

Multistate Collaboration to Confidentially Review Unanticipated Perinatal Outcomes

Lessons Learned

Kyla Donnelly, MPH, Michele R. Lauria, MD, MS, and Victoria Flanagan, RN, MS

This commentary describes the development of The Northern New England Perinatal Quality Improvement Network's Confidential Review and Improvement Board and its lessons learned from reviewing cases of unanticipated perinatal outcomes between 2010 and 2013. The Confidential Review and Improvement Board is a multi-state mechanism for rigorous and confidential case review of unanticipated perinatal outcomes among unaffiliated academic medical centers, community hospitals, and home birth midwives. We performed semistructured interviews with key individuals participating in the Confidential Review and Improvement Board since its inception and used inductive content analysis to analyze 22 consecutive case reviews. The Confidential Review and Improvement Board's case reviews involved five key clinical situations: second stage of labor management with neonatal depression, obstetric hemorrhage, uterine rupture, fetal demise, and maternal sepsis. A recurrent theme was failure to differentiate maternal from fetal heart rate associated with the birth of severely compromised newborns. Analysis of the Confidential Review and Improvement Board cases revealed opportunities for improvement in the following categories: 1) timely application of best practice, 2) documentation, and 3) communication. The Confidential Review and Improvement Board's evidence-based recommendations centered on strengthening multidisciplinary training through simulation, improving documentation and

communication systems, and developing and implementing guidelines with appropriate tools. The Confidential Review and Improvement Board demonstrates that collaboration among unaffiliated rural perinatal providers—who are often direct market competitors—is possible and catalyzes regional improvement efforts.

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Confidential and robust review of adverse events has become an increasingly important component of quality improvement in perinatal care in the United States. Open communication about both preventable and nonpreventable adverse events is important on ethical, legal, and pragmatic grounds as supported by the premier medical authorities, including the Institute of Medicine,¹ the American Medical Association,² The Joint Commission,³ and the American College of Obstetricians and Gynecologists as well as patient and health care provider advocacy groups, and policymakers. Considerable attention has been given to training clinicians and establishing policies regarding effective communication about unanticipated adverse events. The goal is to foster a culture of safety and improve patient-centered care in a timely fashion.⁴

Despite the recent advances in quality improvement methodology, it has been challenging to coordinate health care institutions at state and regional levels to systematically and confidentially review unanticipated events in perinatal care.^{5,6} There have been some successes such as the California Maternal Quality Care Collaborative, which pioneered a state-wide interdisciplinary review committee for maternal deaths,⁷ yet time and resources are often limited and leadership may be lacking to initiate and sustain such a process. The fragmentation and competition between public and private health care institutions and practitioners also pose a significant barrier to

From the The Dartmouth Institute for Health Policy and Clinical Practice, and the Dartmouth Hitchcock Medical Center, Lebanon, New Hampshire.

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Corresponding author: Kyla Donnelly, MPH, The Dartmouth Institute for Health Policy and Clinical Practice, 35 Centerra Parkway, Lebanon, NH 03766; e-mail: kyla.z.donnelly@dartmouth.edu.

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cooperation in this capacity.⁸ Home birth providers are typically not included in confidential review processes, despite a growth in the number of women choosing to give birth at home.⁹ Furthermore, public health advocates have predominantly focused on establishing maternal mortality review committees despite research showing that severe morbidity and near misses can be up to 50 times more common than maternal death.¹⁰

Given these gaps, in 2009, the Northern New England Perinatal Quality Improvement Network established the Confidential Review and Improvement Board, a multistate mechanism for rigorous and confidential case review of unanticipated perinatal outcomes among organizations without formal affiliation. The Northern New England Perinatal Quality Improvement Network is a voluntary quality improvement collaborative of 41 health care institutions, state agencies, and home birth midwife associations involved in perinatal care in Vermont, New Hampshire, Maine, and Massachusetts.¹¹ The Northern New England Perinatal Quality Improvement Network provides continuing education activities, reviews regional quality improvement data to identify and respond to gaps in care, and creates evidence-based guidelines and patient education materials. All members have equal voice and leadership opportunities. The Northern New England Perinatal Quality Improvement Network does not receive state or federal funding and minimizes expenses through in-kind support from its member organizations.

The Confidential Review and Improvement Board consists of a subset of Northern New England Perinatal Quality Improvement Network member organizations. Its mission is to provide in-depth, multidisciplinary analysis of unanticipated perinatal outcomes as part of a comprehensive, region-wide, patient safety agenda designed to support learning from systems failures. This commentary describes the Confidential Review and Improvement Board's key lessons learned during its formation and ongoing operations.

METHODS

First, we interviewed key personnel involved in the Confidential Review and Improvement Board formation. Then, we used content analysis to explore the deidentified summaries of 22 Confidential Review and Improvement Board case reviews from 2010 to 2013. The qualitative analysis was approved by the Dartmouth College Committee for the Protection of Human Subjects.

