POLICY BRIEF
September 2020

UNIVERSITY OF MINNESOTA
RURAL HEALTH
RESEARCH CENTER

Obstetric Emergencies in Rural Hospitals: Challenges and Opportunities

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Key Findings

- **Respondents (n=61) identified many unique concerns regarding the provision of emergency obstetric care at their hospitals. The most common include the following: lack of specialty care providers (n=22), lack of skills to address emergency birth (n=19), and insufficient medical equipment/supplies (n=16).**
- **Additionally, 23 respondents stated that their hospital could better avoid or address close calls or adverse birth outcomes with increased training (n=8), improved or increased specialty obstetric-related skills (n=8), and acquiring necessary medical equipment/supplies (n=7).**
- **There is a need for improved coordination between rural hospitals that do not provide obstetric care and regional hospitals that have obstetric care capacity, which could be accomplished through regional perinatal quality collaboratives and telemedicine networks.**
- **There is a need for increased clinical obstetric experience, which could come through enhancing rural family medicine residencies and providing additional support for training in emergency obstetrics.**

Purpose

With growing numbers of rural hospitals closing obstetric units,[1] those hospitals that keep their doors open, without regular obstetric care, may be faced with difficulties in providing needed care for local pregnant residents. One particularly pressing challenge for hospitals is the potential for facing an obstetric emergency, such as an emergency birth or other obstetric complication. As part of a longer survey to understand local capacity for emergency obstetric services in rural hospitals without obstetric units, we talked to nurse managers and emergency department administrators from rural hospitals about their concerns surrounding obstetric emergencies and what could help in preventing adverse outcomes. The purpose of this policy brief is to describe the challenges rural hospitals face in providing emergency obstetric care and to highlight resources that could help rural hospitals more safely respond to obstetric emergencies.

Background

Compared to people living in urban areas, rural residents often face additional challenges accessing health care services because of workforce shortages; pregnant rural residents also travel longer distances to receive maternity care and to give birth compared to urban residents.[2] Further, rural hospitals across the U.S. are increasingly closing their obstetric units.[1,3,4] The rate of decline in obstetric services in rural areas has remained steady or increased over the past decade. By 2014, less than half of rural counties had a hospital that provided obstetric care.[3] From 2014-2018, 52 additional rural counties lost hospital-based obstetric services.[1] Not all rural communities are equally affected. Over the past several decades, a majority of rural counties that lost obstetrics services were located in noncore counties not adjacent to urban areas; additionally, rural counties with a higher proportion of non-Hispanic Black residents were more likely to lose obstetric care than predominantly white rural communities.[3]

A number of serious potential health risks are associated with losing hospital-based obstetric services, including increases in preterm delivery, out-of-hospital births, and emergency room births.[5] From 2004 to 2014, in rural counties not adjacent to urban areas, emergency room birth rates rose from 0.4% of births to 3% of births, a statistically significant increase, after loss of obstetric services.[5]

Local capacity to support emergency births in rural communities without hospital-based obstetric care is vital to ensuring that all rural residents have a safe space to give birth. In this policy brief, we highlight the perspectives of clinicians from rural hospitals surrounding obstetric emergencies, their specific concerns, and what would have helped prevent poor outcomes. In sharing these comments and experiences, we aim to begin policy discussions around how to best support rural hospitals in providing care for emergency births in the absence of regular obstetric services.

Approach

We used data from the 2018 American Hospital Association (AHA) Annual Survey to identify rural hospitals that did not have obstetric services.[3,6] Through systematic random sampling, we generated a list of 188 hospitals that met qualification criteria; 44 hospitals were excluded after determining that they had an obstetrics unit (and were incorrectly categorized in the AHA data; n=9) did not have an emergency room (n=29), hospital closed (n=4), or phone number disconnected (n=2). Of the remaining 144 hospitals, respondents from 69 hospitals completed the survey. The 69 respondents were either emergency department administrators or chief nursing executives in charge of emergency services. Questions were based on a review of the literature on emergency obstetric care in rural communities, and the emergency obstetric capacity guidelines from the World Health Organization. We also obtained input on survey questions from clinicians practicing in rural hospitals without obstetric services, and edited for clarity and clinical relevance based on their feedback. Responses were entered into Google Forms, either through telephone survey where researchers input responses in real-time, or directly entered by respondents. Data collection was conducted by two staff members and a graduate research assistant.

