



MINNESOTA PERINATAL QUALITY COLLABORATIVE

OBSTETRICAL HEMORRHAGE COMMUNITY OF LEARNING

FINAL REPORT | SEPTEMBER 2026



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EXECUTIVE SUMMARY

Obstetric hemorrhage remains a leading cause of preventable maternal morbidity and mortality in the United States. Timely recognition and response are critical to saving lives and improving maternal outcomes. In Minnesota, disparities in outcomes persist across geographic and demographic lines, underscoring the need for a standardized, equitable approach to care. This program aims to strengthen obstetric hemorrhage preparedness and response across Minnesota birthing facilities by implementing the best practices outlined in the [AIM Obstetric Hemorrhage Patient Safety Bundle](#). We strive to ensure timely, coordinated, and person-centered care for all birthing individuals through standardized protocols, enhanced team readiness, and data-driven quality improvement.

Twenty-three hospital teams from across Minnesota participated in MNPQC's Obstetric Hemorrhage Community of Learning, engaging in monthly learning sessions, testing changes through Plan-Do-Study-Act (PDSA) cycles, implementing changes, and submitting monthly data to track progress over time. Through multidisciplinary collaboration, trauma-informed approaches, and sustained quality improvement support, participating teams advanced more consistent risk assessment and quantified blood loss practices, enhanced multidisciplinary readiness, and strengthened coordination of care before, during, and after an obstetric hemorrhage emergency.



Picture of the live simulation facilitated by the Minnesota Rural Obstetric Simulation and Education Program (MN ROSE) during the Obstetric Hemorrhage Community of Learning Kick-off session in October 2025.

MNPQC BACKGROUND

The [Minnesota Perinatal Quality Collaborative](#) (MNPQC), established in 2018, is a nonprofit organization dedicated to improving perinatal health outcomes across Minnesota. As part of the national network of Perinatal Quality Collaboratives supported by the Centers for Disease Control and Prevention (CDC), MNPQC brings together birthing facilities, healthcare systems, public health agencies, and community partners to drive system-level improvements in maternal and infant health.

MNPQC supports participating birthing facilities through evidence-based quality improvement frameworks, including those developed by the Institute for Healthcare Improvement (IHI). These frameworks emphasize multidisciplinary collaboration, data-driven decision-making, and iterative testing of change. In 2022, MNPQC joined the Alliance for Innovation on Maternal Health (AIM), further aligning its work with national patient safety bundles and best practices aimed at improving maternal outcomes and reducing preventable harm.

Through its collaborative model, MNPQC partners with more than 80 organizations statewide, supporting birthing facilities of varying size, geography, and resource capacity to implement meaningful and sustainable improvements in perinatal care.

OBSTETRIC HEMORRHAGE COMMUNITY OF LEARNING OVERVIEW

The Obstetric Hemorrhage Community of Learning (OBH COL) began in response to an annual needs assessment launched by MNPQC to identify birthing facility quality improvement priorities. The 2024 needs assessment demonstrated that 39 of the 78 birthing facilities (50%) in Minnesota had either never implemented, or were beginning implementation, of the AIM Obstetric Hemorrhage patient safety bundle. With 50% of birthing facilities lacking experience implementing the AIM Obstetric Hemorrhage patient safety bundle, MNPQC created a program to provide implementation guidance and a collaborative space for facilities to share strategies and learn from one another.

