TEAM TRAINING IN OBSTETRICS:

Improving Care by Learning to Work Together

By Diane W. Shannon, MD, MPH

Communication gaps and breakdowns are a significant cause of medical errors within the healthcare system. According to data collected by the Joint Commission (2005), communication gaps are the primary root cause of two thirds of sentinel events. These gaps are a leading cause of adverse events (Institute of Medicine, 1999). Within the obstetrical arena, more than 70% of neonatal deaths are preceded by some form of communication breakdown (Joint Commission, 2004). Study of the causes underlying obstetrical adverse events at an academic medical center identified preventable contributing factors, including communication, in more than three fourths of cases (White, Pichert, Bledsoe, Irwin, & Entman, 2005). Data from obstetrical malpractice claims that closed between 1990 and 2000 within the Harvard-affiliated hospitals showed that communication gaps had occurred in 67% of cases (CRICO/RMF, 2001).

Improved teamwork skills have been identified as a potential means for fostering better communication among healthcare providers and improving patient safety. Indeed, a review of obstetrical malpractice cases showed that 42% could have been prevented or mitigated with better teamwork (CRICO/RMF, 2001). The most common deficiencies identified in the review were failure to cross monitor (76%) and poor communication (67%). Teamwork may be especially important in clinical areas such as obstetrics, where healthcare providers from different disciplines must work collaboratively.

The effectiveness of improved teamwork has been demonstrated in several clinical areas. A study of teamwork training in an academic labor and delivery department demonstrated a 23% decrease in adverse obstetrical events after implementation of the skills learned in training (Pratt et al., 2007). Improved teamwork in the ICU setting was associated with a statistically significant reduction in nosocomial infections and a trend toward reduced length of stay (Jain, Miller, Belt, King, & Berwick, 2006). A 2010 study of a surgical team training program within the Veterans Health Administration found that facilities in which teams had participated in the training showed an 18% decrease in annual mortality, compared with a 7% decrease among the facilities that had not participated in the team training (Neily et al., 2010).

Effective teamwork requires skills and knowledge that are generally not provided during clinical training. Deliberate and conscious effort is often required to develop teamwork skills and transform a group of individuals from a variety of disciplines into a highly effective clinical team. This paper will describe the development of an obstetrical team training program and highlight the experiences of team leaders at two hospitals whose staff participated in the training program.

Development of an Obstetrical Team Training Program

Crew Resource Management (CRM) is a constellation of instructional strategies created by the military to improve teamwork in the cockpit. CRM uses tools, such as simulators, to help trainees develop specific teamwork-related knowledge, skills, and attitudes (Salas et al., 2002). About a decade ago, researchers with the Department of Defense (DOD) began studying the feasibility of adapting CRM to obstetrical care. The DOD invited clinicians from Beth Israel Deaconess Medical Center (BIDMC) in Boston,

which had recently experienced a fetal loss and maternal adverse event believed to be due in part to communication errors, to be the lead study site.

Representatives of the BIDMC obstetrics department worked to adapt the program for obstetrics, then piloted the training with obstetricians and nursing staff in the department. The training was then spread to attending physicians (obstetricians, pediatricians, and anesthesiologists), residents, and nurses in the department. Presented as a half-day interactive and didactic workshop, the program included training in specific team-based skills and knowledge. Once the staff was trained, the new teamwork practices were implemented sequentially over the course of several months.

BIDMC clinicians found a statistically significant reduction in adverse events following implementation of the teamwork practices. In collaboration with researchers from the National Perinatal Information Center (NPIC), they had developed three metrics to assess overall obstetrical adverse events: the Adverse Outcome Index (AOI), the related Weighted Adverse Outcome Score (WAOS), and the Severity Index (SI). With teamwork training, the WAOS decreased from 5.9% at baseline to 4.6% at 4 years after implementation (Pratt et al., 2007). In addition, data from the insurer of the Harvard-affiliated hospitals demonstrated a reduction of 62% in the number of high-severity adverse events and a reduction from 21 to 16 in the number of lawsuits, claims, and potential cases (Pratt et al., 2007).

