

State Variability in Access to Hospital-Based Obstetric Services in Rural U.S. Counties

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Key Findings

Between 2004 and 2014:

- County-level access to hospital obstetric (OB) services varied considerably across states.
- More than two-thirds of rural counties in Florida (78%), Nevada (69%), and South Dakota (66%) had no in-county hospital OB services.
- Rural counties in South Carolina (25%), Washington (22%), and North Dakota (21%) experienced the greatest decline in hospital OB services.
- North Dakota (15%), Florida (17%), and Virginia (21%) had the lowest percentage of rural counties with continual hospital OB services owing to loss of hospital OB units in rural noncore areas of North Dakota and Virginia, and in micropolitan areas of Florida.

Purpose

The purpose of this policy brief is to describe state variations in 1) the availability of hospital-based obstetric services, and 2) the scope of obstetric unit and hospital closures resulting in the loss of obstetric services in rural U.S. counties from 2004 to 2014.

Background

The availability of hospital-based obstetric services in rural areas is a policy issue of long-standing concern to rural community members, clinicians, and policymakers. Previous studies have documented the loss of obstetric services in rural areas of individual states, including Alabama, Florida, and Missouri, and raised concerns about the potential impact of greater distances to travel for obstetric services on maternal and infant outcomes.¹⁻³ This study uses national data to examine the availability of obstetric services in all U.S. states with rural counties. This is the second in a series of two policy briefs examining the closure of hospital obstetric services in rural areas; a companion policy brief takes a national perspective, whereas this brief documents state-level variability in access to hospital-based obstetric services in rural counties from 2004-2014.

Approach

We identified the obstetric service status of each hospital in 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 2003-2014 American Hospital Association annual surveys, and data on hospital provision of obstetric services from the Centers for Medicare & Medicaid Services Provider of Services File. We used data from 2003-2014 to identify closures between 2004-2014; the additional year of data (2003-2004) was necessary to identify loss of obstetric services in 2004.

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 from 2004-2014. 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. A hospital's county was categorized into micropolitan (counties with a population of 10,000 – 49,999) and rural noncore areas (counties with less than 10,000 residents or other rural

counties not part of micro areas), using the designation of metropolitan, micropolitan, and noncore counties from the Office of Management and Budget.

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.

Results

The availability of hospital-based obstetric services varied considerably by state (Table 1, next). In 2004, 17 states had fewer than half of their rural counties with hospital obstetric services, and this number increased to 23 states by 2014. States with the lowest proportion of counties – less than 30% – with hospital obstetric services in 2014 included North Dakota, Florida, Virginia, and Alaska. The proportion of micropolitan counties with hospital obstetric services ranged from 43% in Florida and Nevada to 100% in 12 states.

Across all states, noncore counties were more likely to lack hospital obstetric services than micropolitan counties (Table 1). The largest difference occurred in Arizona where all micropolitan counties had hospital obstetric services, but none of the noncore counties did. Similarly, all micropolitan counties in both Louisiana and Oklahoma had hospital obstetric services but only about 10% of noncore counties did. Such gaps increased from 2004 to 2014 – in Oklahoma, 29% of the 41 rural noncore counties had hospital obstetric services in 2004, but availability decreased to 12% in 2014.

The loss of hospital obstetric ser-

vices affected states differently. Figure 1 and Table 2 (pages 4 and 5, respectively) show the percentage of each state's rural counties overall, and the percentage of each state's micropolitan and noncore counties that: 1) never had in-county hospital obstetric services, 2) had continual hospital obstetric services, or 3) experienced the loss of all hospital obstetric units between 2004-2014. More than two-thirds of rural counties in Florida (78%), Nevada (69%), and South Dakota (66%) had no in-county hospital obstetric services during 2004-2014, compared to only 9% of rural counties in Vermont and 17% in New York. North Dakota (15%), Florida (17%), and Virginia (21%) had the lowest percentage of rural counties with continual hospital obstetric services in the same period – owing to loss of hospital obstetric units in rural noncore areas of North Dakota and Virginia, and in micropolitan areas of Florida. South Carolina (25%), Washington (22%), and North Dakota (21%) experienced the highest rates of counties that lost hospital obstetric services between 2004 and 2014.