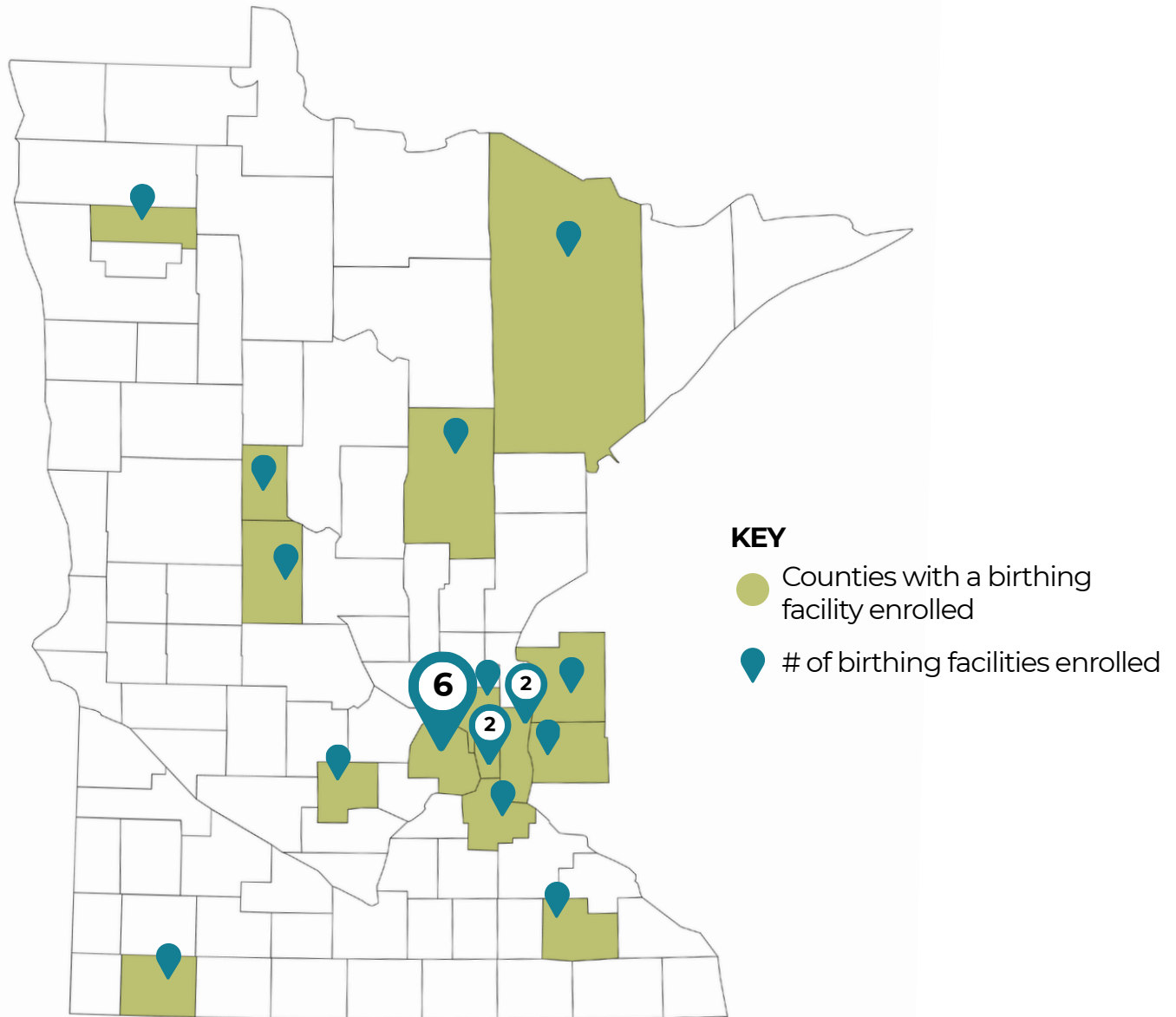
Paired with the gap in bundle implementation, the landscape of obstetric hemorrhage in Minnesota served as additional evidence towards the need of a statewide quality improvement program. According to Minnesota hospital discharge data, provided by the Minnesota Department of Health, the rate of obstetric hemorrhage in 2020 was 797.2 cases per 10,000 live births. By 2024, this rate rose to 985.8 cases per 10,000 live births, a 23.7% increase in obstetric hemorrhage cases. Additional geographic disparities in obstetric hemorrhage cases exist, with both the metro and southeast regions of the state experiencing higher OBH rates. While this geographic disparity in hemorrhage rates is likely due to the proximity of birthing facilities with higher acuity care, this piece of data was essential in guiding hospital recruitment.

MNPQC recruited birthing facilities for the OBH COL through individual outreach methods and a broader social media campaign. The following twenty-three teams representing diverse geographic regions and care settings in Minnesota enrolled:

PARTICIPATING BIRTHING FACILITY TEAMS

- Allina Mercy Hospital
- Allina United Hospital
- Allina Abbott Northwestern Hospital
- Astera Health
- Essentia Virginia
- Glencoe Regional Health
- Hennepin County Medical Center
- HP/PN Amery Hospital
- HP/PN Hudson Hospital
- HP/PN Lakeview Hospital
- HP/PN Methodist Hospital
- HP/PN Regions Hospital
- HP/PN Westfields Hospital
- Lakewood Health System
- MHealth Fairview Riverside UMN (UMMC)
- MHealth Fairview St. John's
- MHealth Fairview Woodwinds
- Northfield Hospital & Clinics
- Olmsted Medical Center
- Riverwood Healthcare Center
- Sanford Medical Center Thief River Falls
- Sanford Worthington
- Twin Cities Midwifery

MAP OF BIRTHING FACILITIES ENROLLED IN THE OBSTETRIC HEMORRHAGE COMMUNITY OF LEARNING



Each hospital formed a multidisciplinary team, primarily composed of floor nurses, nurse managers, and nurse educators, with additional participation from certified nurse midwives, and leadership as appropriate. This nursing-led model positioned improvement work directly at the point of care, supporting practical, workflow-integrated change.

Through the OBH COL, teams participated in monthly collaborative learning sessions, submitted monthly data through the SimpleQI platform, and engaged in multiple PDSA cycles throughout the project period. This structure allowed teams to test changes on a small scale, learn from data and peer feedback, and refine interventions to support sustainability.

CONTENT EXPERTS

Throughout the community of learning, hospital teams were supported by a multidisciplinary group of content experts who provided guidance on quality improvement methodology, clinical implementation, and trauma-informed perinatal care.



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Improvement Advisor



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This faculty model ensured that teams had access to timely, evidence-based guidance while maintaining flexibility to adapt strategies to local needs and resources. MNPQC expresses gratitude to the involved content experts and faculty members for volunteering their time, expertise, and experience to support the development of this Community of Learning.

COMMUNITY OF LEARNING SCHEDULE

The OBH COL began in November 2025, running through June 2026, for a total of six Action Period monthly calls and one Maintenance call. All teams were required to have at least one team member attend each call and participate in collaborative discussions. Each Action Period Call featured a content expert providing a didactic presentation on an identified part of the AIM Obstetric Hemorrhage patient safety bundle. Action Period Call Topics included:



In between Action Period Calls, teams were expected to submit monthly data across the six defined measures of the project through a web-based improvement platform, SimpleQI. Teams also entered status reports and information regarding their ongoing PDSA cycles in SimpleQI, receiving feedback from MNPQC's QI Coaches. One on one technical assistance regarding QI methodology, data analysis, or platform navigation was available upon request.