Soon after publication of the results of the training program, risk managers, quality improvement officers, and leaders from organizations outside the Harvard system began expressing interest in the training program. The insurer's external consulting arm managed the expansion of the program to these external organizations, while members of the obstetrical team from BIDMC served as facilitators and trainers.

The Nuts and Bolts of Team Training

The training program developed at BIDMC and later spread to other institutions was presented in one of two formats: either as a direct training course or as a train-the-trainer workshop. Both were taught by faculty involved in the original DOD project. To ensure a common learning experience among staff of different disciplines and to foster a flattening of the staff hierarchy traditionally present in obstetrics departments, course developers required multidisciplinary attendance at the training sessions.

The main objective of the obstetrical team training program was to help staff develop the specific skills characteristic of highly effective teams. These skills included leadership, communication, shared vision, and error-reduction strategies. In addition to this specific training, the program included a planned implementation, tools for sustaining new team-based behaviors, and metrics for assessment of teamwork skills. The program uses a structured curriculum that is based on the core concepts of teamwork:

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- Every patient should have a plan.
- All providers caring for the patient are aware of the plan.
- All staff is aware of physician/location and coverage for each patient.
- All staff participates in identified communication events, such as team meetings and briefings.
- Conflicts regarding strip interpretation, patient management, or triage of cesarean deliveries are managed constructively.

The program provided training on a shared vision, the use of "communication events" to foster the flow of information among team members, and discrete communication skills. Situation monitoring, which is an element of the shared vision, involves a heightened awareness of the ways in which one staff member's work affects that of others. For example, staff with situation monitoring capability would take steps to be aware of and address abnormal fetal heart tracings related to any patient in the obstetrical unit, and would be aware of potential resource problems, such as availability of the OR.

Structured communication events include the team meeting, the team huddle, the briefing, and the debriefing. During the team meeting the entire obstetrical care team gathers to identify potential problems on the unit, such as a crunch in cesarean section flow through the OR, and to ensure a shared vision for the care plan for each patient. The huddle is an ad hoc meeting of some or all of the care team to problem solve in the event of a change in the status of a patient or the unit as a whole. The briefing is held just prior to a procedure to ensure that all staff have a shared vision for care and have an opportunity to voice any concerns about the care plan. The debriefing is a short meeting held just after a procedure or event to assess the group's performance as a team, identifying positive elements and making action plans to address any identified gaps.

The program provided training on discrete communication skills such as use of the "check back," during which staff repeats back a verbal order to ensure accuracy, use of the SBAR (Situation-Background-Assessment-Recommendation) tool, which provides a formal structure for staff communicating a concern to other staff, and the "call out," which is a verbal communication to others on the care team about a change in a care-related decision that allows all on the team to anticipate future interventions (Mann & Pratt, 2008).

