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Delivering Quality: Maternity Care Innovation in Critical Access Hospitals

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KEY FINDINGS

- Interviews with six Critical Access Hospitals (CAHs) that provide labor and delivery services revealed a common focus on maternal hypertension and hemorrhage patient safety bundles, and a need for adapting these safety bundles to better suit their small facilities.
- CAHs used a variety of delivery methods for staff training to maintain competencies in maternity care, including online modules, off-site training, and on-site training. Many CAHs also leveraged their system membership or partnerships with other hospitals to provide training and continuing education opportunities.
- Several of the interviewed CAHs highlighted their small community size as a strength and facilitator of providing patient-centered, personalized care for mothers and infants.

PURPOSE

The purpose of this case series is to provide further insight into maternity care quality engagement in Critical Access Hospitals (CAHs) that are high performers on maternity care quality measures. Six CAHs were interviewed, and they described the benefits of their Perinatal Quality Collaboratives, use of safety bundles, training activities, and other successes in providing maternity care.

BACKGROUND

Challenges in providing maternity care in rural hospitals, including in Critical Access Hospitals (CAHs), have been well-documented and include workforce shortages, high overhead costs of providing maternity care, and ongoing closures of rural obstetric units.¹⁻³ Rates of maternal morbidity and mortality are also higher for rural mothers,⁴ and the need to travel further distances to receive care puts rural mothers at higher risk of poor health outcomes.⁵ Despite these challenges, CAHs have had lower rates of both caesarean sections (C-sections) among low-risk women and C-sections without medical indication compared to other rural hospitals and urban hospitals.⁶

In hospital settings, there are several evidence-based quality measures specific to maternity care that focus on improving maternal and infant outcomes. An example of a measure is PC-02 (cesarean births)⁷ which facilitates more accurate tracking of C-sections and can guide quality improvement activities to keep C-section rates within an acceptable range of 30% or lower.⁸



Another important quality measure is the maternal morbidity structural measure. This measure is reported by hospitals participating in the Hospital Inpatient Quality Reporting Program and is completed by answering a two-part question: 1) if the reporting hospital is participating in a state or national Perinatal Quality Collaborative (PQC) initiative and if so, 2) if the hospital has implemented any safety bundles related to this initiative.⁹ Unlike outcome measures (such as PC-02), this process measure highlights how hospitals are actively taking steps to decrease maternal morbidity and mortality through safety bundle implementation.

PQCs are now in nearly every state, and some national PQCs exist as well.¹⁰ PQCs aim to integrate public health and clinical medicine to advance maternal health. Prior work has highlighted that although PQCs vary in their design and focus, some common features include strong obstetric and neonatal partnerships, family engagement, provider engagement, and use of evidence-based quality improvement strategies.¹¹ PQCs have also demonstrated success in improving maternal outcomes, including reducing elective deliveries before 39 weeks' gestation and reducing severe maternal complications.¹¹

Ongoing obstetric training to maintain competencies among specialists as well as non-obstetric providers is another important component in providing high quality maternity care in all facilities, including CAHs. Previous research has found that lack of skills was one of the primary concerns among rural hospitals when discussing local obstetric emergencies,¹² and rural hospitals have expressed the need for further training to be prepared for emergency obstetrics services.¹³

In this case series, we explore how six CAHs engage with their PQCs, use safety bundles, engage in ongoing obstetric training and education for their staff, and find other successes in maternity care.

DATA AND METHODS

We selected hospitals for interviews based on specific criteria related to performance on key maternal health quality measures. CAHs included in the study met the following conditions: they had attested “yes” to the 2023 Maternal Morbidity Structural Measure, they completed the 2023 CAH Assessment, and they reported PC-02 with a rate of 30% or lower, consistent with nationally clinically acceptable rates.⁸ Quality measure data were obtained from the Centers for Medicare & Medicaid Services (CMS). Application of these criteria resulted in 14 CAHs. Our outreach prioritized CAHs that reported additional measures of PC-01 (elective delivery), PC-05 (exclusive breast milk feeding), and PC-07 (severe obstetric complications). We conducted interviews via Zoom in January through April 2025, with CAH quality leads as our first point of contact. Interviews were completed with quality staff or maternity care staff; the CAH determined the person best suited to answer questions on this topic.