FAMILY OF MEASURES

To assess hospital team progress and overall project impact, MNPQC established a family of measures for the OBH COL. In collaboration with MNPQC faculty and content experts, an initial broad set of potential measures was refined to a focused, feasible collection aligned with the changes tested by participating teams and the core aims of the Community of Learning. Measures were selected to balance rigor with practicality, recognizing variation in hospital size, patient volume, and data infrastructure. The measures were divided between outcome and process measures as outlined below:

OUTCOME MEASURES

Designed to assess whether improvements in obstetric hemorrhage (OBH) risk assessment standardization and use of quantified blood loss measurement tools translated into meaningful reduction of obstetric hemorrhage cases and adverse health outcomes.

- 1 Percentage of Obstetrical Hemorrhage Cases:** The percentage of deliveries at your facility where an OBH occurs. OBH is defined as cumulative blood loss of ≥ 1000 ml throughout the birth (intrapartum, delivery, and postpartum).
 - 2 Percentage of Severe Maternal Morbidity (excluding transfusion codes alone):** The percentage of patients who delivered with unexpected, highly dangerous outcomes from labor and delivery whose only complication was receiving blood. Often, hospital data records those who receive a blood transfusion without describing further details of whether it was a severe health crisis.
 - 3 Percentage of Severe Maternal Morbidity among People who Experienced an Obstetric Hemorrhage (excluding transfusion codes alone)**
-

PROCESS MEASURES

Process measures focused on assessing the reliability and consistency of key clinical practices necessary to achieve the initiative's aims.

- 1 Percentage of Hemorrhage Risk Assessments Conducted Amongst All Birth Admissions**
- 2 Percentage of Obstetrical Hemorrhage Cases that Received a Verbal Briefing After Their Hemorrhage:** This measure aimed to gauge the level of patient support that is provided after a hemorrhage event.
- 3 Percentage of Birth Admissions in which a Quantified Blood Loss Measurement was Recorded**

TOOLS & RESOURCES

MNPQC provided participating teams with a curated set of tools and resources to support the implementation and sustainment of improvements. These included:

- [AIM Obstetric Hemorrhage Patient Safety Bundle](#)
- [ACOG Obstetric Hemorrhage Bundle](#)
- [California Maternal Quality Care Collaborative \(CMQCC\) Obstetric Hemorrhage Toolkit](#)
- [American Academy of Family Physicians Practice Guidelines \(2023\)](#)
- [American Journal of Obstetrics and Gynecology Evidence-Based Prevention with Domestic and Global Guidelines \(2024\)](#)

These tools enabled teams to standardize practices, reduce variation, and align hospital-level changes with national best practices while maintaining adaptability across care settings.

CHANGES TESTED BY TEAMS

As part of the Obstetric Hemorrhage Community of Learning, teams selected from five primary change measures to guide their quality improvement efforts and test changes through Plan-Do-Study-Act (PDSA) cycles. While teams explored a range of strategies across the five measures, the greatest concentration of PDSA activity focused on **Early Identification of Risk and Accurate Measurement and Monitoring**.

Within **Early Identification of Risk**, teams primarily tested strategies to implement and standardize obstetric hemorrhage risk assessment at key points in care, including on admission and before delivery. These efforts included integrating risk assessment into existing workflows, improving consistency in documentation, and strengthening communication of identified risk factors among care teams.

Under **Accurate Measurement and Monitoring**, teams most frequently focused on implementing processes to **measure and monitor blood loss for all deliveries**. PDSA cycles included testing approaches to improve consistent blood loss measurement, documentation, and team awareness of cumulative blood loss to support earlier recognition and response to obstetric hemorrhage.

Together, these efforts demonstrate that teams prioritized strengthening foundational systems for **early risk recognition and reliable blood loss monitoring**—two critical processes that support timely identification of obstetric hemorrhage and escalation of care.

RESULTS

OUTCOME MEASURES

Three outcome measures were collected across all 23 participating facilities to measure the impact of the interventions made during the Obstetric Hemorrhage Community of Learning. The outcome measures include:

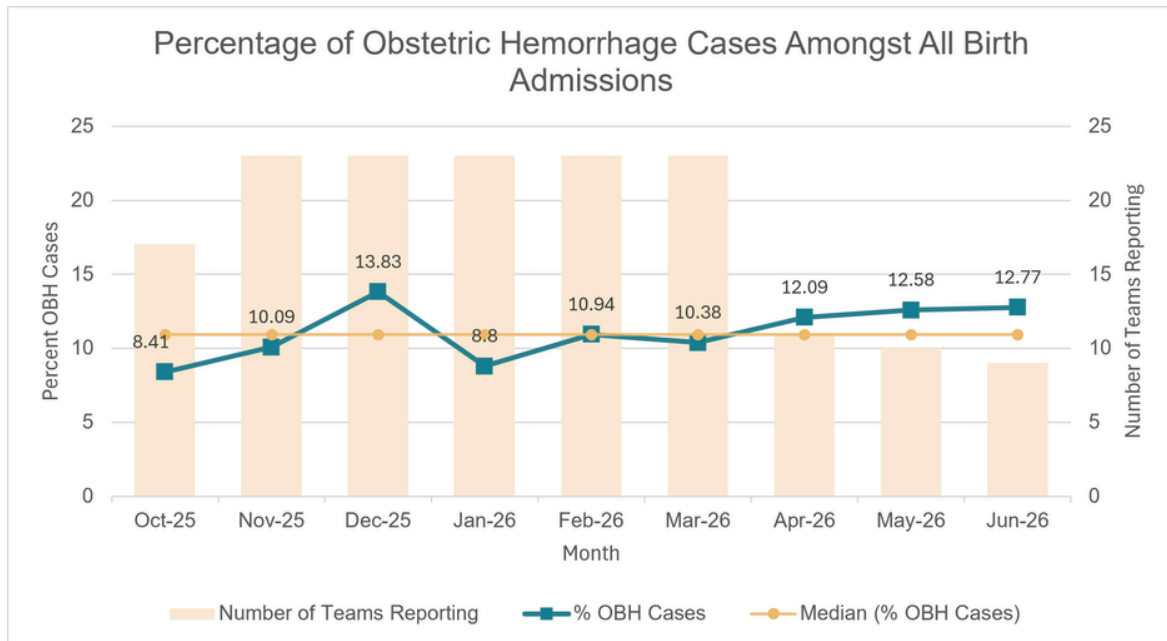
1. Percentage of Obstetrical Hemorrhage Cases
2. Percentage of Severe Maternal Morbidity (excluding transfusion codes alone):
3. Percentage of Severe Maternal Morbidity among People who Experienced an Obstetric Hemorrhage (excluding transfusion codes alone)