Open-ended questions relating to challenges and opportunities in responding to obstetric emergencies included: 1) What is your greatest concern about handling emergency obstetric care locally?; and 2) If your hospital has experienced any close calls or unanticipated adverse birth outcomes for moms or babies, what would have helped this hospital or clinicians? Some respondents provided multiple responses to a given question, while others did not respond, so total responses do not necessarily reflect individual respondents. For these data, members of the research team coded themes for responses independently and then met to discuss any instances of difference and came to consensus. Hospital characteristics identified from the AHA Annual Survey, including financial structure, location, and hospital size, were examined for those responding to the two questions listed above.

Results

Hospital characteristics of respondents by emergency obstetric question.

The appendix (found on p. 8-9) describes characteristics of the hospitals that responded to each of the open-ended questions related to emergency obstetric care used in this analysis. For both questions, the majority of respondents were Critical Access Hospitals, with just under half government owned and just over half with not-for-profit designation. Most responding hospitals received 25% or less of funding for inpatient days from Medicaid but 50% or more from Medicare. Half of responding hospitals were located in the Midwest, and almost all were located in rural noncore counties rather than micropolitan areas. Hospitals that responded to the greatest concern question had a median average daily census (i.e. average number of patients per day) of 8 (IQR: 3-19) and 3,120 (IQR: 919-5,043) median annual emergency department visits, while hospitals reporting on what would have helped had a median average daily census of 6 (IQR: 2-18) and 2,119 (IQR: 816-5,018) median annual emergency department visits. Most hospitals reported never having obstetric services.

What is your greatest concern about handling emergency obstetrics care locally?

We asked clinician respondents to discuss their most pressing concerns about their local capacity to address obstetric emergencies. Sixty-one of the 69 total survey respondents answered this question. Figure 1 provides a summary look at these themes, and Table 1 displays counts and descriptions of these responses, as well as offering examples.

Figure 1. Summary of greatest concerns about responding to local obstetric emergencies (N=61 hospitals)

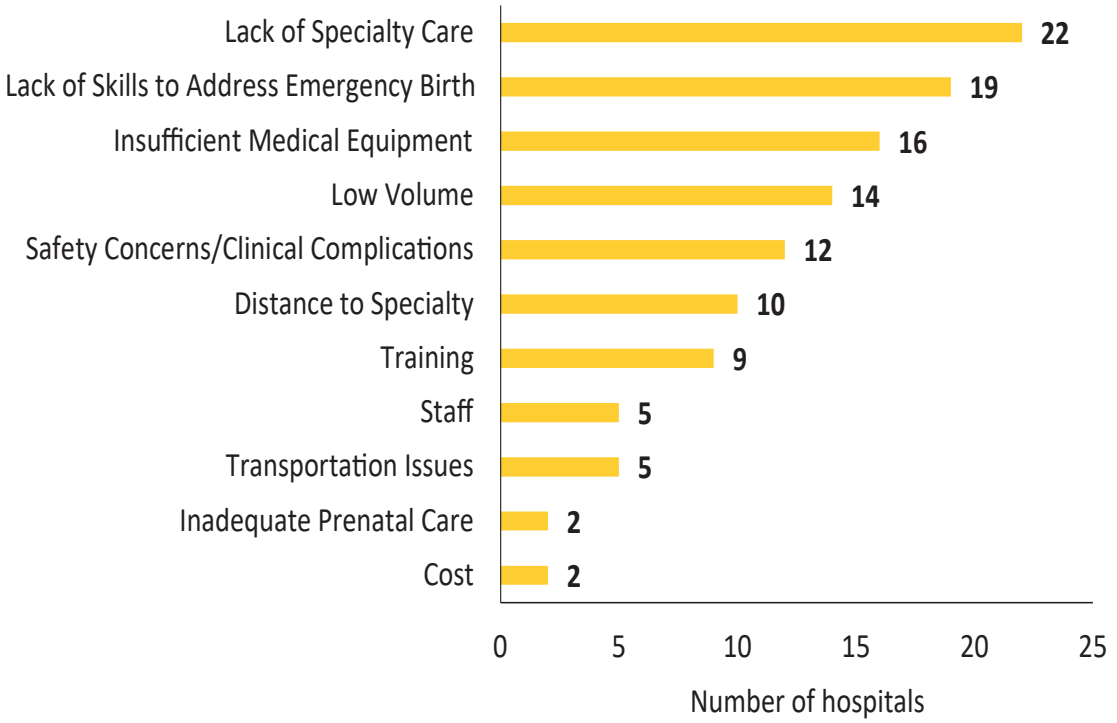

Table 1. Greatest concerns about responding to local obstetric emergencies at rural hospitals without obstetric services (N=61 hospitals)