The discrete skills taught in the training provide conflict res-

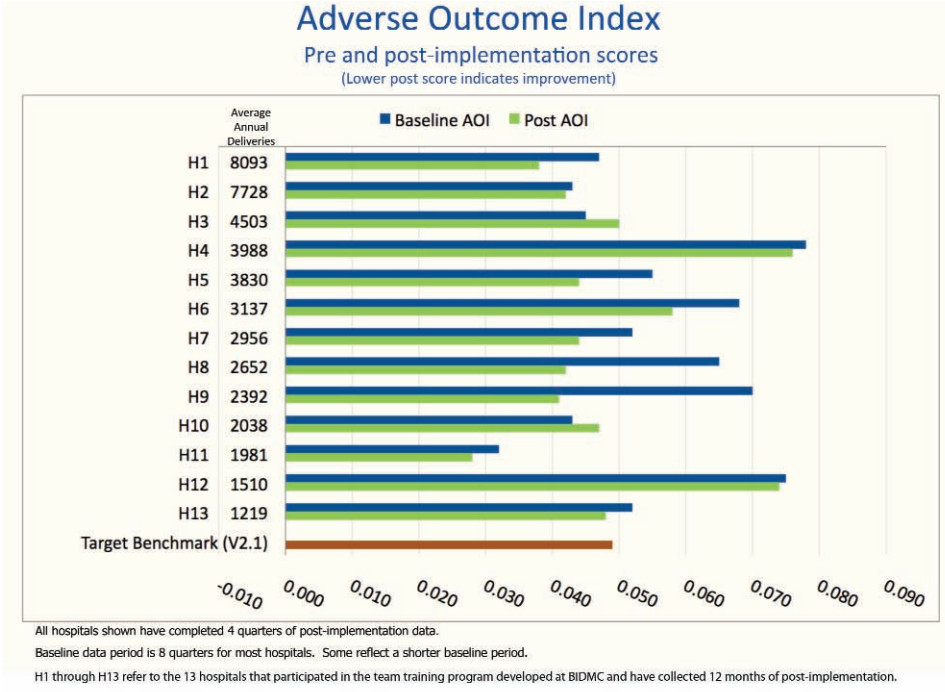

Figure 1. Adverse Outcome Index Before and After Training for 13 Hospitals

olution tools such as the two-challenge rule and the use of the DESC script. Using the two-challenge rule, a staff member articulates a concern a second time if no action is taken after the first communication. The DESC script, which stands for "Describe the behavior, express concerns, specify a course of action, and obtain consensus," is used to communicate a conflict or concern to another staff member. For example, if a physician criticizes a nurse's actions in the presence of the patient, the nurse could use the DESC script to hold a conversation in which he or she expresses a desire to have discussions concerning such actions in privacy in the future (Mann & Pratt, 2008).

To date, staff members from 25 hospitals have participated in the obstetrics team training program. Of the 13 hospitals that have one year or more of data post-implementation, 11 demonstrated a reduction in the adverse outcome index. The majority of sites achieved the target benchmark of 0.049 (Figure 1).

The Experience of Team Training

The obstetrical team training program has been implemented in a variety of organizations across the country. This section highlights the experience of team leaders at two institutions.

Program Resource

The team training program developed at BIDMC and subsequently implemented at other hospitals, including Winchester Hospital and Woman's Hospital, is called Team Performance Plus. For more information about the program, contact Dana Siegal of RMF Strategies at DSiegal@rmf.harvard.edu

Winchester Hospital
Winchester, Massachusetts

Susan Petrosino MSN, NE-BC, RNC-OB, was the nurse manager for labor and delivery and the mother-baby unit at Winchester Hospital when team training was introduced. Located in the northwest suburbs of Boston, the community-based hospital handles 1,900 deliveries a year. The organization has a collaborative arrangement with the obstetrics department at BIDMC whereby maternal-fetal medicine physicians travel to Winchester Hospital three days a week to see patients on site. Winchester was one of the first hospitals to participate in the obstetrical team training program, opting for the train-the-trainer format at an offsite location. The impetus for signing on was a presentation by the chairman of the BIDMC obstetrics department about the tragedy at their hospital and the resultant training program, coupled with a realization by the obstetrics chair at Winchester that communication and teamwork skills could be improved at the community hospital. In addition, an adverse outcome involving a newborn, for which communication gaps and lack of situational awareness were identified contributing factors, solidified the need for improved teamwork skills. According to Petrosino, a key gap was awareness of activity across the unit. "Our nurses were great nurses at the bedside, but they didn't always know what was going on outside the room." At one point, just prior to the team training, she recalls a nurse wheeling a stable patient through the unit to postpartum, without regard to an obstetrical emergency for which staff was urgently paging any available physician. "It wasn't a team effort," Petrosino sums up.

Petrosino, along with two obstetricians, an anesthesiologist, the clinical nurse specialist, three labor and delivery nurses, and the vice president of human resources and legal affairs, attended the training in October 2007. After the three-day training, Petrosino worked with the vice president of human resources and legal affairs, who was an experienced educator, to plan and facilitate training for the Winchester staff. In March 2008, the hospital held the six-hour class in nine different sessions taught by physician/nurse pairs who had attended the training. To ensure multidisciplinary participation in the training, all classes included a mix of physicians and nurses, and participants had assigned seating. Each of the sessions was attended by a senior leader of the hospital. Classes were deemed non-optional for nursing staff and a requirement for physician privileging in obstetrics. Physicians were provided with a stipend to compensate for the missed office day. All in all, about 120 nurses, surgical technicians, clerical staff members, and clinical associ-

Winchester Hospital

ates attended, as well as all obstetricians and all anesthesiologists working in labor and delivery. Employees hired after the training initiative attended a similar class taught by the obstetrical clinical nurse specialist.