Results for each outcome measure are summarized below. Each run chart includes both the measure data and the number of teams reporting on that measure each month.

Of note, participating teams were required to submit data between October 2025 and March 2026. Data between April 2026 and June 2026 were optional, explaining the decrease in reporting during the final three months:

OUTCOME MEASURE #1

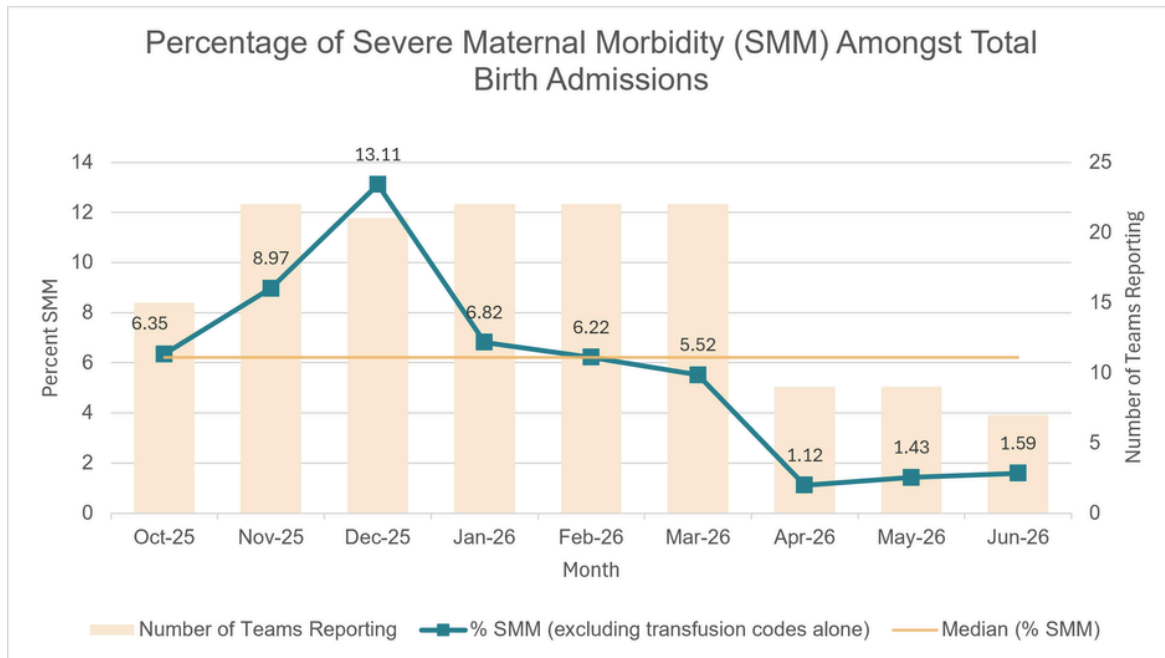
Percentage of Obstetrical Hemorrhage Cases



Across all 23 participating facilities, the aggregate percentage of obstetric hemorrhage cases amongst all birth admissions remained stable throughout the Obstetric Hemorrhage COL. Normal variation was observed over the course of the improvement project. In the final three months of data collection, the number of teams reporting decreased. This resulted in a slight increase in obstetric hemorrhage case rates, as facilities with lower obstetric hemorrhage rates were not accounted for in the aggregate. However, even with the lower reporting, the data continues to look stable in April through June of 2026.

OUTCOME MEASURE #2

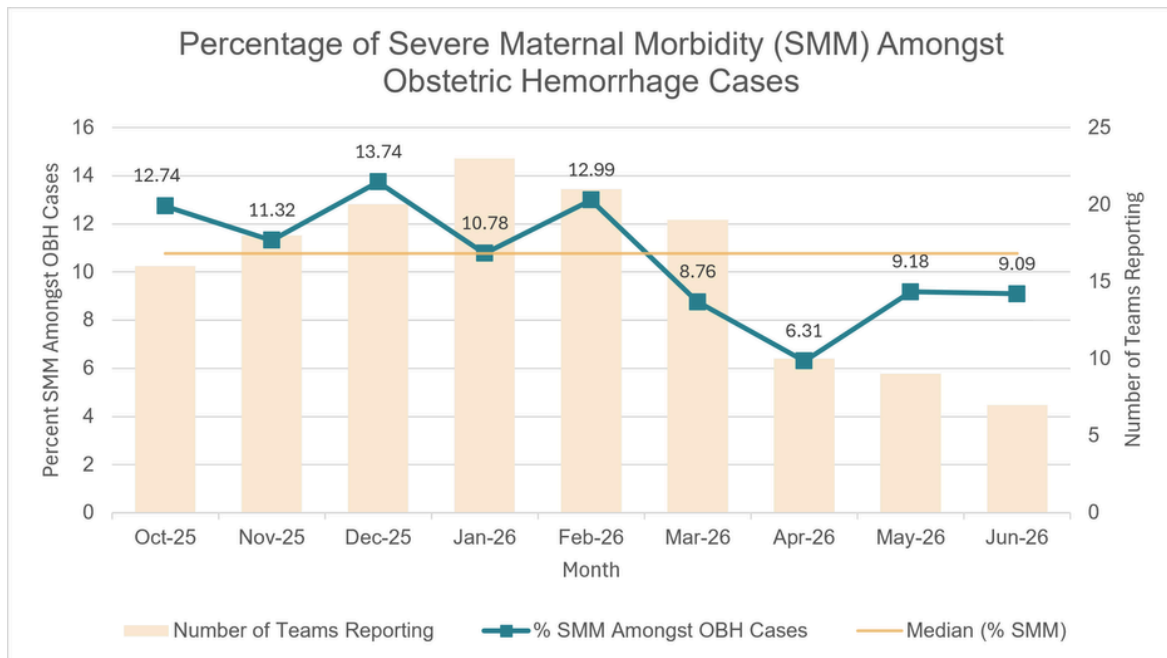
Percentage of Severe Maternal Morbidity (excluding transfusion codes alone)



