Managing obstetric risk: Is your labor and delivery team ready?

Edmund F Funai, MD and Christian M Pettker, MD
Publish Date: FEB 01, 2011

The primary goal of medical professionals is to provide patients with the best possible care and outcomes. In pursuit of this goal, progressive advances in medicine have made healthcare more complex, more dependent on technology, and increasingly reliant on multiple team members, which has greatly increased opportunities for error. As the ability to treat complex diseases has improved, the risk of quality failure has increased. Although the idea of keeping patients safe and providing them with the best outcomes is certainly not new, turning these ideas into practice has taken center stage in healthcare today. This article reviews the origins of the patient safety movement, details the current state of patient safety in obstetrics, and outlines 2 of the most serious threats to safe care, providing strategies to mitigate them.

The patient safety movement

The most fundamental principle guiding patient safety efforts is recognition of the ubiquity of human and system latencies that contribute to medical errors. By understanding that some errors are inevitable but most are preventable, patient safety efforts focus on human fallibility and seek to enhance communication, develop failsafe measures, and establish barriers that decrease the likelihood that an error will manifest itself at the bedside.

A large proportion of patient safety strategies is based on techniques established in aviation, another high-performance, high-complexity industry. Recognizing the contribution of human error and suboptimal interpersonal interactions in airline accidents, the aviation industry took an early lead in reducing adverse outcomes in the 1980s. The industry's 2-pronged approach confronts human error by establishing guidelines, checklists, and drills to improve automation of processes and counters imperfect interpersonal interactions by reducing hierarchies, teaching effective teamwork practices, and empowering individuals to speak up when they recognize an abnormal situation.

Acknowledging that medicine is similarly stressful, time constrained, and teamwork dependent, patient safety leaders have adapted many of the principles and techniques of aviation to the healthcare environment. Over the last 10 years the patient safety movement has shown great progress, and improvements in safety have been documented in cardiology, critical care, surgery, and anesthesia. However, patient safety initiatives in
obstetrics lagged behind many other specialties, despite the fact that childbirth is one of the most common reasons for hospital admission in the United States, accounting for 4 million hospitalizations each year and ranking second only to cardiovascular disease. While good outcomes are anticipated in obstetrics, adverse events occur in up to 16% of deliveries in the US. Anticipation of a favorable outcome, mostly among young women, and the fact that 2 patients—mother and child—can be affected make any adverse outcome particularly devastating and shocking. Despite this, few published models exist to guide providers in reducing obstetrical adverse outcomes and there is little agreement on standards for assessing rates of adverse events in perinatal care.

Lack of traction for safety initiatives in obstetrics is especially perplexing given that the discipline is considered to be in a chronic professional liability insurance crisis. Although ob/gyns represent only 5% of US physicians, they generate 15% of liability claims and 36% of total payments made by medical liability carriers. The average payment for a single obstetric liability claim ranges between $500,000 and $1.9 million. Given that 90.5% of obstetricians have experienced at least 1 liability claim during their careers, with an average of 2.69 claims per physician, the liability crisis has a significant impact on the practice of obstetrics. Concomitant to this crisis, obstetricians have changed their practice considerably, with 19.5% performing more cesarean deliveries, 19.5% eliminating trials of labor after prior cesarean delivery, 21.4% reducing their number of high-risk OB patients, 10.4% decreasing their number of deliveries, and 6.5% stopping practice altogether. The impact of these practice changes are so substantial that in 2004 the American College of Obstetricians and Gynecologists issued a "red alert" naming 23 states where the professional liability insurance crisis affected availability of obstetricians.

As a result, instead of finding a means to deliver care more safely, many obstetricians have limited their practices. Avoidance of patients and procedures does not eliminate risk; however, it does exacerbate healthcare access and workforce gaps. The more appropriate approach to this crisis is to avert problems before they happen by addressing ubiquitous trouble spots in our practice, guided by the successes of other industries and medical disciplines. In our experience, 2 of the biggest barriers to safe obstetric care are suboptimal communication and use of powerful drugs such as oxytocin.

- Hand offs vary in content, creating potential gaps in patient care.
- Approximately 50% of paid liability claims involve alleged misuse of oxytocin.