Theme	Number (%)	Description	Example(s)
Lack of Specialty Care Providers	22 (36.0)	The most frequently reported theme was a lack of specialty care available at local hospitals. This came up especially in either lacking obstetricians or those with particular expertise in this area (n=13), or lacking surgical capacity (n=9). Two (n=2) respondents also brought up lack of pediatric specialty care as a concern.	"Lack of OB/GYN provider, lack of pediatricians, lack of OR…" "Not being able to handle an emergency delivery or have appropriate staffing/ equipment for emergency surgery. Staff aren't trained in OB." "We have no surgical capability."
Lack of Skills to Address Emergency Birth	19 (31.1)	The second most commonly named theme was a lack of clinical skills, or the specific labor and delivery expertise needed to cope with obstetric emergencies.	"My nurses don't like to do it! We don't deliver babies on purpose...[just] uncomfortable with it." "Clinical competency for our providers to handle this.
Insufficient Medical Equipment & Supplies	16 (26.2)	Respondents brought up insufficient medical equipment as a major concern. This was sometimes named broadly, while other respondents brought up concerns for specific items they lacked.	"liability due to lack of resources" "We do not have the capacity to perform emergency C-sections, we do not have vacuums, we do not have fetal monitors…"

Table 1 (continued). Greatest concerns about responding to local obstetric emergencies at rural hospitals without obstetric services (N=61 hospitals)

Theme	Number (%)	Description	Example(s)
Low Volume	14 (23.0)	Respondents discussed the reality of low volume of births in their area. As childbirth at their hospital was relatively rare, without routine and repetition of clinical skills, this is a risk.	"It's something we don't routinely do so it's hard to feel competent." "Skill atrophy with both providers and nurses even with education provided. It's been 12 years since OB care was provided at this facility and no births have occurred since."
Safety Concerns & Clinical Complications	12 (19.7)	Respondents expressed concerns for the safety of the mother or infant, and fear of clinical complications (e.g. emergency C-section) and addressing complex health needs quickly to avoid adverse outcomes.	"[The] biggest thing is that you just don't want them to die…" "The greatest concern would be if it isn't a smooth delivery and mom hemorrhages, we only have two units of blood here. Also again, if an infant was born and we're unable to resuscitate, and we don't have an infant bed draft warmer."
Distance to Specialty	10 (16.4)	Multiple respondents discussed the reality of remote rural areas being so far from the nearest specialty care center. Some named the specific distance while others broadly referenced how far away the closest higher-level care was.	"[we are] > 90 miles from nearest OB department" "distance to tertiary hospitals"
Training	9 (14.8)	Respondents described concerns surrounding training; this was relating to a general lack of education, or infrequency of or inadequate training.	"lack of education for staff" "Lack of experience and training"
Staff	5 (8.2)	Respondents named the issue of lacking staff/local clinician workforce shortages as part of their greatest concern associated with facing obstetric emergencies.	"…not enough staff"
Transportation Issues	5 (8.2)	Several respondents named transportation-related issues as their greatest concern. This was distinct from distance (e.g. number of miles or hours away from) concerns as described above. It primarily centered on issues of long transportation times, rural roads, and difficulty finding transport to get to the tertiary care facility.	"…this is a rural CAH nearest OB facility is 1 hour and 15 minutes away on rural roads." "…lack of or delay in patient transport services."
Inadequate Prenatal Care	2 (3.3)	Respondents named a lack of prenatal care in their area as a concern, and with it, the likelihood of a higher-risk patient who may not have had care throughout their pregnancy.	"Rural area with high incidence of lack of prenatal care"
Cost	2 (3.3)	Respondents discussed the high financial cost of this occurrence, and the difficulty that would bring to their hospital.	"The financial impact"

If your hospital has experienced any close calls or unanticipated adverse birth outcomes for moms or babies, what would have helped?

In addition to asking about greatest concerns regarding obstetric emergencies, we also inquired about what might have helped hospitals or clinicians in avoiding close calls or adverse birth outcomes. Twenty-three of the 69 survey respondents answered this question. Figure 2 provides a summary look at these themes, and Table 2 displays more detailed responses, as well as some examples.