The percentage of total birth admissions that experienced Severe Maternal Morbidity (SMM) demonstrated a trend of improvement. A trend of improvement is noted by five consecutively increasing or decreasing data points. **Between December 2025 and April 2026, the percentage of birth admissions experiencing SMM had a relative percent decrease of 91%, from 13.11% to 1.12%.** Important to note is the decrease in teams reporting in April 2026, with only 9 teams reporting data on this measure that month. Therefore, interpret the trend of improvement with caution.

OUTCOME MEASURE #3

Percentage of Severe Maternal Morbidity among People who Experienced an Obstetric Hemorrhage (excluding transfusion codes alone)

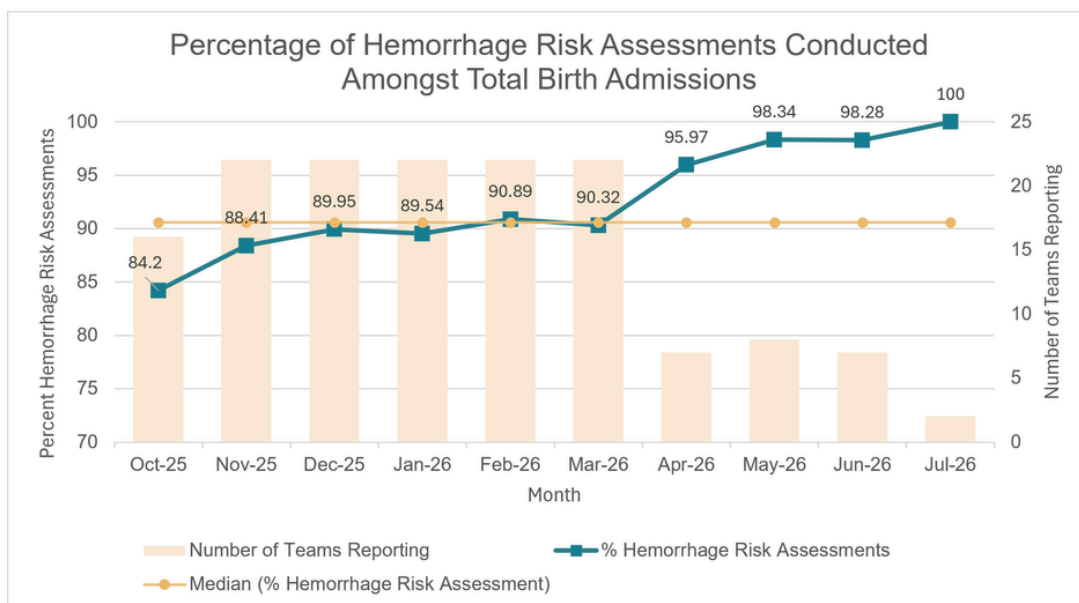


No improvement in the percentage of obstetric hemorrhage cases experiencing SMM was observed during the Obstetric Hemorrhage Community of Learning. While normal variation was largely observed, data from May and June look promising. With an additional two months of data collection, there would be the potential to observe a shift in the data towards a reduction of SMM in OBH cases.

PROCESS MEASURES

To effectively measure the impact of quality initiatives, initial process measures were collected to ensure reliability and consistency of key clinical practices necessary to achieve the initiative's aim. To determine the effectiveness of the Obstetric Hemorrhage Community of Learning, participating facilities collected data on the percentage of all patients receiving a hemorrhage risk assessment, all births in which a quantified blood loss (QBL) measurement was recorded, and the number of OBH cases that received a debrief from providers after the event. Risk assessments, QBL measurement, and patient debriefs are key metrics in determining the effectiveness of hemorrhage readiness and response. Understanding the data behind these process measures is important as it provides context to the outcome measures and potential for sustained improvement.

