resulting in loss of obstetric services in rural U.S. counties from 2004 to 2014.

Background and Policy Context

Over 18 million reproductive-age women (18-44) live in rural U.S. counties.¹ Access to obstetric care in rural communities is critical to ensuring good maternal and child health outcomes. Prior research shows that greater travel distances for obstetric services are associated with higher rates of newborn morbidity and mortality.²

In 2002, 43% of rural counties in the U.S. had no hospital-based obstetric services,³ despite the fact that over 98% of births occurred in hospitals.⁴ Additionally, the number of rural hospitals providing obstetric care has been decreasing.⁵ Published reports and media coverage both indicate that these obstetric care access problems are related to recent hospital and obstetric unit closures in rural areas,⁶⁻⁸ but the national scope of the access problems has not been quantified.

Data are needed to inform policy efforts, as no current research documents the current level and pace of hospital and obstetric unit closures. Better understanding of the extent of hospital obstetric unit closures in micropolitan and noncore rural counties nationally is a crucial first step to inform policy efforts in improving obstetric care access.

This is the first in a series of two policy briefs examining the closure of hospital obstetric services in rural areas; this policy brief takes a national perspective, whereas a companion policy brief documents state-level variability in access to hospital-based obstetric services in rural counties from 2004-2014.

Data and Analysis

Data for this analysis primarily come from the 2003-2014 American Hospital Association (AHA) annual survey and the Area Health Resources File (AHRF). We identified hospital obstetric service status each year using hospital-reported data on the number of births, provision of obstetric services, level of maternity care, and number

of obstetric beds from the AHA annual surveys, and validated data on hospital provision of obstetric services using the Centers for Medicare & Medicaid Services Provider of Services File.

We categorized counties into three groups: 1) no obstetric services since 2004, 2) continual obstetric services since 2004, and 3) full closure of obstetric services since 2004. Counties that had multiple hospitals providing obstetric services but only experienced closure of obstetric services in some of the hospitals were categorized as having continual obstetric services – accounting for 59 counties over the study period. The county in which the hospital was located was used to link information from the AHA survey with the AHRF data. A hospital’s county was categorized into micropolitan (counties with 10,000-49,999 residents) and rural noncore areas (counties with less than 10,000 residents), using the designation of metropolitan, micropolitan, and noncore counties from the Office of Management and Budget.

The unit of analysis is the county level, with 1,249 hospitals in 1,984 rural counties across the U.S. in 2004. This study first documented the number of hospitals providing obstetric services from 2004 to 2014. Then, we illustrated the number and percent of counties by the availability of hospital obstetric services and the closure status of in-county hospital obstetric services since 2004.

Limitations

The county-level availability of hospital obstetric services may not fully capture access to care for rural women. Counties vary significantly in square mileage across the U.S. and women who live near county borders may access healthcare in an adjacent county.

Figure 1. Number of hospitals providing obstetric services in Micropolitan and Noncore Counties, 2004-14