Poor communication: improving teamwork

Recent statistics from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) indicate that inadequate communication between providers or between providers and patients/families is the root cause of 60% to 70% of investigated sentinel events in medicine. Obstetrics faces the same challenges. JCAHO Sentinel Event #30 investigated 47 perinatal deaths and reported that poor communication was the most frequently cited root cause, involved in 72% of adverse events, with 55% of cases additionally involving an organization culture preventing effective teamwork and communication. Major problems in organizational culture included excessive hierarchy, intimidation, lack of a structured chain of communication, and failure to function as a team. In our experience, root cause analyses of sentinel events have identified at least 1 staff member who recognized imminent danger but did not feel empowered to speak up.

Outside expert reviews and safety culture surveys such as the Safety Attitude Questionnaire or the Agency for Healthcare Research and Quality (AHRQ) Safety Culture Survey may help identify weaknesses in the coordination and communication of the various members of the
obstetrical teams (eg, nurses, obstetricians, anesthesiologists, neonatologists, administration, and ancillary services). However, traditional training paradigms and institutionalized hierarchies have made ineffective teamwork nearly universal. Physicians, midwives, nurses, and staff train in isolated silos, speaking different "languages" and exhibiting often conflicting perspectives, yet they are all expected to work in teams. This potential problem is exacerbated by voluntary limits on attending hours and mandatory restrictions on resident duty hours, the net effect being an increase in the number of patient care hand offs or transfers of care responsibility among providers. Hand offs tend to vary in content, creating potential gaps in patient care.

A team training program based on crew resource management programs initiated and tested by the airline and defense industries has been shown to enhance communication in those settings. Similar interventions have helped to improve teamwork—although not necessarily outcomes—in medicine and obstetrics. More powerfully, a recent retrospective health services cohort study demonstrated lower surgical mortality in Veterans Health Administration centers that implemented structured team training programs. Examples of formalized team training exercises for medicine include AHRQ's Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEP PS), the Veterans Administration's Medical Team Training, and MedTeams. Training staff in these settings can take months and new hires need to be trained episodically over time. Furthermore, JCAHO, in Sentinel Event #30, explicitly recommended team training for obstetrical units.

In the Labor and Birth Unit at Yale-New Haven Hospital, our approach to building an obstetrical team is a formal process. Team training often involves 4- to 8-hour seminars coupled with videos, lectures, and role playing for a mix of individual attendees—physicians, nurses, ancillary staff—within the obstetrical team. Attendees are familiarized with the concept of the shared mental model for communication: an organized way for team members to conceptualize how a team works and to predict and understand how their team members must behave to improve overall team performance. Other concepts and techniques that units can begin without formal team training but with appropriate dissemination include:

- **SBAR (Situation, Background, Assessment, Recommendation):** Standardized approaches to hand-off communications are a JCAHO National Patient Safety Goal requirement. SBAR is a structured communication/debriefing technique designed to ensure complete, coherent information transfer at hand offs or other points of contact. Important information is broken down into 4 categories: "Situation" explains what is happening to warrant the communication, "Background" explains the events leading up to the present situation, "Assessment" summarizes the problem, and "Recommendation" provides a suggested plan. SBAR typically is used for verbal hand offs, but we have developed written SBAR forms for all our common points of transfer, such as from our labor unit to the postpartum floors. Physicians may identify similarities to the "subjective, objective, assessment, and plan (SOAP)" note in our written charts, but using SBAR for verbal communication and in a nursing context may be new to most units.

- **Concerned, Uncomfortable, Scared (CUS) communication key words:** We use these words to communicate to each other the level of discomfort or disagreement with an event or situation. On our unit, when a nurse may tell a physician that she is "concerned" about a fetal heart rate tracing, for instance, this code word prompts the physician to stop and listen. Using "uncomfortable" or "scared" increases the level of assertion, and the listener is prompted to immediately respond more closely and progressively pay more attention. In this case, your patients may thank you for using the CUS words.
The unique feature of our chain of command is that we group nurses and physicians together at each level, encouraging consultation between them before taking the issue to the next step. Units that have implemented these elements and formal team training seminars still require continuous support to avoid inevitable erosions in team behavior. Over time, staff members will still come to a manager to complain about an uncomfortable situation where they did not speak up. Leadership should remain committed to supporting effective communication at the point of care and before solving the problem, address how the staff member could have addressed the problem directly by using structured communication tools. Post-event review sessions that bring together the individuals involved in a difficult case also can be opportunities to evaluate why some people might not have spoken up during or immediately after the event and to review and reinforce team training principles learned in the seminars.