Discussion

The results of this study expand and update the existing knowledge about geographic variation in hospital obstetric care supply, especially in rural areas. Specifically, findings highlight the considerable state-to-state variation in the number and percent of rural counties with continual access to hospital-based obstetric services during 2004-2014, as well as the scope of decline over this time period and the type of rural counties (micropolitan, noncore) affected by loss of hospital-based obstetric services.

The availability of hospital obstetric services in rural counties varies considerably across states. As such,

policy implications vary as well, with divergent needs, resources, capacity, geography, and regulations across states. These data may inform state legislators, governors, agencies, professional associations, and others who seek to ensure access to obstetric care services for pregnant individuals in rural communities.

Approaches to ensuring access to obstetric care vary by state. For example, each state has a unique plan for perinatal regionalization, a state-level strategy to assure maternal and infant safety by establishing systems that ensure that women and/or infants are referred or transferred to facilities that can provide the type of care they need around the time of childbirth. In these systems, there is a particular focus on rural high-risk infants being born in facilities with appropriate technology and specialized clinicians.^{4,5} Each obstetric unit or hospital closure in a rural county could affect regionalization. State health agencies often manage regionalized systems within their individual state, but sometimes a hospital network takes a leadership role, and some states partner across borders for regional networks.⁶

Several states have had success with regional perinatal programs to ensure access to obstetric care in rural areas. For example, California and New York have established regional perinatal programs to improve access to perinatal care with local perinatal advisory councils to provide regional planning, coordination, resource directories, and referral services.^{7,8} These programs address a range of issues, from transportation to the establishment of referral networks between hospitals and clinics. In contrast, in Wyoming, where no perinatal tertiary care centers exist, some hospitals that offer obstetric services have developed partnerships

(text continues on page 4)

Table 1. Number of rural counties with hospital obstetric services in 2004 and 2014 by state