In April 2008, Petrosino and the implementation team began rolling out key concepts and practices sequentially. Prior to implementing each new concept or practice, the team advised staff of the plan and ensured that all staff members were aware of roles and expectations. For example, the team initiated "inter-departmental safety rounds" at 11:00 a.m. each morning, during which all labor and delivery staff, charge nurses, nurse managers, and clinical nurse specialists from each of the three obstetrics units review a status update and discuss anticipated needs based on planned inductions and cesarean sections. Prior to the first meeting, the team educated staff about timing, goals, and expectations for attendance and participation. The team also created a formal "coach" role; these individuals received additional training and were available on each shift to assist staff with the new concepts and practices. Coaches also gathered data to assess the effects of training.

According to Petrosino, after several years of focus on teamwork, the concepts and practices learned at the training have become the standard routine. However, sustaining the practices requires diligence and periodic attention from management. The nurse managers from the three maternity units participate in the morning safety rounds to ensure that staff continues to attend the meetings. The coaches continue to assist staff with difficult conversations, facilitation of debriefs, and other communication issues.

With respect to results, the hospital has seen an improvement in the department's scores on its culture and safety survey. After training, the proportion of staff reporting in the affirmative to statements such as "I understand my role in an urgent or emergent situation" or "Our team is an effective team" increased. Petrosino has noticed secondary improvements as well. Staff and physicians report to the unit on time for the 7:00 a.m. and 7:00 p.m. team meetings and take responsibility for knowing about activity on the entire unit, not only the patients for whom they are responsible. According to Petrosino, participating in team training helped change the culture on the unit, such that it is acceptable and expected that staff and physicians step in, question, and support each other. When an urgent situation develops with a patient whose obstetrician is not currently present on the unit, physicians act immediately now, rather than waiting for staff to identify and contact the covering physician as they might have done prior to team training.

The greater attention to care processes also has affected existing roles within the unit. For example, the obstetrician on duty to care for patients on oxytocin, or "laborist," now focuses exclusively on these patients, whereas in the past he or she would simultaneously see patients for scheduled visits in a different section of the unit. Although Petrosino sees the unit's teamwork and communication skills as an ongoing work-in-progress, she feels the new concepts and practices have had a positive effect on patient care. "It's not perfect, but we continue to work at it every day, and I think safety has improved dramatically since our training."

Woman's Hospital
Baton Rouge, Louisiana

Cheri Barker Johnson RNC-OB, BSN, is the director of obstetrics at Woman's Hospital. Located in Baton Rouge, the specialty hospital handles almost 8,000 deliveries each year. As was the case at Winchester Hospital, it was the enthusiasm of senior leaders that prompted the hospital to participate in team training.

According to Johnson, three events prompted leaders to enroll staff in the team training program: the upcoming start of an obstetrics residency program with Louisiana State University; involvement of the obstetrics department in the Institute for Healthcare Improvement Ideal Perinatal Care Collaborative, which emphasized the importance of effective communication; and the urging of the senior vice president of the medical staff and the chief nursing executive, who learned of the training at a presentation at the Council for Women and Infant Specialty Hospitals. Department leaders were committed to improving communication, and according to Johnson, were looking for

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an interactive program. "The chairman of the board agreed that any improvement in communicating was going to need to involve more than me throwing up some slides in a medical staff meeting about how we were going to change communication."

Because of the involvement of the hospital executives from the beginning, buy-in from leaders was not an issue with which Johnson had to contend. However, the composition of the medical staff proved to be a challenge: only 10 of the 68 physicians were salaried. Encouraging physicians in private practice to participate in the hospital-based training—and the related change in practice and communication—was a daunting task. The fact that the training was developed by outside clinicians rather than individuals within Woman's Hospital actually aided engagement, according to Johnson. "The Harvard name gave the program credibility with the medical staff—much more credibility than if I had said, 'Here's Cheri Johnson presenting the training program.' It helped, too, that the trainers did an onsite assessment of the culture here and gave us the sense that we would not be alone in planning the training once we returned home."