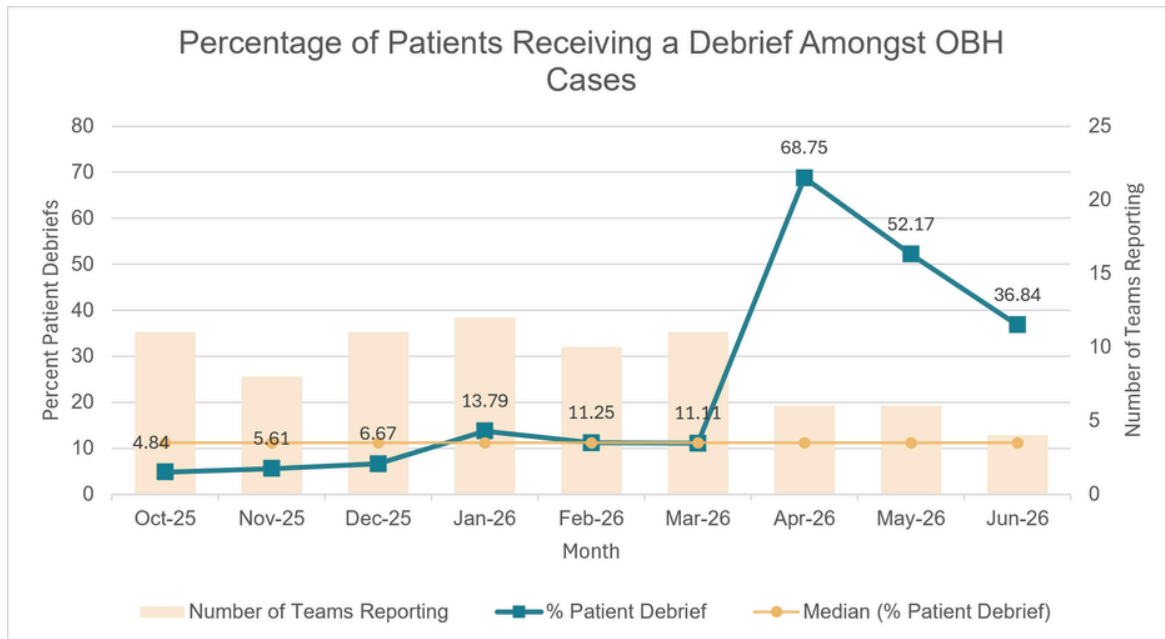
PROCESS MEASURE #1 Percentage of Hemorrhage Risk Assessments Conducted Amongst All Birth Admissions



Hemorrhage risk assessments are an essential component of obstetric hemorrhage readiness. **Participating facilities demonstrated improvement on this measure, with a 10.7% relative increase in risk assessments between March 2026 and July 2026, from 90.32% to 100%.** Important to note is the drop-off in teams reporting in April of 2026. Teams were no longer required to submit data for the final 4 months of the sustainability period. This decrease in reporting likely contributes to the trend of improvement, and the trend should be interpreted with caution. However, data between October 2025 and March 2026 show a steady increase in the aggregate percentage of birth admissions receiving hemorrhage risk assessments. This is a promising finding and represents the interventions participating facilities were enacting at that time.

PROCESS MEASURE #2

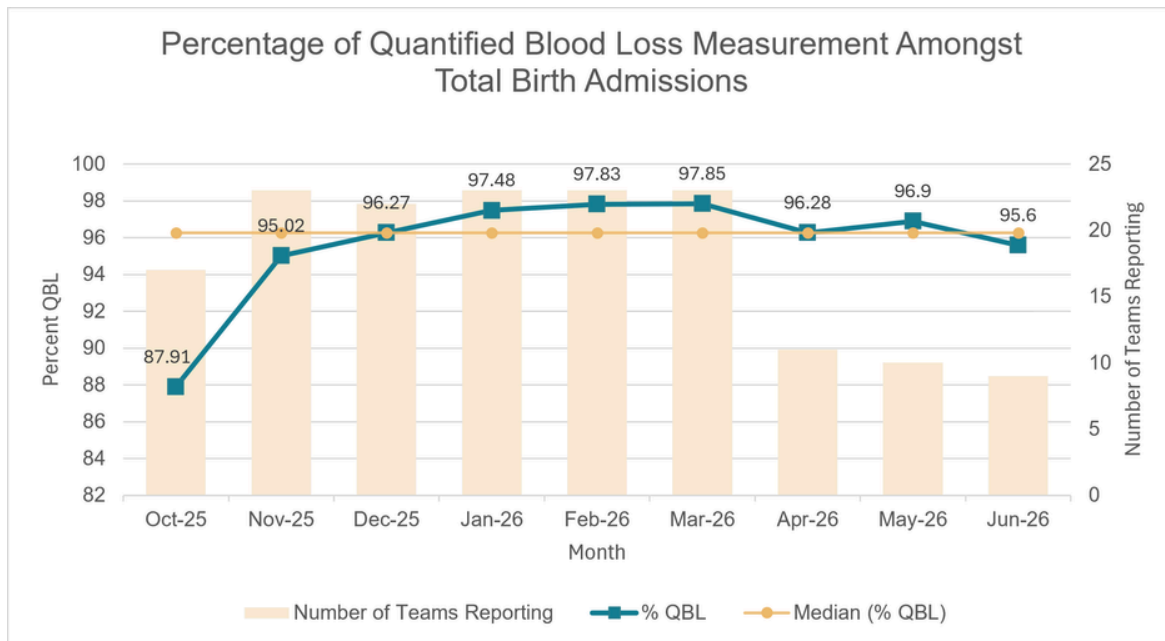
Percentage of Obstetrical Hemorrhage Cases that Received a Verbal Briefing After Their Hemorrhage



The percentage of patients who experienced an obstetrical hemorrhage that also received a debrief after the event proved to be a difficult measure for hospitals to collect. Participating facilities shared that there was not an easy way to record that debriefs had been done within the EHR, making it difficult for them to collect and report on this measure. For teams who were able to report, the percentage of patients receiving debriefs after an OBH remained low, with a median of 11.25%. While no trend of improvement is observed, there is an astronomical point in April 2026, with 68.75% of OBH patients receiving a debrief. Additional exploration into the reporting facilities during that month may yield important insights into how to standardize debriefs within facility processes. The data between April 2026 and June 2026 is also promising, as it suggests a potential shift in improvement, if additional data collection was done. However, interpret with caution as the decrease in teams reporting may be influencing the potential shift.

