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Information for Rural Stakeholders About Access to Maternity and Obstetric Care: A Community-Relevant Synthesis of Research

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Key Findings

- In the United States (US), rural residents face higher rates of maternal and infant mortality than residents of urban and suburban communities.
- Financial, workforce, and safety concerns are key challenges that rural hospitals and communities face in maintaining obstetric (labor and delivery) services.
- There are important access and quality considerations for childbirth in rural communities, and there are known risks associated with 1) the loss of hospital-based obstetric care, 2) increased distance to obstetric care, and 3) childbirth in lower-volume rural hospital obstetric units. Recognizing all potential risks and benefits of giving birth in rural communities can help decision-making and planning to ensure access and safety for birthing people.

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Purpose

This document aims to inform rural stakeholders about challenges related to access to and quality of hospital-based childbirth care in rural US communities. It summarizes available data on:

- Challenges of providing obstetric services in rural settings
- Quality and outcomes of care at low-volume rural obstetric units
- Risks associated with rural obstetric unit closures
- Challenges faced by communities without hospital-based obstetric care

We also describe clinical and policy efforts to improve access and quality of care for birthing people and their infants in low-volume rural obstetric units and in rural communities that lack access to hospital-based obstetric care. This synthesis provides information about the potential effects of decisions that rural stakeholders make about health care and community resources.

Background and Policy Context

Rural maternity care access

Residents of rural US communities face elevated health risks around the time of childbirth. Rates of both maternal and infant mortality are higher for residents of rural communities, especially remote rural communities, compared with residents of urban areas.[1,2] Access to health care before, during, and after childbirth is an important determinant of maternal and infant health, and it is an important priority for leaders and stakeholders in rural communities. Losses of maternal and obstetric care in rural communities across the US have added urgency to this priority.[3–5]

Most areas lacking maternity care are rural.[4,5] Structural urbanism – the way that health care financing and delivery is typically centered around the needs of people in heavily populated areas – means that many rural

Key Findings (continued)

- Hospitals and health systems, rural communities, and policymakers can fund and/or implement a range of interventions to improve access, quality, and safety for birthing people and infants, both in low-volume obstetric units and in communities that lack access to hospital-based obstetric care and other maternity services. These include:
    - Collaborating with childbirth professionals in local communities, including family physicians, doulas, midwives, lactation consultants, childbirth educators, and public health nurses.
    - Engaging with state and regional perinatal care quality collaboratives, which can provide shared resources, education, and training to rural hospitals and communities.
    - Simulation training for interprofessional teams of rural health care providers to improve delivery of emergency obstetric services and management of unanticipated obstetric or newborn complications.
    - Provider-to-provider telemedicine support.
    - Consideration and assessment of financial policies such as standby payments to fund the fixed costs of obstetric care, low-volume payment adjustments to increase reimbursement rates for childbirth care at low-volume rural facilities, and funding for low-volume facilities to meet safety and quality standards.

communities are systemically under-resourced in health care.[6] For example, revenue generation for facilities and clinicians is based on the number of patients they see and the complexity of the care they provide. For rural hospitals, the fixed costs of the obstetric service line (staffing, equipment, training, and facilities) are difficult to cover when facilities and clinicians have few pregnant patients. This leads to workforce shortages, financial strain, safety challenges, and obstetric unit closures in more remote, less populated areas.[7,8] While nearly half of births in the US are financed by Medicaid, that percentage is higher in rural communities.[9,10] Notably, Medicaid reimburses at substantially lower rates than private insurers, so facilities and clinicians caring for lower income patients in remote rural areas face amplified challenges in generating revenue for obstetric services. Another factor that influences maternity care access is structural racism.[11] In rural and urban areas, obstetric unit closures are more common in communities with higher proportions of Black, Indigenous, and Latinx residents.[11,12] Indigenous people, especially those living in rural communities, have among the least access to care and some of the worst maternal health outcomes in the US.[13,14] Racial inequities in maternal health require attention in rural communities.[15,16]

A note on language for places without maternity care: The language frequently used to describe this problem, such as "maternity care desert," is not accurate and can undermine efforts to address access challenges in medically underserved areas. Naturally occurring phenomena—such as deserts—are distinct from the impacts, results, and consequences of policy and business decisions. Also, the word "desert" is used in this context to imply a vacuous, empty space, when the US's deserts are thriving natural environments that have been home to Indigenous people for thousands of years. It is more accurate to describe places without health care as such ("places without maternity care"), while directing attention towards the decisions and structural inequities that have left entire communities without access to care before, during and after childbirth.