We used semi-structured interviews to gain valuable insights into the strategies CAHs use to provide high-quality maternity care. Interview questions included topics of participation in PQCs and their perceived effectiveness, implementation of maternity care-related safety bundles, requirements and opportunities for staff training to maintain competencies in obstetric emergencies and deliveries, and any other notable successes in maternity care. Interviews were transcribed and responses were compiled by topic area, with an overall summary created after all interviews were completed.

We conducted key informant interviews with leaders in six CAHs:

- Charlevoix Area Hospital in Charlevoix, MI
- Goodall-Witcher Hospital in Clifton, TX
- Martha's Vineyard Hospital in Oak Bluffs, MA
- The Outer Banks Hospital, Inc. in Nags Head, NC
- St. Francis Hospital in Litchfield, IL
- Tahoe Forest Hospital in Truckee, CA



CASE STUDIES

The case studies below summarize hospital characteristics as well as their responses to each of the interview topics. Characteristics information comes directly from interviews.

CHARLEVOIX AREA HOSPITAL ("CHARLEVOIX")

Background

- City, State: Charlevoix, Michigan
- System ownership: System-owned (Munson Healthcare System)
- Number of acute care beds: 25
- Number of births (2024): 221
- Interviewee role: Patient Care Coordinator

Perinatal Quality Collaboratives

Charlevoix actively participates in the Michigan Alliance for Innovation on Maternal Health (AIM) Perinatal Quality Improvement Collaborative. Charlevoix noted that the most valuable aspect of participating in Michigan AIM is access to regional coordinators who assist them with statistical analysis of maternity care data. This support ensures the hospital maintains the safest, most evidence-based standards for maternal health. Additionally, the Michigan AIM collaborative provides best practice insights and enables the hospital to align with broader regional health care initiatives.

Safety Bundles

Charlevoix implements multiple obstetric patient safety bundles, including those for sepsis, hemorrhage, hypertension, and pain management. They also conduct a patient debriefing process where physicians meet with patients after traumatic events, such as sepsis, to gain insights into their experiences. This helps improve communication and patient care. The hospital prioritizes safety bundles based on common pregnancy-related complications and research indicating where process changes can have the most impact on patient outcomes.

One of the biggest challenges in implementing these safety bundles is securing provider support. While providers often recognize the importance of these measures, some feel they may restrict clinical autonomy or fail to fully account for individualized patient care. Another challenge is balancing overlapping safety measures, such as managing hypertension while addressing its impact on primary C-section rates, which can sometimes create conflicting priorities.

Training and Continuing Education

Charlevoix has a structured system for maintaining competency in obstetric emergencies. Each year, they focus on a critical emergency topic. This past year, training sessions covered hypertension, shoulder dystocia, and hemorrhage. In addition to annual training, they conduct quarterly emergency drills with various scenarios, including emergency C-sections due to prolapsed umbilical cords, neonatal resuscitation program (NRP), postpartum hemorrhage, and hypertension emergencies.

Charlevoix integrates Michigan AIM training materials into their hospital learning software, ensuring continuous staff education. Additionally, they have emergency protocol booklets in each room, providing quick-reference guidelines for various obstetric emergencies, enabling staff to respond swiftly and effectively.

Other Successes and Quality Improvement Initiatives

Charlevoix noted one of their key strengths is their commitment to personalized, community-based maternity care. Given their small community, hospital staff get to know patients very well and have sometimes witnessed multiple generations of births from the same family. These personalized patient relationships and dedication to continuing to provide maternity services as a CAH highlight their ongoing commitment to maternal health in the region.



GOODALL-WITCHER HOSPITAL ("GOODALL-WITCHER")

Background

- City, State: Clifton, Texas
- System ownership: Independent
- Number of acute care beds: 25
- Number of births (2024): 85
- Interviewee roles: Labor and Delivery Nurse Manager; Quality, Risk Management, and Infection Control Manager; and Chief Nursing Officer

Perinatal Quality Collaboratives

Goodall-Witcher has previously participated in perinatal quality improvement collaboratives, including Texas AIM and the Texas Collaborative for Healthy Mothers and Babies. Although they are not currently enrolled in any collaborative due to limited staffing and time constraints required for data collection and reporting, they remain engaged by staying informed about ongoing initiatives. These collaboratives helped the hospital identify potential quality improvement opportunities, and while not participating currently, the Goodall-Witcher team reviews maternal health quality materials and considers implementing best practices shared by other facilities depending on their hospital's needs.