	All Rural Counties			Micropolitan			Noncore		
	Number of rural counties	% with hospital OB services		Number of rural counties	% with hospital OB services		Number of rural counties	% with hospital OB services	
		2004	2014		2004	2014		2004	2014
All States	1,984	54.0%	45.7%	646	82.0%	77.9%	1,338	40.4%	30.2%
AK	26	34.6%	26.9%	2	100.0%	100.0%	24	29.2%	20.8%
AL	38	47.4%	39.5%	10	80.0%	70.0%	28	35.7%	28.6%
AR	55	47.3%	38.2%	17	76.5%	76.5%	38	34.2%	21.1%
AZ	7	57.1%	57.1%	4	100.0%	100.0%	3	0.0%	0.0%
CA	21	76.2%	66.7%	8	100.0%	100.0%	13	61.5%	46.2%
CO	47	53.2%	44.7%	11	100.0%	100.0%	36	38.9%	27.8%
CT	1	100.0%	100.0%	1	100.0%	100.0%	-	-	-
FL	23	21.7%	17.4%	7	57.1%	42.9%	16	6.3%	6.3%
GA	85	47.1%	35.3%	28	75.0%	71.4%	57	33.3%	17.5%
HI	2	100.0%	100.0%	2	100.0%	100.0%	-	-	-
IA	78	75.6%	64.1%	17	88.2%	88.2%	61	72.1%	57.4%
ID	32	59.4%	50.0%	15	73.3%	60.0%	17	47.1%	41.2%
IL	62	40.3%	33.9%	24	75.0%	70.8%	38	18.4%	10.5%
IN	48	72.9%	62.5%	25	88.0%	84.0%	23	56.5%	39.1%
KS	86	58.1%	52.3%	18	94.4%	94.4%	68	48.5%	41.2%
KY	85	40.0%	34.1%	26	73.1%	65.4%	59	25.4%	20.3%
LA	29	41.4%	37.9%	9	100.0%	100.0%	20	15.0%	10.0%
MA	3	100.0%	100.0%	2	100.0%	100.0%	1	100.0%	100.0%
MD	5	60.0%	40.0%	2	50.0%	50.0%	3	66.7%	33.3%
ME	11	100.0%	100.0%	1	100.0%	100.0%	10	100.0%	100.0%
MI	57	57.9%	45.6%	25	76.0%	68.0%	32	43.8%	28.1%
MN	60	78.3%	66.7%	17	88.2%	82.4%	43	74.4%	60.5%
MO	81	39.5%	34.6%	22	72.7%	68.2%	59	27.1%	22.0%
MS	65	40.0%	36.9%	26	69.2%	69.2%	39	20.5%	15.4%
MT	51	49.0%	37.3%	5	80.0%	60.0%	46	45.7%	34.8%
NC	54	68.5%	66.7%	28	85.7%	85.7%	26	50.0%	46.2%
ND	47	36.2%	14.9%	7	57.1%	57.1%	40	32.5%	7.5%
NE	80	50.0%	42.5%	17	58.8%	52.9%	63	47.6%	39.7%
NH	7	100.0%	85.7%	6	100.0%	83.3%	1	100.0%	100.0%
NM	26	69.2%	61.5%	14	92.9%	92.9%	12	41.7%	25.0%
NV	13	30.8%	30.8%	7	42.9%	42.9%	6	16.7%	16.7%
NY	24	79.2%	75.0%	14	92.9%	92.9%	10	60.0%	50.0%
OH	50	70.0%	66.0%	33	90.9%	87.9%	17	29.4%	23.5%
OK	59	50.8%	39.0%	18	100.0%	100.0%	41	29.3%	12.2%
OR	23	82.6%	78.3%	13	92.3%	84.6%	10	70.0%	70.0%
PA	30	76.7%	70.0%	16	93.8%	87.5%	14	57.1%	50.0%
SC	20	80.0%	55.0%	8	100.0%	75.0%	12	66.7%	41.7%
SD	58	34.5%	31.0%	13	69.2%	69.2%	45	24.4%	20.0%
TN	53	52.8%	41.5%	20	80.0%	75.0%	33	36.4%	21.2%
TX	172	44.8%	37.2%	46	84.8%	82.6%	126	30.2%	20.6%
UT	19	68.4%	68.4%	5	100.0%	100.0%	14	57.1%	57.1%
VA	52	34.6%	21.2%	8	62.5%	62.5%	44	29.5%	13.6%
VT	11	90.9%	81.8%	6	83.3%	66.7%	5	100.0%	100.0%
WA	18	72.2%	50.0%	9	100.0%	77.8%	9	44.4%	22.2%
WI	46	76.1%	69.6%	14	85.7%	78.6%	32	71.9%	65.6%
WV	34	47.1%	38.2%	8	75.0%	75.0%	26	38.5%	26.9%
WY	21	76.2%	71.4%	7	100.0%	100.0%	14	64.3%	57.1%

with their closest out-of-state tertiary care facility to provide appropriate care before and after delivery.⁹

This policy brief highlights diversity in rural county-level access to obstetric

services by state, as well as illustrating state-level differences in loss of obstetric services. The data presented in this brief should inform state-level efforts to assess access to hospital-based ob-

stetric care in rural counties by highlighting the range of challenges and opportunities faced by states in ensuring the best possible care for rural pregnant women and families. ■

Figure 1. Distribution of rural counties by closures of hospital obstetric services and state, 2004-2014

Had continual in-county OB services, 2004-14 Never had in-county OB services, 2004-14 Experienced loss of all hospital-based OB units in county, 2004-14