Childbirth at rural hospitals

Most pregnant rural residents give birth at hospitals near where they live and have positive birth outcomes and experiences. A 2022 study showed that nearly 2/3 of rural residents gave birth in a rural hospital, and – on average – both maternal and infant outcomes were bet-

ter for rural residents who gave birth at a rural hospital, compared to rural residents who gave birth at urban hospitals.[17] Also, giving birth locally is meaningful and important to many pregnant rural residents and their families.[18–20]

More than 1/3 of all U.S. hospitals with obstetric units are considered "low-volume" facilities, based on research defining this as hospitals with an annual birth volume between 10 and 500 births a year.[21] These smaller facilities play an essential role in maternal and newborn care. Approximately 300,000 births per year occur in low birth volume hospitals, and 95% of these low birth volume hospitals are located in rural communities.[21] For many rural residents, low-volume facilities are the only hospitals within a reasonable driving distance offering obstetric services, making them critical points of access to childbirth services.[21] However, rural hospital administrators report that a low birth volume contributes to financial problems with the obstetric service line, maternity care workforce shortages, and difficulties maintaining the clinical competency needed to feel comfortable managing higher risk or emergency situations.[7]

Challenges associated with low birth volumes can impact patient outcomes, especially at the smallest hospitals. A recent study analyzed the relationship between hospital birth volume and maternal health outcomes in four states (California, Michigan, Pennsylvania, South Carolina) between 2004-2020. This study showed that, compared to births in rural hospitals with over 460 births per year, severe maternal morbidity risk was 65% higher for patients who gave birth in rural hospitals with 10-110 births per year, 37% higher in those with 111-240 births per year, and 26% higher in hospitals with 241-460 births.[22] These volume cut-offs were created by dividing rural hospitals into quartiles by birth volume, so the categories were purely numerically created, but the pattern was clear: there are measurable maternal health risks associated with giving birth at a lower-volume rural hospital.

Risks at low-volume hospitals are not immutable or insurmountable but addressing them requires targeted resources, including support for low-volume facilities to meet safety and quality standards in obstetrics.[8] Key challenges for low-volume obstetric units in rural areas include maintaining staff obstetric and neonatal skills, ensuring appropriate staffing and equipment levels, and maintaining processes for consultation with or quick patient transfer to facilities with high-risk obstetric care capabilities.[7,23]

Rural obstetric unit closures

Some hospitals make the decision to close an obstetric unit, and this too has important access and safety implications for rural residents. A study comparing rural counties that lost hospital-based obstetric care between 2004-2014 with those that maintained obstetric services showed the largest effects on maternal outcomes and infant health in rural counties that are not near urban areas.[24] In these non-urban-adjacent rural counties, the loss of obstetric care was associated with a small increase in out-of-hospital births, a very large increase in emergency department births, and a modest increase in preterm birth, a leading cause of infant mortality.[24] These impacts appeared immediately after the obstetric unit closures and persisted for years following loss of obstetric services. In rural counties adjacent to urban counties, there was still an increase in out-of-hospital births and emergency room births associated with obstetric service loss, but the initial spike in emergency room births declined over time in those rural counties adjacent to urban counties.[24] Obstetric unit closures are also associated with increased travel distances for rural patients, and longer travel distances have been associated with higher risks of both maternal and infant morbidity.[25] Like with the risks associated with childbirth in lower-volume rural hospitals, the risks associated with closing an obstetric unit can also be mitigated when they are known and addressed. However, it is also worth noting that obstetric unit closure can bring a deep sense of loss in rural communities where many residents may have been born locally for generations.[26,27]

Based on a need for evidence to guide policymaking and decisions, there is a desire to definitively identify volume thresholds for safety and quality, or define a minimum number of births needed to safely offer obstetric services in rural communities. This is impossible to concretely specify, since rural communities vary dramatically in their geography, clinical needs, economic base, workforce, local resources, patient populations, and more. There are people faced with the decision of

whether to shut down services on a regular basis – rural hospital obstetric unit managers and hospital administrators and clinicians. We designed and conducted a survey to ask them about the minimum number of births necessary for safe care delivery; the results indicated that – on average – they needed at least 200 births per year for their obstetric unit to be financially viable and offer safe care. However, the estimates provided by these hospital administrators were based on the specific policy environment and financial context at the time they responded.[7] The "minimum number" that they are comfortable citing would likely change if these conditions also changed. Additionally, nearly 1 in 3 rural hospital administrators we surveyed had fewer births than the minimum they cited as necessary for financial viability and safety, but they were continuing to provide obstetric care. When we asked why, they cited community need. It was apparent to administrators that some families needed a safe option locally, as traveling long distances was not possible. In the words of one respondent, "Many of the people who live here are poor and do not have vehicles to go elsewhere. They would come up here to deliver [babies] even if we did not have an obstetrics department."[7]

There is currently no clinical or policy consensus on the number of births and associated financial, staff, and training resources needed to safely provide obstetric services, nor is there clarity on volume thresholds for safety under different clinical circumstances. These decision points vary across communities and across policy environments and financial conditions. However, some patterns have been established in research, which help illuminate potential risks and inequities, as well as potential pathways toward improving maternal health access, quality, and equity in rural US communities.