Safety Bundles

Goodall-Witcher is not currently using any patient safety bundles but has previously implemented the hypertension bundle while working with Texas AIM.

Training and Continuing Education

Goodall-Witcher uses a variety of training methods, including simulations, online modules, and structured courses to maintain staff competencies for obstetric emergencies. Their simulations are based on past patient cases and are designed to help train nurses who were not directly involved in those events. This allows staff to learn from real-world scenarios.

They also utilize online resources such as Texas Health Steps which provides free continuing education on maternal health topics, and they purchase training courses from organizations like the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN). The hospital regularly hosts in-person trainings, such as intermediate fetal monitoring and NRP courses, through partnerships with local institutions. However, staffing shortages have made it difficult to send staff to in-person trainings especially, as this results in fewer staff at the hospital. Utilizing online resources and having trainers come on-site have helped ensure all staff can participate.

Other Successes and Quality Improvement Initiatives

One of Goodall-Witcher's major quality improvement initiatives related to maternal health has been the implementation of quantification of blood loss processes to align with evidence-based practices. This initiative, led by nurses and supported by physicians, is ongoing and continually reviewed for improvements. The hospital has also seen success in maintaining low C-section and induction-to-C-section rates, consistently staying below both state and national averages.

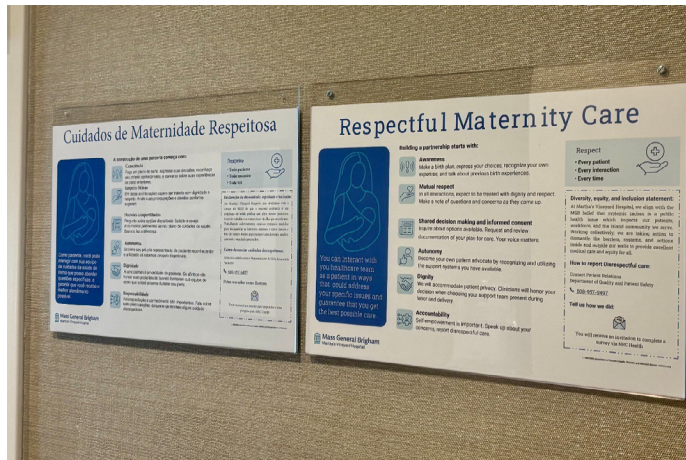
Goodall-Witcher's obstetric services have expanded significantly, growing from approximately 55 births per year to over 100, and they recently added a new provider to support further expected growth. A key strength of providing quality maternity care is their ability to provide highly personalized care, from labor and delivery through postpartum and follow-up breastfeeding support. They mentioned that patients have chosen to deliver at Goodall-Witcher over larger hospitals because of this individualized attention. Goodall-Witcher also enjoys strong community ties and staff loyalty, with some former patients returning to work there because of the quality of care they received during their stay.



MARTHA'S VINEYARD HOSPITAL ("MARTHA'S VINEYARD")



Exterior of Martha's Vineyard Hospital. Photo courtesy of [Martha's Vineyard Hospital website](#).



Respectful Maternity Care posters on the wall of Martha's Vineyard Hospital, in Spanish and English. Photo courtesy of Martha's Vineyard Hospital.

Background

- City, State: Oak Bluffs, Massachusetts
- System ownership: System-managed (Mass General Brigham) but not owned
- Number of acute care beds: 25
- Number of births (2024): 130
- Interviewee role: Senior Manager of Quality & Clinical Compliance

Perinatal Quality Collaboratives

Martha's Vineyard does not currently participate in a PQC, but previously was part of the Perinatal-Neonatal Quality Improvement Network of Massachusetts (PNQINMA) and was involved in a Respectful Maternity Care Project through this collaborative.

Safety Bundles

While Martha's Vineyard is not currently part of PNQINMA, they are continuing the work they did on the respectful care bundle. They also include elements of the hypertension and hemorrhage bundles in ongoing care, but are not specifically tracking data.

Training and Continuing Education

Martha's Vineyard requires staff to complete a set of maternal care competencies and certifications upon hire and annually. Certifications mentioned include Basic Life Support, the S.T.A.B.L.E. Program (focused on post-resuscitation and pre-transport care of sick infants), and NRP. Training is provided through a combination of education from internal staff and by bringing external trainers on site, with a particular emphasis on leveraging resources from the Mass General Brigham system. External trainers are often utilized specifically for newborn and pediatric training.