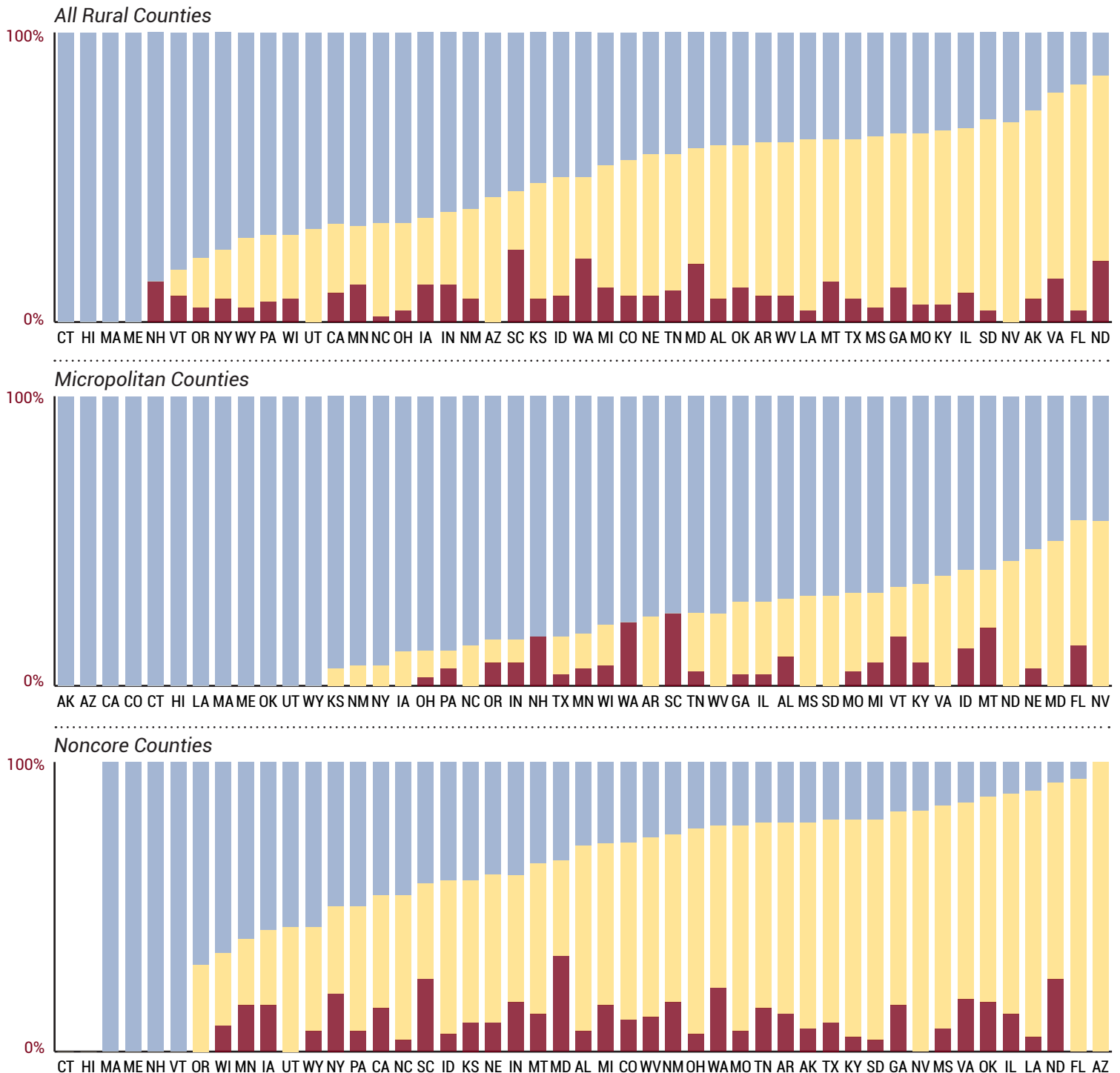


Table 2. Distribution of micropolitan and noncore counties by closures of hospital obstetric services and state, 2004-2014