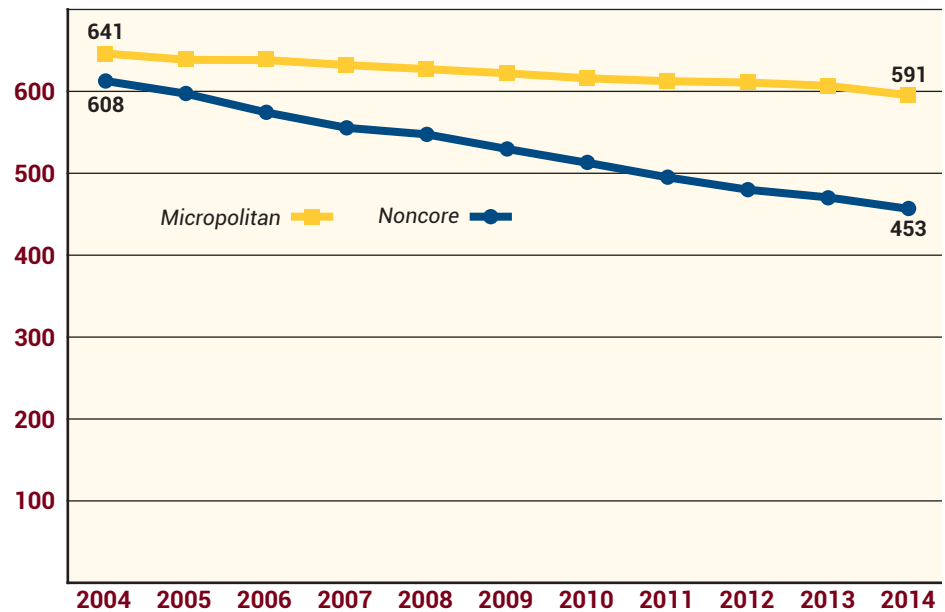


Table 1. Distribution of hospital obstetric unit closures in micropolitan and noncore counties, 2004-2014

	All Rural Counties	Micropolitan	Noncore
Number of Counties	1,984	646	1,338
Never had hospital(s) with obstetric (OB) services	898 (45.3%)	114 (17.6%)	784 (58.6%)
Continual OB services	907 (45.7%)	503 (77.9%)	404 (30.2%)
Loss of all OB services	179 (9.0%)	29 (4.5%)	150 (11.2%)
<i>Closures of hospitals with OB</i>	<i>14</i>	<i>3</i>	<i>11</i>
<i>Closures of OB units</i>	<i>165</i>	<i>26</i>	<i>139</i>

Results

Figure 1 shows the decline in the total number of hospitals that provided obstetric services in rural counties from 2004 to 2014. Since 2004, 50 rural hospitals in micropolitan counties and over 150 rural hospitals in noncore counties stopped providing obstetric services or closed entirely. The decline in the number of hospitals that provided obstetric services in rural noncore counties was more than three times as much as the decline in micropolitan counties. The number of hospitals providing

obstetric services decreased by 7.8% in micropolitan counties and by 25.5% in noncore counties during the 11-year period.

The decline in the number of rural hospitals that provide obstetric services resulted in 179 (9.0%) additional rural counties losing access to in-county hospital obstetric services, in addition to the 898 (45.3%) rural counties that never had in-county hospitals providing obstetric services from 2004-2014 (Table 1). Rural noncore counties were disproportionately affected by the loss of hospital obstetric services. Among the

898 rural counties without hospital obstetric services throughout 2004-2014, 114 are micropolitan (17.6% of all micropolitan counties) and 784 are noncore (58.6% of all noncore counties).

The number of closures and percentage of counties that lost obstetric services differed between noncore and micropolitan counties. Throughout 2004-2014, only 404 (30.2%) noncore counties had continual hospital obstetric services, and 150 (11.2%) experienced full closures of in-county hospital obstetric services – including 11 counties experiencing closures of hospitals with obstetric services and 139 counties experiencing closures of obstetric units. The majority of micropolitan counties (503 [77.9%]) had continual hospital obstetric services, and about 4.5% (n=29) of micropolitan counties experienced full closures of their hospital obstetric services – including 3 counties where hospitals with obstetric services closed and 26 counties where obstetric units were closed.

The number of micropolitan counties with hospital obstetric care decreased from 530 in 2004 to 503 in 2014 (Figure 2), a 5% reduction. Noncore counties, however, experienced a 25% decrease during the same time period– from 541 counties with obstetric care to 404. As shown in Figure 3, there was a substantial downward trend in the percentage of rural noncore counties with in-county hospital obstetric services from 2004-2014. In 2004, 40.4% of rural noncore counties had in-county hospital obstetric services available; this decreased to 30.2% in 2014.