Other Successes and Quality Improvement Initiatives

Martha's Vineyard is engaged in a social drivers of health screening project, working to improve screening for health-related social needs among maternal and newborn populations and ensuring appropriate referrals and resource connections for those who screen positive. They are also participating in a quality incentive program through MassHealth, targeting reductions in nulliparous term singleton vertex (NTSV) C-section rates. The hospital also places a strong emphasis on respectful maternity care, including provision of interpreter



services, particularly important given the island's large Brazilian/Portuguese-speaking population. Additionally, there is a strong focus on team-based care among nurses, midwives, physicians, and social workers, operating with principles similar to the "Team Birth" model even if not formally designated as such.

OUTER BANKS HEALTH HOSPITAL ("OUTER BANKS")

Background

- City, State: Nags Head, North Carolina
- System ownership: System-owned (Outer Banks Health System)
- Number of acute care beds: 18
- Number of births (2024): 285
- Interviewee role: Clinical Education Specialist

Perinatal Quality Collaboratives

Outer Banks participates in the Perinatal Quality Collaborative of North Carolina (PQCNC) and typically take part in their initiatives as long as they pertain to the hospital and the population they serve. Current initiatives include implementing "Eat, Sleep, Console" assessments and improving their primary C-section rate. The support from PQCNC and their health system has given Outer Banks access to a lot of information from other hospitals, which was noted as a useful resource.

Outer Banks also participates in Joint Commission accreditation, and is focusing on reducing maternal hemorrhage risk and internal hemorrhage complications as part of that initiative. They mentioned that the toolkits and reports from the Joint Commission are very useful, particularly for quality staff.

Safety Bundles

When asked about safety bundles, Outer Banks noted their focus on postpartum hemorrhage and maternal hypertension. Both initiatives were

set by their system as recommended by the Joint Commission. The biggest challenge they have encountered with implementing these safety bundles is that the bundles were designed for a larger medical center that has a different structure, different services, and different resources compared to Outer Banks. As a result, Outer Banks has had to adapt the policies and recommendations to suit their facility. Recently, they received a community hospital-specific massive hemorrhage protocol to better suit their needs, as a hospital with fewer blood products than what the standard protocol entails.

Training and Continuing Education

For obstetric nursing staff, Outer Banks requires NRP, Advanced Cardiovascular Life Support (ACLS), and intermediate fetal monitoring training. They also recommend AWHONN's advanced fetal monitoring, stabilizing neonates, and advanced life support in obstetrics trainings. As part of a larger system, the hospital hosts courses and simulations on site with educators from ECU Health Medical Center, and can also send staff there for courses not offered locally. Simulations are designed based on QI focus areas as well as other topics identified. Outer Banks acknowledged that this is a great benefit of being connected to a larger system; providing training opportunities for scenarios staff may not often see at Outer Banks at no additional cost to the hospital.

Other Successes and Quality Improvement Initiatives

In addition to the focus areas above, Outer Banks has put an emphasis on keeping primary C-section rates low. They attribute their success on this measure in large part to empowering their nurses to follow evidence-based practices and advocate for their patients to reduce primary C-section rates.

In the last three years, Outer Banks has started a new graduate nurse residency program, and added labor and delivery to the program a year later. While it has been difficult to recruit staff to come



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to a CAH from a larger facility, especially to their hospital because the cost of living is higher in their community, they are hopeful their residency program will continue to attract labor and delivery staff to the hospital.

ST. FRANCIS HOSPITAL (“ST. FRANCIS”)



The exterior of St. Francis Hospital. Photo courtesy of [St. Francis Hospital website](#).

Background

- City, State: Litchfield, Illinois
- System ownership: System-owned (Hospital Sisters Health System [HSHS])
- Number of acute care beds: 25
- Number of births (2024): 158
- Interviewee roles: Nurse Manager for Women and Infants; Quality Manager; and Quality Infection Prevention

Perinatal Quality Collaboratives

St. Francis participates in the Illinois Perinatal Quality Collaborative (ILPQC). They follow all ILPQC initiatives and also work closely with the Perinatal Center housed at St. John’s Hospital in Springfield, Illinois. St. Francis said the most valuable aspect of these relationships is the workflow guidance, sharing of best practices, and standardized approaches informed by research and data.