	All Rural Counties			Micropolitan Counties			Noncore Counties		
	No OB	Continual OB	Full Closures	No OB	Continual OB	Full Closures	No OB	Continual OB	Full Closures
AK	65.4%	26.9%	7.7%	-	100.0%	-	70.8%	20.8%	8.3%
AL	52.6%	39.5%	7.9%	20.0%	70.0%	10.0%	64.3%	28.6%	7.1%
AR	52.7%	38.2%	9.1%	23.5%	76.5%	-	65.8%	21.1%	13.2%
AZ	42.9%	57.1%	-	-	100.0%	-	100.0%	-	-
CA	23.8%	66.7%	9.5%	-	100.0%	-	38.5%	46.2%	15.4%
CO	46.8%	44.7%	8.5%	-	100.0%	-	61.1%	27.8%	11.1%
CT	-	100.0%	-	-	100.0%	-	N/A	N/A	N/A
FL	78.3%	17.4%	4.4%	42.9%	42.9%	14.3%	93.8%	6.3%	-
GA	52.9%	35.3%	11.8%	25.0%	71.4%	3.6%	66.7%	17.5%	15.8%
HI	-	100.0%	-	-	100.0%	-	-	-	-
IA	23.1%	64.1%	12.8%	11.8%	88.2%	-	26.2%	57.4%	16.4%
ID	40.6%	50.0%	9.4%	26.7%	60.0%	13.3%	52.9%	41.2%	5.9%
IL	56.5%	33.9%	9.7%	25.0%	70.8%	4.2%	76.3%	10.5%	13.2%
IN	25.0%	62.5%	12.5%	8.0%	84.0%	8.0%	43.5%	39.1%	17.4%
KS	39.5%	52.3%	8.1%	5.6%	94.4%	-	48.5%	41.2%	10.3%
KY	60.0%	34.1%	5.9%	26.9%	65.4%	7.7%	74.6%	20.3%	5.1%
LA	58.6%	37.9%	3.5%	-	100.0%	-	85.0%	10.0%	5.0%
MA	-	100.0%	-	-	100.0%	-	-	100.0%	-
MD	40.0%	40.0%	20.0%	50.0%	50.0%	-	33.3%	33.3%	33.3%
ME	-	100.0%	-	-	100.0%	-	-	100.0%	-
MI	42.1%	45.6%	12.3%	24.0%	68.0%	8.0%	56.3%	28.1%	15.6%
MN	20.0%	66.7%	13.3%	11.8%	82.4%	5.9%	23.3%	60.5%	16.3%
MO	59.3%	34.6%	6.2%	27.3%	68.2%	4.6%	71.2%	22.0%	6.8%
MS	58.5%	36.9%	4.6%	30.8%	69.2%	-	76.9%	15.4%	7.7%
MT	49.0%	37.3%	13.7%	20.0%	60.0%	20.0%	52.2%	34.8%	13.0%
NC	31.5%	66.7%	1.9%	14.3%	85.7%	-	50.0%	46.2%	3.9%
ND	63.8%	14.9%	21.3%	42.9%	57.1%	-	67.5%	7.5%	25.0%
NE	48.8%	42.5%	8.8%	41.2%	52.9%	5.9%	50.8%	39.7%	9.5%
NH	-	85.7%	14.3%	-	83.3%	16.7%	-	100.0%	-
NM	30.8%	61.5%	7.7%	7.1%	92.9%	-	58.3%	25.0%	16.7%
NV	69.2%	30.8%	-	57.1%	42.9%	-	83.3%	16.7%	-
NY	16.7%	75.0%	8.3%	7.1%	92.9%	-	30.0%	50.0%	20.0%
OH	30.0%	66.0%	4.0%	9.1%	87.9%	3.0%	70.6%	23.5%	5.9%
OK	49.2%	39.0%	11.9%	-	100.0%	-	70.7%	12.2%	17.1%
OR	17.4%	78.3%	4.4%	7.7%	84.6%	7.7%	30.0%	70.0%	-
PA	23.3%	70.0%	6.7%	6.3%	87.5%	6.3%	42.9%	50.0%	7.1%
SC	20.0%	55.0%	25.0%	-	75.0%	25.0%	33.3%	41.7%	25.0%
SD	65.5%	31.0%	3.5%	30.8%	69.2%	-	75.6%	20.0%	4.4%
TN	47.2%	41.5%	11.3%	20.0%	75.0%	5.0%	63.6%	21.2%	15.2%
TX	54.7%	37.2%	8.1%	13.0%	82.6%	4.4%	69.8%	20.6%	9.5%
UT	31.6%	68.4%	-	-	100.0%	-	42.9%	57.1%	-
VA	63.5%	21.2%	15.4%	37.5%	62.5%	-	68.2%	13.6%	18.2%
VT	9.1%	81.8%	9.1%	16.7%	66.7%	16.7%	-	100.0%	-
WA	27.8%	50.0%	22.2%	-	77.8%	22.2%	55.6%	22.2%	22.2%
WI	21.7%	69.6%	8.7%	14.3%	78.6%	7.1%	25.0%	65.6%	9.4%
WV	52.9%	38.2%	8.8%	25.0%	75.0%	-	61.5%	26.9%	11.5%
WY	23.8%	71.4%	4.8%	-	100.0%	-	35.7%	57.1%	7.1%

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