**Powerful drugs: benefits of protocols**

Patient injury from an adverse drug event is the most common type of inpatient adverse event. While the number of medications used by an obstetrician in a typical labor and delivery setting is not large, the common medications—oxytocin, magnesium, prostaglandins, and anesthetics/analgesics—have significant potential for harm.

Oxytocin is worth particular mention because it is used in more than 50% of deliveries in the US, making it one of the most common medications in obstetrics. Oxytocin dosing can be highly variable and often is subject to the individual preference of a given physician. This is not unexpected, as there really are no universally accepted evidence-based standards for dosing and individual patient response and sensitivity are highly variable. While considered safe when administered judiciously, the inappropriate use of oxytocin, specifically related to dosing regimens that cause or fail to recognize excess uterine contractions and resultant poor fetal oxygenation, is a common and serious problem. According to a survey of liability cases, approximately 50% of paid liability claims involve alleged misuse of oxytocin. For these reasons, it is no wonder that oxytocin is considered by the Institute for Safe Medicine Practices to be 1 of the 13 most dangerous medications in the hospital.

For medications used in labor and delivery, many institutions have found it useful to develop protocols and guidelines delineating practice to set fundamental expectations and to improve communication: the shared mental model. The purpose of such documentation is neither to enumerate care in excruciating detail nor to serve as a "cookbook," but to create a common foundation for physicians and nurses to interact with the patient and to define the process of care and its successful implementation. Initially, such protocols may be directed at the organization of patient care (eg, admission criteria for different units and appropriate disposition of high-risk cases) and practices considered at greatest risk for mismanagement and highest yield for correction (eg, induction criteria and administration of oxytocin, prostaglandin, and magnesium sulfate). The potential harm associated with oxytocin is
often underappreciated and implementation of conservative and clearly delineated policies can potentially influence overall communication, medicolegal liability, and patient outcomes.\textsuperscript{31,36,39}

Checklists for oxytocin have been shown to reduce the maximum infusion rate without lengthening labor or increasing operative interventions, while reducing the rate of adverse outcomes in newborns.\textsuperscript{39} At our center, we have established a policy/protocol that is activated when oxytocin is ordered. This protocol sets minimum intervals for increases (ie, 30 minutes for augmentation of labor) and maximum increments for increases (ie, 1 or 2 milliunits per minute) depending on objective evaluation of uterine activity, fetal status, and maternal coping status. In developing this protocol, we acknowledged that in the absence of data proving superiority of any regimen, a standardized regimen for all patients was preferable in the interest of clarity and consistency. Perhaps the most important part of this protocol is that it empowers the intrapartum nurse to make these assessments and dosing adjustments.

Often there is great initial resistance to protocols from providers who claim the superiority of experience and intuition over evidence and standardization. A key to developing and implementing these measures is to rely on standards set by the industry or evidence in the literature and build on these through consensus among staff, preferably through working groups and sufficient comment periods.

However, the absence of evidence or consensus may require leadership to design a best practice that achieves a fair compromise for all stakeholders. This is another test of how well a unit can work as a team, and it might be more achievable after team training has taken hold. We have found that even those who offered the most resistance to protocols and guidelines will now, several years later and after several successes, come to us with frequent inquiries about our thoughts on developing additional new protocols. Once they are comfortable with the concept of protocols, many physicians and nurses find them useful and seek to identify other areas where they may be beneficial.

**Conclusions**

The patient safety movement is now in full swing, and regulatory agencies are paying increasing attention to obstetrical care.\textsuperscript{15} There are many potential tools and strategies to enhance safety, but a combination of communication enhancement coupled with established standards for use of powerful drugs such as oxytocin holds the potential for immediate impact. We believe there is little risk in beginning a comprehensive safety program with these 2 steps, and there is much that may be gained.

**DR PETTKER** is assistant professor of obstetrics, gynecology, and reproductive sciences and medical director, Labor & Birth Unit, Yale University School of Medicine and Yale-New Haven Hospital, New Haven, Connecticut. **DR FUNAI** is professor of obstetrics, gynecology, and reproductive sciences; associate chair of clinical affairs; chief of Maternal-Fetal Medicine and chief of obstetrics, Yale University School of Medicine and Yale-New Haven Hospital. Neither Dr Pettker nor Dr Funai has a conflict of interest to disclose.

**REFERENCES**