PROCESS MEASURE #3

Percentage of Birth Admissions in which a Quantified Blood Loss Measurement was Recorded



During the Obstetric Hemorrhage Community of Learning, quantified blood loss measurement (QBL) during births was a large focus. Teams were able to incorporate the shared strategies and learnings presented during the Action Period Calls, as a trend of improvement in this measure was observed. **Between October 2025 and March 2026, the percentage of births that received QBL measurement increased by 11.28%, from 87.9% QBL measurement to 97.85%.** Gains were likely sustained through June of 2026; however, additional reporting from all participating teams would confirm this assumption.

SELF-REPORTED TEAM LEARNINGS

PRE & POST-PROGRAM SURVEY OVERVIEW

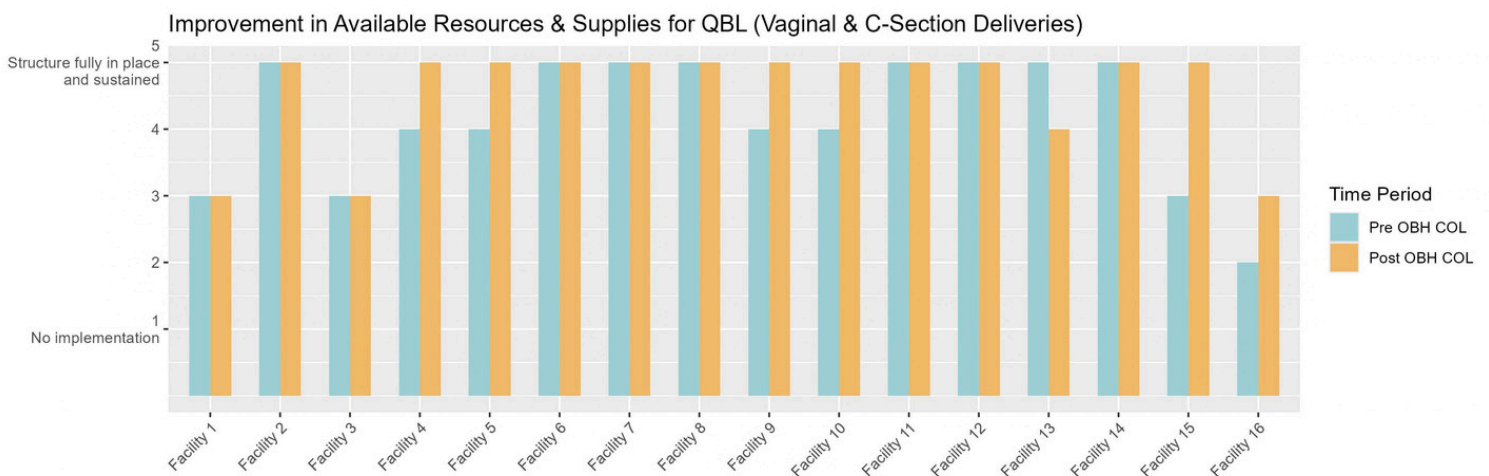
Alongside the quantitative results across the family of measures, perceived improvement amongst teams was assessed through the administration of a pre and post-program survey. Survey questions were generated according to [AIM's Obstetrical Hemorrhage Data Collection Plan](#)'s recommendation for structural measures in bundle implementation. This survey yields important insights, as not all changes can be seen in EHR data within 6 months of new process implementation. The pre and post-program surveys were mirrored, with both aiming to assess levels of comfort, readiness, and implementation in enacting processes that were main focuses of this QI program.

Some participating hospitals that exist within a system chose to complete the survey with their partners. Therefore, both surveys had 16 responses, with the perspectives of all 23 COL participants included.