Safety Bundles

St. Francis implements hemorrhage and hypertension safety bundles. The selection of these bundles is determined by HSHS to ensure consistency across all delivering facilities. The biggest challenge they face is provider buy-in, as getting physicians to adopt new guidelines and processes can be difficult. Nurses play a key role in overcoming this challenge by driving implementation at the bedside, thus ensuring adherence to the safety protocols.

Training and Continuing Education

Training and education at St. Francis are guided by system policies. Staff members complete computer-based learning modules covering both obstetric-specific and general education topics. Additionally, the Perinatal Center conducts in-person drills and simulations for St. Francis staff on maternal emergencies throughout the year to maintain staff competency.

Other Successes and Quality Initiatives

St. Francis has achieved Joint Commission Advanced Certification in Perinatal Care (ACPC) and obtained Safe Sleep Certification before ILPQC made it an official initiative. They also take pride in being one of the few CAHs in Illinois providing maternal care in rural areas, ensuring access for patients who might otherwise not reach a hospital in time.

Another key to success is their personalized approach to maternal care. Unlike larger hospitals where the delivering provider may differ from the prenatal provider, St. Francis strives to have the same physician follow a patient throughout pregnancy and deliver the baby. If the primary provider is unavailable, they communicate with the patient in advance, introducing them to the alternate provider to ensure continuity of care.



TAHOE FOREST HEALTH SYSTEM ("TAHOE FOREST")



The entrance to the Joseph Family Center for Women and Newborn Care at Tahoe Forest Health System. Photo courtesy of [Tahoe Forest Health System website](#).



One of four private postpartum suites at Tahoe Forest Health System. Photo courtesy of Tahoe Forest Health System website.

Background

- City, State: Truckee, California
- System ownership: Independent
- Number of acute care beds: 25
- Number of births (2024): 388
- Interviewee role: Inpatient Manager (of labor and delivery, nursery, and postpartum units)

Perinatal Quality Collaboratives

Tahoe Forest actively participates in two quality improvement (QI) collaboratives: the BETA Perinatal Safety Collaborative and the California Maternal Quality Care Collaborative (CMQCC). The BETA Perinatal Safety Collaborative is not state-specific, but rather organized by Tahoe Forest's liability insurance provider, BETA Healthcare Group. The CMQCC involves participation in collaborative calls, where Tahoe Forest finds it valuable to learn from larger facilities like Stanford and adapt their practices to suit the needs of their smaller CAH.

Safety Bundles

Tahoe Forest implements several safety bundles, including a hypertension management bundle focused on post-birth warning signs, and a hemorrhage bundle with regular drills conducted every six months. They also have a Deep Vein Thrombosis (DVT) bundle, which was introduced as a preventive measure despite not having a significant issue with DVT. Another notable bundle is the NTSV bundle, which was implemented four years ago and led to a dramatic reduction in NTSV C-section rates, making them one of the best-performing hospitals in California for this measure.

Tahoe Forest determines which safety bundles to use based on the needs of their population. For example, the sepsis bundle was introduced due to an increase in maternal infections during labor that could potentially lead to sepsis, and this initiative has significantly reduced their sepsis rates. They have also found value in participating in the BETA Perinatal Safety Collaborative, which brings together hospitals across the state to develop safety bundles. This allows Tahoe Forest to tailor safety bundles to meet the specific needs of their CAH before sharing them with others.

Implementing these safety bundles can be challenging due to limited staff capacity, particularly during an emergency. Communication, which is a key



component in all safety bundles, is another challenge due to the absence of technologies such as mass texting or automated calling systems, sometimes resulting in delays in responses from staff. Resource availability also poses difficulties, particularly in emergencies like hemorrhages, as critical resources such as platelets may only be available at a blood bank located 30 minutes away.

Training and Continuing Education

Tahoe Forest conducts quarterly drills and certification programs as part of their ongoing nurse training and continuing education efforts. Some of these drills include neonatal and maternal codes (once a year), hemorrhage drills (twice a year), emergency C-sections, and more. They also offer an AWHONN advanced fetal monitoring course every three years. Additionally, staff members are required to complete S.T.A.B.L.E. (post-resuscitation/pre-transport stabilization education) and NRP certifications every two years. Each year, the Tahoe Forest focuses on a specific quality area for improvement. This year's focus has been on sepsis and emergency preparedness, with joint drills conducted between the obstetrics team and the Emergency Department.