Discussion & Implications

This analysis documents a downward trend in access to hospital-based obstetric services in rural U.S. counties, one which disproportionately af-

Figure 2. Number of micropolitan and noncore counties with in-county hospital obstetric care, 2004-14

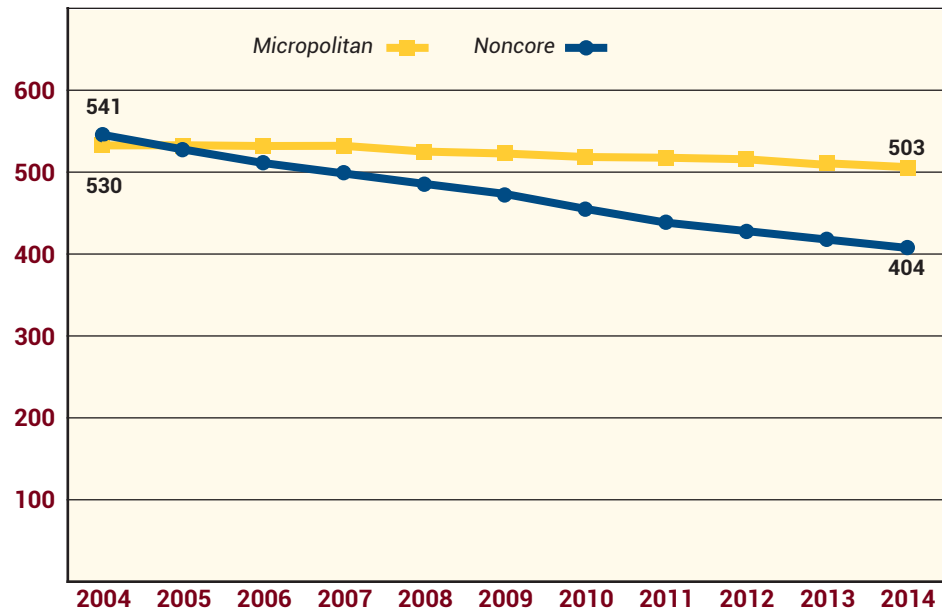
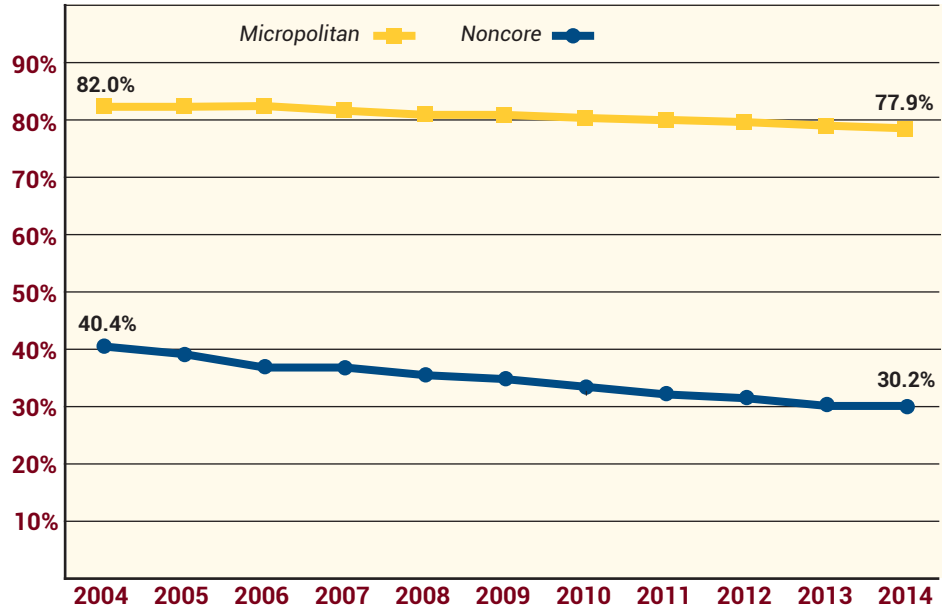


Figure 3. Percent of micropolitan and noncore counties with in-county hospital obstetric care, 2004-14



fects more remote, noncore counties. The most rural areas (noncore counties) have fewer hospitals that provide obstetric services and also experienced a greater reduction in services, further isolating some rural communities from access to hospital-based obstetric care.

Difficulties in staffing obstetric units, including recruiting, retaining, and scheduling obstetric clinicians and nurses, and providing surgical and anesthesia coverage, as well as financial concerns, including low Medicaid reimbursement, top the list of reasons reported by rural hospitals

for stopping obstetric care.⁶ Previous research has also found that the likelihood of obstetric unit closure is significantly higher among rural hospitals with low birth volume and those located in counties with lower median family incomes.⁶ Discussions regarding the long-term sustainability of rural hospital obstetric units are warranted – especially in noncore areas – yet attention is immediately needed to address increasingly limited local access to hospital-based obstetric services in rural areas.