Figure 2. Summary of what would have helped respond to local obstetric emergencies (N=23 hospitals)

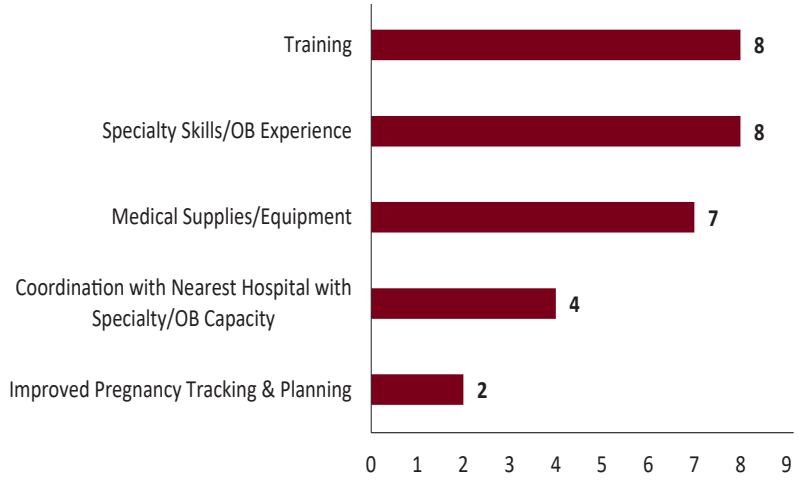

Table 2. Themes on what would have helped respond to local obstetric emergencies at rural hospitals without obstetric care (N=23 hospitals)

Theme	Number (%)	Description	Example(s)
Training	8 (34.8)	Most respondents named training as what would have been most helpful. This ranged from basic delivery training to specifically named types of trainings (e.g. simulation training, training in neonatal resuscitation).	"More experience and training in neonatal resuscitation." "…education on delivery basics"
Specialty Skills & OB Experience	8 (34.8)	Most respondents discussed the need for improved specialty skills and obstetric-related experience among hospital staff (n=7), or through telemedicine support (n=1).	"Have more experience with labor and delivery…" "Telemed OB"
Medical Equipment & Supplies	7 (30.4)	A number of respondents highlighted the need for certain medical supplies or equipment, either generally or specifically.	"having the necessary medications, equipment" "an incubator would have helped"
Coordination with Nearest Hospital with Specialty or OB Capacity	4 (17.4)	Several respondents mentioned the importance of increasing or improving coordination with whichever specialty hospital was nearest. This may mean a faster acceptance of patients, an agreement with the obstetric unit at the tertiary hospital regarding process for taking patients, etc.	"faster acceptance from the OB facility" "one time they [nearby hospital with specialty care] pushed back, but [the] MOU helped"
Improved Pregnancy Tracking & Planning	2 (8.7)	Finally, two respondents called out the need for better pregnancy tracking within their local hospital and planning further in advance about how to respond if this were to occur at their hospital.	"…having a plan and delivering that plan to ED staff"

Discussion and Implications

This analysis reveals the challenges faced by rural hospitals that do not regularly provide obstetric care, when emergency services are needed to care for pregnant patients during childbirth. Overall, respondents identified an array of unique concerns they experienced while providing emergency obstetric care at their hospitals, and a shorter list of what might help them avoid or address close calls or adverse birth outcomes for pregnant patients and their infants. The three most frequently identified concerns about handling obstetric emergencies included: lack of specialty care (n=22), skills (n=19), and insufficient medical equipment/supplies (n=16). In response to what might help in providing emergency obstetric care going forward, respondents highlighted the need for training (n=8), improved or increased specialty obstetric-related skills (n=8), and acquiring the necessary medical supplies or equipment (n=7).

There is a clear connection between the types of concerns raised by rural emergency department administrators and the needs that they identified for further training, skills, and equipment that would aid them in handling obstetric emergencies. Survey respondents indicated that in order to better provide emergency obstetric services going forward, increased training to prepare clinicians for this situation is needed. Specifically, respondents referenced the need for training in emergency obstetric skills ranging from neonatal resuscitation to basic delivery skills. While respondents noted the importance of "hands on" training, they also acknowledged the need for support through telemedicine. Additionally, the need for supplies and equipment to handle emergency obstetric situations was highlighted, which directly relates to patient safety in the case of obstetric emergencies.

Beyond the challenges faced in any individual hospital, the concerns and opportunities revealed in this analysis have implications for rural health policy. First, it is clear there needs to be improved coordination between rural hospitals that do not provide obstetric care and regional hospitals that have obstetric care capacity. This could include enhancing regional perinatal quality collaboratives and telemedicine networks.[7] Second, respondents cited the need for increased clinical experience in obstetric care, which could be improved through enhancing rural family medicine or emergency medicine residencies, and providing additional support for training in emergency obstetrics, including programs such as Advanced Life Support Obstetrics (ALSO), and other means of training to support clinical capacity for emergencies. Increased funding to support local clinical capacity, as well as networks and training, may be needed to ensure that rural hospitals have the resources they need to care for obstetric emergencies locally.