CONFIDENTIAL REVIEW AND IMPROVEMENT BOARD FORMATION

The concept for the Confidential Review and Improvement Board came from the Hospital Corporation of America's quality assurance program.¹² The Confidential Review and Improvement Board explicitly chose to focus on unanticipated instead of adverse events and to have no formal review criteria so as to maximize the potential for new regional improvement activities. Moreover, it chose to include home birth midwives alongside health care providers from tertiary care and community hospitals to comprise the full continuum of obstetric care providers. The Confidential Review and Improvement Board does not replace local quality assurance activities and thus reviews only a tiny fraction of births at member organizations.

The key challenge identified during the Confidential Review and Improvement Board's formation was the confidentiality of the case reviews and reviewers, an essential component of an open and thoughtful review process. Creating a Patient Safety Organization had been considered but was eventually rejected as a result of the financial burden and lengthy process of becoming an independent nonprofit organization. Instead, the Confidential Review and Improvement Board utilized state-based Peer Review and Quality Assurance statutes as guidance for the review process. To maximize quality assurance protection, the Confidential Review and Improvement Board recommends that participation by an institution is integrated into and explicitly acknowledged by its existing quality assurance program with case review findings incorporated into the meeting minutes of their next quality assurance committee meeting. For home birth midwives, their state organization serves this function. The Confidential Review and Improvement Board reviewers have their participation formally identified as a job expectation to ensure that it is within the scope of their employment and covered by their employers' insurance. Finally, all participating organizations and home birth providers sign a Business Associate Agreement one time when they join the Confidential Review and Improvement Board to ensure Health Insurance Portability and Accountability Act compliance. Additional safeguards include recommendations to redact patient, health care provider, and institution identifiers from submitted records, to return all records to submitting institutions, and to remove institution identifiers from any Confidential Review and Improvement Board-retained materials.



REVIEW PROCESS

The Confidential Review and Improvement Board consists of permanent reviewers (physicians, certified nurse–midwives, registered nurses, risk manager, and professional home birth provider) augmented by ad hoc reviewers representing the submitting institutions (but not directly involved in the case) and, as needed, subspecialists from member organizations (eg, neonatology, anesthesiology). Roughly equal numbers of obstetric providers and registered nurses participate. The Confidential Review and Improvement Board meets three times per year for approximately 3 hours and typically reviews two to four cases. Ten weeks before the meeting, member organizations are invited to submit deidentified materials for review. Any individual from the organization can request a case. Institutions pay \$75 per case to defray meeting expenses and the handling of materials. The Confidential Review and Improvement Board provides a checklist of required materials (available on request), including prenatal records, labor progress notes, fetal heart rate (FHR) tracings, and relevant guidelines and policies. Its leadership reviews the materials to ensure they are complete and deidentified and then mails them to the designated review team.

An obstetric nurse and physician who are not from the submitting institution perform the review collaboratively. The goal for reviewers is to create two documents: a detailed case summary and a review letter. The detailed case summary includes a timeline of events and description of patient, practitioner, team, and system factors that may have contributed to the outcome. The review letter highlights the critical components of care based on the documents submitted and identified during the Confidential Review and Improvement Board meeting. The letter describes adherence to nationally recognized guidelines, care processes that worked well and those that did not, and evidence-based recommendations. These documents are presented at the Confidential Review and Improvement Board meeting and a thoughtful and respectful discussion ensues, which helps to build trust in a process that otherwise could make individuals feel vulnerable.

The review letter is then modified by the review team and submitted to the Confidential Review and Improvement Board leadership who may perform additional record review before finalizing the letter. The final letter is sent to the individual representing the institution's quality assurance committee with the recommendation that the findings are discussed and recorded in the subsequent quality assurance meeting minutes. Two representatives from each sub-

mitting organization are encouraged to serve as a review team for the subsequent Confidential Review and Improvement Board meeting both as a professional development opportunity and to promote sustainability in participation.

Although the reviewers do not know the identity of the submitting institution, the representatives sometimes choose to self-identify during the meeting to answer questions about their care policies and procedures. As a result, there is more open discussion about commonalities and differences in perinatal care practices among all of the organizations and clinicians. These discussions have led to collaboration outside of the Confidential Review and Improvement Board to share institution protocols and care tools and to develop new regional guidelines.

CASE REVIEW THEMES

Submitted cases involved five key clinical situations: second-stage labor management with neonatal depression (n=13), obstetric hemorrhage (n=4), uterine rupture (n=2), fetal demise (n=2), and maternal sepsis (n=1). Transfer to a tertiary care facility occurred in 9 of the 22 cases, including one from a home birth provider as a result of arrest of dilation. In one fourth of cases, it is unlikely that the outcome could have been changed.