PRE & POST-PROGRAM SURVEY RESULTS & LEARNINGS

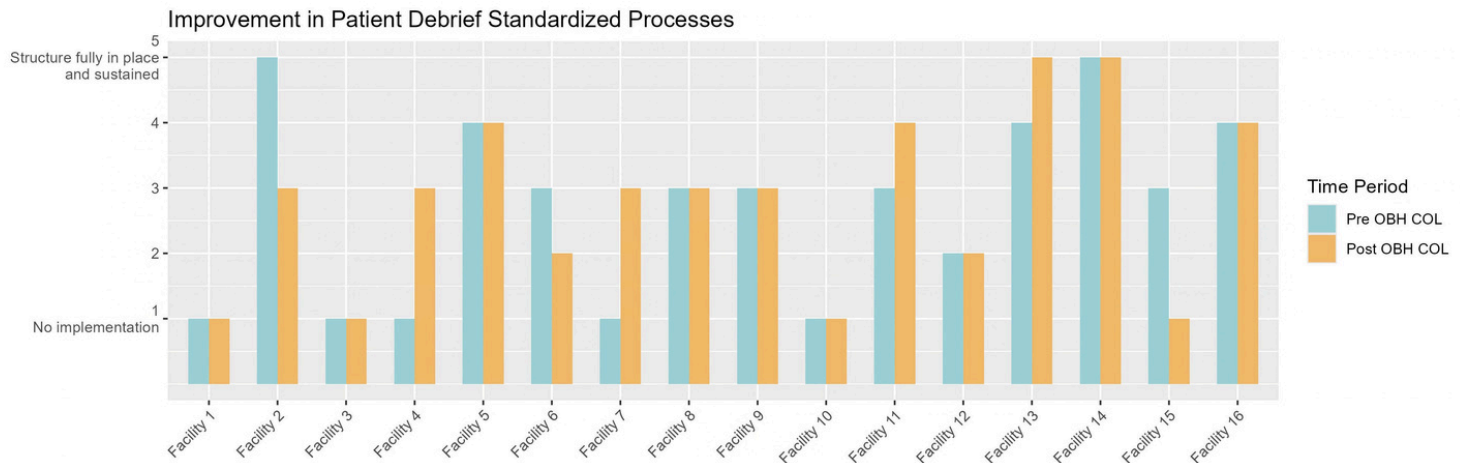
Bright Spots

- **Maintaining & Stocking Hemorrhage Cart:** All teams indicated at the end of the COL that their hemorrhage cart structure is fully in place and sustained. 3 teams demonstrated improvement on this measure, while the 13 other respondents maintained practices
- **100% of teams indicated that they made at least 1 system change as a result of the OBH COL.**
- **QBL Measurement:** 6 teams indicated improvement in the availability of resources and supplies to quantify cumulative blood loss for both vaginal and cesarean births. At the end of the COL, 12/16 teams indicated that this was fully in place and sustained (as demonstrated in the graph below).



Areas to Improve

- **Patient Debrief Standardization of Processes:** 9 out of 16 teams saw no change in this practice. Only 2 teams indicated that this was fully in place at the end of the COL (as demonstrated in the graph below).



- **Survey Response Bundling:** Pre & post-program survey results were bundled by system. Having each participating site complete their own survey may unveil additional patterns or site-specific avenues for future quality improvement projects.

Based on these results from the pre & post-program surveys, perceived self-improvement aligns with the improvement noted in the aggregate data. Teams were able to strengthen their processes for designing, stocking, and increasing the accessibility of hemorrhage carts, as well as strengthening their ability to measure cumulative blood loss at each delivery. Areas for future improvement remain the integration of patient debriefs after an obstetric emergency event, as well as developing standardized reporting processes to record debriefs. Focusing future quality improvement initiatives on patient debriefs will be an important next step for both the hospitals that were unable to collect data on this measure, and those that indicated no change in the standardization of debriefing processes in the pre-post survey analysis.

DISCUSSIONS & CONCLUSIONS

During the Obstetric Hemorrhage Community of Learning, participating sites were provided with tools and best practices to improve their quality of care and overall readiness capacity for hemorrhage emergencies. Teams actively worked on improving their processes for administering hemorrhage risk assessments, measuring blood loss during deliveries, creating an accessible hemorrhage cart, and standardizing patient debrief practices after an emergency obstetrical event. The work done through numerous PDSA cycles by each team is reflected in the data, with three areas of measured improvement: o take steps towards advancing perinatal care and, with the given resources, will likely sustain these changes within their facilities.

- 1 QBL Measurement:** Between October 2025 and March 2026, the percentage of births that received QBL measurement had a **11.28% relative percent increase, from 87.9% QBL measurement to 97.85%.**
- 2 Hemorrhage Risk Assessments:** Participating facilities demonstrated improvement on the percentage of total birth admissions receiving a hemorrhage risk assessment, with a **10.7% relative increase** in risk assessments between March 2026 and July 2026, **from 90.32% to 100%.**
- 3 Percentage of Severe Maternal Morbidity (SMM):** Between December 2025 and April 2026, the percentage of birth admissions experiencing SMM had a **relative percent decrease of 91%, from 13.11% to 1.12%**

Outside of the family of measures, improvement in facility processes, resources, and policies were also noted. One facility did not have a hemorrhage cart at the beginning of the community of learning, and was able to create and maintain one over the course of the initiative. Eight teams indicated improvement in reviewing and updating their obstetric hemorrhage policies to ensure they included information on rapid response teams, a standardized hemorrhage emergency management plan, escalation policies, massive transfusion protocols, and protocols for patients who decline blood products. Self-reported improvement in influencing policies is a large step towards greater system change. Finally, all participating teams shared that they made at least one system change as a result of being a part of the Obstetric Hemorrhage Community of Learning. Within 6 months, all teams were able to take steps towards advancing perinatal care and, with the given resources, will likely sustain these changes within their facilities.

While teams demonstrated improvement across a number of change ideas, areas for future work were also identified through the data. Conducting and collecting data on patient debriefs after an obstetrical hemorrhage proved difficult for a majority of teams. Many teams were unable to report on this measure due to debriefs not being easily accessible in the electronic health record (EHR) system. Therefore, teams were unable to quantify the number of debriefs conducted, and also were unable to share the content of those debriefs (if they occurred). We recommend that participating sites pursue future quality improvement projects on patient debriefs. Creating standardized processes for debriefs, training on respectful care, and updating the EHR to include documentation of debrief occurrence are all potential change ideas for future work on improving patient debrief practices.

Overall, the Obstetric Hemorrhage Community of Learning succeeded in driving improvement across hemorrhage readiness and response. Even though participating sites varied greatly in their patient volume, acuity, and geographic range served, each site was able to learn from one another and make at least one actionable change to improve care for those experiencing obstetrical hemorrhage during deliveries. Convening all 23 birthing facilities in a shared learning space proved helpful in sharing best practices, learning how to adapt practices to one's specific site, and creating connections between perinatal professionals across the state of Minnesota. MNPQC plans to host additional communities of learning and initiatives to build upon this work, create connections, and build networks to advance perinatal care in Minnesota.

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