Recent attention to the rural hospital supply has focused on hospital closures; however, we continue to see a substantial decline in the provision of obstetric services, even among

surviving rural hospitals. This suggests a need to address access to rural obstetric care on an ongoing basis. Local access to hospital obstetric services is desirable for convenience, but frequently it is also necessary for optimal care. At the same time, it may not be optimal from a financial or quality perspective to have hospitals with obstetric services in every county. Prioritizing quality-of-care may mean closing obstetric units when the volume of deliveries is too low for clinicians to maintain their skills.¹⁰ Regionally-based perinatal care has emerged as one solution, but to date, it has focused almost exclusively on neonatal care capacity. Greater attention to obstetric care services is need-

ed, especially in rural areas, to ensure that prenatal care is available locally and that pregnant patients can access higher-acuity care, when needed, within a reasonable travel distance.¹¹

Conclusions

A total of 179 rural counties – about one in ten – lost hospital-based obstetric services between 2004 and 2014. Of these, 150 were rural non-core counties. The substantial decline in county-level availability of hospital-based obstetric services in rural areas raises concerns about rural women's access to and quality of maternity care.

References

1. U.S. Census Bureau. 2008-2012 American Community Survey 5-year Estimates. Am FactFinder- Results B01001. 2012. <http://factfinder2.census.gov/>. Accessed February 7, 2017.
2. Grzybowski S, Stoll K, Kornelsen J. Distance matters: a population based study examining access to maternity services for rural women. *BMC Health Serv Res*. 2011;11(1):147-154.
3. Zhao L. Why Are Fewer Hospitals in the Delivery Business? Bethesda, MD: NORC at the University of Chicago; 2007. <http://bit.ly/2oDfXri>
4. MacDorman MF, Declercq E. Trends and characteristics of United States out of hospital births 2004–2014: new information on risk status and access to care. *Birth*. 2016;43(2):116-24.
5. Simpson KR. An overview of distribution of births in United States hospitals in 2008 with implications for small volume perinatal units in rural hospitals. *J Obstet Gynecol Neonatal Nurs*. 2011;40(4):432-439.
6. Hung P, Kozhimannil KB, Casey MM, Moscovice IS. Why are obstetric units in rural hospitals closing their doors? *Health Serv Res*. 2016;51(4):1546-1560.
7. Andrews M. Struggling rural hospitals close labor and delivery units. Kaiser Health News. <http://to.pbs.org/1VCurYi>. Published February 23, 2016.
8. Oller B. Shutting Rural Labor and Delivery Units Threatens Access, Health. American Academy of Family Physicians, Fresh Perspectives. <http://bit.ly/2gkXYva>. Published April 6, 2016.
9. Office of Management and Budget. OMB BULLETIN NO. 13-01 Revised Delineations of Metropolitan Statistical Areas, Metropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas. Washington, DC; 2013. <http://bit.ly/2nXONld>.
10. Kozhimannil KB, Casey MM, Hung P, Prasad S, Moscovice IS. Location of childbirth for rural women: implications for maternal levels of care. *Am J Obstet Gynecol*. 2016;214(5):661 e1-e10.
11. Kozhimannil KB, Casey MM, Hung P, Han X, Prasad S, Moscovice IS. The rural obstetric workforce in US hospitals: challenges and opportunities. *J Rural Health*. 2015;31(4):1-8.



**Rural Health Research
& Policy Centers**

Funded by the Federal Office of Rural Health Policy

www.ruralhealthresearch.org

Support for this study was provided by the Office of Rural Health Policy, Health Resources and Services Administration, PHS Grant No. 5U1CRH03717.

For more information, contact Peiyin Hung (hungx068@umn.edu).

University of Minnesota Rural Health Research Center
Division of Health Policy and Management, School of Public
Health, 2520 University Avenue SE, #201
Minneapolis, Minnesota 55414