The opportunities to improve care and potentially prevent unanticipated outcomes fell into the following categories: 1) timely application of best practice, 2) documentation, and 3) communication. Most commonly, the improvement opportunities involved failure(s) to apply best practices based on national and regional guidelines or consensus from Confidential Review and Improvement Board practitioners as a result of incorrect interpretation of data, insufficient monitoring, knowledge deficiency, and protocol gaps. Examples of incorrect interpretation of data included failure to recognize a rising FHR baseline, declining FHR variability, or progressive maternal tachycardia. Numerous reviews identified a failure to distinguish maternal from FHRs, resulting in maternal heart rate monitoring during the second stage and the unexpected birth of a severely depressed newborn. Insufficient monitoring examples included lack of ongoing assessment of estimated blood loss during obstetric hemorrhage and failure to perform maternal pulse oximetry when the maternal and FHRs were within close range. Some health care providers exhibited knowledge deficits in eligibility criteria for neonatal cooling protocols and the use of fresh-frozen plasma in transfusion protocols. Lastly, gaps in institutional protocols or guidelines sometimes interfered with the



provision of quality care. In one of the five cases involving overuse or misuse of oxytocin or misoprostol, the local misoprostol management protocol lacked guidance regarding dose, route, or length of observation after administration.

Variations in the formality and extent of documentation was found during interpretation of FHR tracings, labor progress, and neonatal resuscitation. Some care teams did not have appropriate documentation tools and protocols available such as neonatal resuscitation sheets, maternal flow sheets for hemorrhage documentation, or labor flow sheets. Also, there were instances in which recommended terminology of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development was not used to interpret the FHR tracing. These gaps in appropriate documentation tools appeared to compromise staff communication about, and hinder implementation of, appropriate intervention protocols.

Gaps in communication were identified among health care providers both within and between institutions, most notably during transfers. There were several instances when a health care provider with a higher level of training should have been consulted, such as a health care provider capable of performing cesarean delivery after recognition of a concerning FHR tracing. In other situations after appropriate initial consultation, follow-up communication did not occur. This was evident in a case of suspected preeclampsia when no follow-up conversation occurred after signs and symptoms had progressed beyond the scope of the delivery provider. The Confidential Review and Improvement Board also noted lapses in open and expedited communication between health care providers during shift change or when the health care provider accepting a transfer was different from the health care provider responsible for the in-hospital care.

The most common recommendations made by the Confidential Review and Improvement Board centered on strengthening multidisciplinary training through simulation, improving documentation and communication systems, and developing and implementing guidelines with appropriate tools. For example, it frequently encouraged facilities to establish continuing education and assessment programs in intermittent and continuous FHR monitoring and to review or establish protocols for identifying and responding to FHR abnormalities. To improve postpartum hemorrhage management, the Confidential Review and Improvement Board identified the need for training in techniques to quantitatively and visually estimate maternal blood loss (ie, "lap and sponge and weight-based methods"). It also encouraged the

adoption of established postpartum hemorrhage management protocols,¹³ emphasizing prompts for measuring and documenting blood loss and when to offer uterotonics and blood products. Similarly, the Confidential Review and Improvement Board suggested that several facilities introduce a neonatal resuscitation form to improve documentation and dosing of medications.

Based on the Confidential Review and Improvement Board's early experience, in 2011, the Northern New England Perinatal Quality Improvement Network developed and implemented a tool to improve out-of-hospital birth providers' communication with in-hospital providers during transfer. In 2013, the Northern New England Perinatal Quality Improvement Network began fast tracking development of three evidence-based tool kits for its members: Postpartum Hemorrhage, Second-Stage Labor Management, and Hypertension. The tool kits contain guidelines, examples of documentation flow sheets, note templates, and decision aids. In addition, the Northern New England Perinatal Quality Improvement Network has enabled institution-specific tracking of process and outcome measures for each guideline on the organization's secure web site. Measures were specifically chosen based on the Confidential Review and Improvement Board's findings of incorrect interpretation of data and insufficient patient monitoring.

DISCUSSION

Unaffiliated rural perinatal providers can overcome legal and competitive barriers to confidentially review unanticipated outcomes and catalyze regional improvement efforts. The Confidential Review and Improvement Board's findings enabled the Northern New England Perinatal Quality Improvement Network to develop evidence-based guidelines for home birth to hospital transfer, postpartum hemorrhage, second-stage labor management, and hypertension, which is a testimony to the Confidential Review and Improvement Board's success. The review process has revealed the diverse areas of excellence among participating organizations, unrelated to institution size, academic standing, or health care provider training, as well as the substantial variation in the quality of different guidelines and tools. Taken together, these findings underscore the need for and tremendous promise of regional collaboration to improve perinatal care.

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