Research Synthesis

What is known about clinical safety, low-volume obstetric units, and obstetric unit closures in rural communities

1. Patients who give birth at lower-volume rural hospitals (<460 births per year) face elevated risks of severe maternal morbidity, compared to patients who give birth at rural hospitals with >460 births per year; this is especially true for the lowest volume rural hospitals (<110 births per year).[22] (Also described above).

2. Obstetric quality and patient safety outcomes vary significantly across rural hospitals by birth volume, and better performance is not consistently associated with either lower- or higher- volume facilities for outcomes such as rates of low-risk cesareans, non-medically indicated cesareans, episiotomies, and perineal lacerations.[28,29]

3. In a 2021 survey of rural hospitals with obstetric care, hospital administrators said they needed at least 200 births per year for their obstetric unit to be financially viable and to provide obstetric care safely. The top reason cited by administrators for obstetric unit closure was financial factors, and many hospitals continued to operate obstetric units at a financial loss. Indeed, 30% of hospitals surveyed were operating obstetric units at volumes lower than they indicated as ideal for safety and financial viability, stating that they do so in order to meet community need.[7] (Also described above.)

4. Many hospitals operate obstetric units well below 200 births per year. While recent data on the number of very low-volume obstetric units is lacking, a 2014 analysis found that nearly 1 in 5 rural hospital-based obstetric units saw between 10-240 births annually in the period between 2002-2010, with 4% of rural hospitals reporting fewer than 110 births annually.[28]

5. The loss of hospital-based obstetric care in rural counties is associated with increases in emergency room births and out-of-hospital births (either planned or unplanned). These effects were larger and continued over time in rural counties that are not adjacent to urban areas, and loss of obstetric care in these counties is also associated with increased rates of preterm birth.[24] Obstetric unit closures are also associated with increased anxiety among rural patients about travel distances to the nearest hospital-based obstetric unit.[27]

6. Distance to care affects maternal and infant health outcomes. Recent data from the state of Pennsylvania indicate that longer travel distances are associated with increased risk of adverse maternal outcomes and with infant admission to the neonatal intensive care unit (NICU).[25]

7. Rural counties without hospital-based obstetric care, including those that have lost their obstetric units recently, have less access to evidence-based maternal and infant health services and supports than rural counties that maintained obstetric units. For example, rural communities without hospital-based obstetric units have significantly less access to perinatal mental health services, postpartum and breastfeeding support groups, and clinical lactation support provided by lactation consultants.[30–32]

What is known about supporting birthing people and families in rural communities with low-volume obstetric units

As indicated above, many hospitals operate obstetric units at low volumes because of community need, and these hospitals face challenges in maintaining staffing and clinical competency to manage a range of pregnancy needs (including higher risk and emergency situations) at lower-volume rural facilities. However, there are clinical and policy strategies that can ameliorate these risks. Strategies that may improve safety of obstetric care provision at low-volume rural hospitals include:

1. Engagement with perinatal quality collaboratives, which can facilitate knowledge-sharing (such as through affinity groups of rural hospitals), provide education and training, support the implementation of obstetric and neonatal safety protocols, and lead data collection, sharing, and review.[33,34]

2. Expansion and improvement of telehealth solutions, including public (e.g., Medicaid, federal entities, state and local government) and private (e.g., health care delivery systems, health insurers) investment in telehealth infrastructure and financial support to rural hospitals for upfront technology costs associated with telehealth. Provider-to-provider telemedicine may be an especially important aspect of supporting rural obstetric care, particularly in facilities providing basic obstetric care that do not have subspecialty services.[34,35]

3. Regional partnerships, such as networks of specialists at larger hospitals supporting clinicians at lower-volume facilities in their management of higher-risk childbirths.[5,34] This may require financial incentives and support for larger tertiary care or urban-based subspecialty hospitals that dedicate resources toward assisting rural facilities. Clinical training networks can help facilitate such partnerships.[36]

4. Financial incentives influence a health care system's capacity to maintain obstetric services, and volume-based revenues create particularly acute challenges for low birth volume facilities.[7,37] Financial policy modifications at the state or federal levels – such as standby payments to fund the fixed costs of obstetric care or low-volume payment adjustments to increase reimbursement rates for childbirth care at low-volume rural facilities – may ameliorate financial strain.[5,8]

The case studies linked in the callout box provide real-life examples of how rural hospitals have applied these interventions in their unique communities.