Other Successes and Quality Improvement Initiatives

In addition to the aforementioned safety bundles, Tahoe Forest was one of the first 100 hospitals in the nation to achieve the Baby-Friendly designation from Baby-Friendly USA. They have also maintained one of the highest breastfeeding rates in the state for several years.

SUMMARY

These six case studies highlight some examples of how CAHs engage with PQCs, implement maternity care safety bundles, and provide ongoing education for staff to maintain competencies for obstetric emergencies. CAHs and State Flex Programs (SFPs)

may draw from these examples to identify areas of focus in maternity care quality and consider ways to leverage PQCs and safety bundles for quality improvement. None of the six CAHs we interviewed were aware of any assistance from their SFP in maternity care quality, demonstrating a potential opportunity for SFPs to conduct more targeted programming for their hospitals that provide obstetrics, or an opportunity to make sure their CAHs are aware of any existing Flex projects on maternity care.

Four of the six CAHs currently participate in PQCs, which offer access to best practices, regional coordinators, and data support. These CAHs found value in connecting with other hospitals through these collaboratives, as well as toolkits and reports the collaboratives provide. The two CAHs that are not currently participating in a PQC reported tracking their local PQC activities to stay aware of what their QI focus areas are.

The majority of CAHs interviewed have implemented similar core safety bundles, particularly for obstetric hemorrhage and hypertension, with several also adopting bundles focused on sepsis and NTSV C-section reduction. Given the constraints of being a CAH, several facilities have adapted quality improvement tools originally designed for larger institutions, modifying protocols to fit their limited resources, such as smaller blood product reserves or workforce shortages. In this way, CAHs are still able to utilize these evidence-based safety bundles while making the processes suit their available resources. As one CAH said, "A lot of [the hospital system's] policies and procedures are centered around their medical center, which has a completely different structure, different services, different resources, and so much of the time we find ourselves adapting their policies and recommendations to what actually works here for us. Recently, they've started acknowledging the difference between the two of us."



In addition to safety bundles not being designed for smaller facilities, some hospitals noted challenges in securing provider support when introducing new safety bundles. One CAH described this, saying, “it’s not that they don’t feel that it’s important, but it feels sometimes like [the safety bundles limit]... their ability to make those decisions based on the particulars of that patient versus what the algorithm says.”

Some interviewed CAHs use safety bundles that are selected by their system, which sets these priorities to have consistency across all facilities. Other CAHs determined their own safety bundle priorities, informed by the needs of the population they serve or by evidence for which process changes can have the biggest impact on patient outcomes.

Regular simulation drills are a common component of staff training in order to maintain competencies for labor and delivery. Many CAHs we interviewed use a combination of online training, off-site training, and on-site training, sometimes supplemented with instruction from external or system-level educators. One CAH noted that they design training to align with broader goals, sometimes in conjunction with other hospital departments as well, saying, “We always identify two goals for each year, and whatever our safety goal is that year they will have an e-learning assignment associated with that goal as well. So this year we’re doing sepsis and... preparedness [for] obstetric emergencies in the ER so it’s supporting [the] ER when a postpartum patient comes in, or if there’s a delivery in the field. So [labor and delivery nurses will] be doing joint drills with the emergency department this year.”

A recurring strength across CAHs interviewed is the emphasis on personalized, relationship-based care made possible by smaller hospital settings. This patient-centered approach can foster trust and strong community ties, further reinforced by patient loyalty. As told by one CAH, “I’ve been here for 40 years, and I think that we offer a safe place for people to birth where we know our patients really well... I’ve been present at maybe the laboring mom’s birth and her own birth, and then more generations from that same family. We have that cultural information about families... and we know our resources as well and so I think all of that joins together to give some very personalized care for moms.”

Despite resource constraints and challenges, the CAHs in this case series have demonstrated a commitment to high quality maternity care in rural communities, and offer insights into how they have been successful in these areas. Additional resources for CAHs include the [AIM Obstetric Emergency Readiness Resource Kit](#) and the Flex Monitoring Team’s [Rural Resource: Availability of Obstetric Simulation Training by State](#).

For more information on this report, please contact Madeleine Pick, pickx016@umn.edu.

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