Limitations

This analysis is subject to several limitations. Due to the COVID-19 pandemic, we ended the survey collection period early to respect rural hospital capacity and time. As a result, our sample size for this study included 69 respondents. However, not all survey respondents answered the two open-ended questions discussed in this policy brief, as they were not required questions on the survey. Still, the answers that were provided gave unique and direct insight into how rural hospitals across the nation are addressing emergency obstetric situations, which has never been collected before.

Conclusion

Rural communities are losing access to essential health care services as rural hospitals close their doors. Other rural hospitals retain emergency care, but close down units – including labor and delivery services. Due to the continued decline of rural, hospital-based obstetric care nationwide, it is increasingly important to ensure a safe and healthy childbirth for all rural residents, including for births that occur in hospital emergency departments. This analysis reveals key themes that emerged from the experiences of nurse managers and administrators in rural emergency departments regarding their concerns and the support they need in caring for pregnant residents and their families. Survey respondents expressed a wide range of concerns, and in particular, highlighted a lack of specialty care and basic delivery skills involved in emergency birth circumstances, as well as insufficient medical equipment and supplies at their hospitals. In order to be prepared to address obstetric emergencies in the future, respondents named training, clinician experience in obstetrics, and improving medical equipment and supplies, as necessary components to provide safe emergency obstetric care.

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Funded by the Federal Office of Rural Health Policy
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Support for this study was provided by the Federal Office of Rural Health Policy, Health Resources and Services Administration, Cooperative Agreement U1CRH03717-13-00. The information, conclusions, and opinions expressed are those of the authors, and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.

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Appendix. Characteristics of rural hospitals without obstetric services responding to two open-ended emergency obstetrics questions

	Question 1: Greatest concern (n=61)	Question 2: What would have helped (n=23)
Hospital Characteristic	**N (%)**	**N (%)**
Financial structure		
Hospital type		
Critical Access Hospitals	59 (96.7)	21 (91.3)
Prospective Payment System Hospitals	2 (3.3)	2 (8.7)
Ownership		
Government, non-federal	26 (42.6)	10 (43.5)
Government, federal	0	0
Nongovernment, not-for-profit	32 (52.5)	13 (56.5)
For-profit	3 (4.9)	0
Percent Medicaid-funded inpatient days (median IQR)	5.8 [2.0-18.2]	3.8 [0.7-14.7]
0-25%	49 (80.3)	19 (82.6)
26-50%	6 (9.8)	2 (8.7)
51-75%	4 (6.6)	1 (4.4)
76-88%	2 (3.3)	1 (4.4)
Percent Medicare-funded inpatient days (median IQR)	55.5 [30.8-80.1]	55.2 [17.7-78.0]
0-25%	15 (24.6)	7 (30.4)
26-50%	10 (16.4)	4 (17.4)
51-75%	16 (26.2)	5 (21.7)
76-99%	20 (32.8)	7 (30.4)
Location		
US Census Region		
Northeast	5 (8.2)	2 (8.7)
Midwest	33 (54.1)	12 (52.2)
South	14 (23.0)	5 (21.7)
West	9 (14.8)	4 (17.4)
County and urban adjacency		
Micropolitan, adjacent	8 (13.1)	2 (8.7)
Micropolitan, non-adjacent	4 (6.6)	2 (8.7)
Noncore, adjacent	25 (41.0)	8 *34.8)
Noncore, non-adjacent	24 (39.3)	11 (47.8)

IQR: Interquartile range.
Data are N (%) unless otherwise stated as median [IQR].

Appendix (continued). Characteristics of rural hospitals without obstetric services responding to two open-ended emergency obstetrics questions

	Question 1: Greatest concern (n=61)	Question 2: What would have helped (n=23)
Hospital Characteristic	**N (%)**	**N (%)**
Hospital size		
Average daily census (median [IQR])	8 [3-19]	6 [2-18]
0-5 people	18 (29.5)	10 (43.5)
6-15 people	21 (34.4)	4 (17.4)
16-171 people	22 (36.1)	9 (39.1)
Annual emergency department visits (median [IQR])	3,120 [919-5,043]	2,119 [816-5,018]
45-2,000	23 (37.7)	10 (43.5)
2,001-4,000	16 (26.2)	6 (26.1)
4,001-6,000	11 (18.0)	4 (17.4)
6,001-22,950	11 (18.0)	3 (13.0)
Year of obstetric services loss		
Never had obstetric services	45 (73.8)	19 (82.6)
1986-1999	2 (3.3)	0
2000-2009	6 (9.8)	2 (8.7)
2010-2019	8 (13.1)	2 (8.7)

IQR: Interquartile range.
Data are N (%) unless otherwise stated as median [IQR].