CASE STUDIES OF RURAL MATERNITY CARE IN COMMUNITIES ACROSS THE US

There are many rural hospitals in communities across the US that are instituting the ideas described above and other creative solutions to provide obstetric and postpartum care, often at low volumes, in their rural communities. In-depth case studies of some of these hospitals and communities can be found at the following links:

Making it Work: Models of Success in Rural Maternity Care in Baldwin, WI, Lakin, KS, and Russelville, AK: https://rhrc.umn.edu/wp-content/uploads/2020/11/UMN-Models-of-Success_Case-Series_11.5.20.pdf

Maniilaq Health Center: Providing High-Quality Obstetric Care to American Indian/Alaska Native People in Rural Kotzebue, Alaska: https://rhrc.umn.edu/wp-content/uploads/2023/06/UMN-Case-Study_Maniilaq-Health-Center_final.pdf

Postpartum Support Programs in Rural Communities Across the United States: https://rhrc.umn.edu/wp-content/uploads/2023/08/UMN-Case-Series_Postpartum-Support_8.4-final.pdf

Providing Maternity Care in a Rural Northern Iowa Community: https://rhrc.umn.edu/wp-content/uploads/2020/07/Case-Study_Providing-Maternity-Care-in-a-Rural-Northern-Iowa-Community.pdf

Providing High-Quality Support to Pregnant People and Their Families in Racially Diverse Rural Communities: https://rhrc.umn.edu/wp-content/uploads/2022/08/UMN-Case-Series_Evidence-Based-Supports_8.22.pdf

What is known about supporting birthing people and families in rural communities without hospital-based obstetric care

Hospitals that close their obstetric units must still be prepared to provide medical screenings, urgent care, and emergent care to patients who need these services during pregnancy, childbirth, and the postpartum period, as well as connecting patients with ongoing sources of outpatient care. Rural communities that close their hospital-based obstetric unit experience a significant increase in emergency room births,[24] highlighting the importance of supporting non-obstetric hospitals in providing childbirth care when timely transfer to another facility is not feasible. In other rural communities, a hospital may close entirely, leaving the local community – in some cases – with no health care facilities nearby. Clinical and policy efforts to support obstetric safety in communities without a hospital-based obstetric unit include:

1. Targeted financing mechanisms to support emergency obstetric care training resources for rural hospital emergency departments, Rural Emergency Hospitals, rural outpatient clinics, emergency medical services, and first responders; a survey of rural emergency department administrators found that simulation training was a top need (reported by 80%) of non-obstetric rural hospitals to feel equipped to manage emergency births.[38–40]

2. Regional partnerships, such as described in the previous section, that leverage telemedicine to facilitate connections between emergency department staff at hospitals without obstetric units or midwifery-led freestanding birth centers, with clinicians at larger facilities for guidance when caring for pregnant patients or during an obstetric or neonatal emergency.[38]

3. Efforts by state and federal entities, health care systems, public-private partnerships, and other organizations to maintain or enhance community access to services that support the health and well-being of birthing people and their infants outside of hospital-based obstetric care, including prenatal care, perinatal mental health services, postpartum and breastfeeding peer support groups, doula care, childbirth education, nurse home visiting, and lactation support.[30]

Conclusion

Rural community leaders and stakeholders care about local families and about improving health and safety during pregnancy, childbirth, and postpartum. They face numerous and intersecting financial, safety, and workforce challenges that reflect the reality of structural urbanism; resource allocation, health care payment structures, and other policies are designed around densely-populated metropolitan areas, disadvantaging small towns, remote areas, communities near wilderness or frontier areas, and sparsely populated regions.[6,41] Both rural hospitals that operate low-volume obstetric units and rural hospitals that have closed their obstetric units face challenges in providing safe obstetric care. Rural residents, regardless of where they live, face challenges in obtaining health care before, during, and after pregnancy. These challenges are greatest for rural residents in communities that have long been without maternal or obstetric services, and places that have no health care facilities at all. Rural stakeholders can take steps to understand the risks and benefits associated with providing obstetric services – including the challenges that stem from obstetric unit closures – and to increase access to, safety of, and quality of maternity and obstetric care for all birthing people and families in rural communities.

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