In October 2008, a group from Woman's Hospital traveled to Boston to participate in the train-the-trainer program. The group included Johnson, a labor and delivery charge nurse, a triage charge nurse, two additional staff nurses, a hospital-employed maternal fetal medicine physician, an anesthesiologist, and two private obstetricians—one of whom was the chair of the board of directors. Johnson, the senior vice president of the medical staff, and the chief nursing executive chose these particular physicians because of their credibility among the medical staff and their enthusiasm about participating.

One of the biggest surprises for Johnson was the degree to which the participating physicians were unaware of the less-than-optimal communication patterns of some of their colleagues. This awareness solidified their understanding of the need for teamwork and improved communication. "The facilitators discussed actual situations that had occurred on the units. It was interesting to me to find that the physicians were completely appalled by some of the behaviors described. I think the physicians believed they communicated well as a group and that it was the nurses who weren't communicating—until they saw some real-life examples." Nurses who attended had a similar experience—learning, for example, that there was a tendency for nursing staff to omit the "recommendation" portion of the SBAR communication tool.

Upon returning to Baton Rouge, Johnson scheduled team training sessions at 7 a.m. every Monday and Friday for four months. Sessions were taught by the physicians/nurse pairs who had attended the Boston training. Almost 200 nurses attended in the first few weeks, but few physicians participated, in part because the timing conflicted with the start of surgical cases. Some nurses became concerned that they would be asked

to change without a corresponding commitment from physicians to change as well. Johnson ensured that each training session included at least one physician leader to demonstrate a commitment to physician involvement. To encourage attendance, the medical director of the hospital organized a reduced premium with their medical malpractice carrier for any obstetricians who participated. Over time and with continued encouragement, all physicians attended the training, with the exception of five whose malpractice coverage was through a different carrier. Having physicians and nurses attend the same training increased the accountability of both groups to following through with learned behaviors.

Johnson was surprised by the initial level of discomfort of most staff with addressing conflict and the lack of skills for dealing with conflict respectfully. For this reason, Johnson believes that the DESC script for assertiveness was one of the most helpful tools that participants learned to use. She also was surprised by the response to the team meetings, which are held at 8:00 a.m. and 8:00 p.m. each day. She had been skeptical about participation, because prior to teamwork training staff had tended to operate in parallel rather than synergistically. Instead, she found that with adequate preparation beforehand, the meetings took off. The hospitalists, anesthesiologists, and maternal-fetal medicine physicians began attending consistently. Private obstetricians also participated, albeit less frequently. Nursing staff appreciated the chance to be fully informed about current and incoming patients, as well as emerging high-risk situations.

Because it was a multidisciplinary meeting, the perspective of all staff was included in care plans for patients. In the past, the obstetrician might have contacted a specialist in preparation for a high-risk delivery, but might not have informed nursing staff. Now, nursing staff can offer the suggestion of calling in additional resources, such as a social worker, for the delivery. Having all staff involved in the meeting also improved care coordination. For example, upon learning of an upcoming special procedure, the scrub technician can obtain a specific instrument from central supply prior to the start of the case. To ensure the sustainability of the new teamwork and communication skills, Johnson or one of her managers attends team meetings on a daily basis. Because attendance at the team meetings is one of the medical staff goals, she reports on physician attendance to the medical staff.

In the two years since staff attended the training and began implementing new teamwork and communication skills, the hospital's safety culture survey scores have increased significantly. The organization saw an increase in physician satisfaction and staff rating of nurse-to-nurse interactions and nurse-to-physician interactions. Johnson expects these improvements eventually to translate into better patient outcomes. "I can't help but think that the safer environment we're creating for our patients is going to really affect outcomes in the long run. We're just not going to see it immediately."

The focus on teamwork and communication has had a spillover effect on other areas of performance improvement. Both nursing staff and physicians asked for the development of an escalation plan, by which there is a specified procedure for staff to take a concern that they feel is not addressed adequately to nursing and physician leadership. Johnson has an additional reason for appreciating the results of improved teamwork and communication. According to the director of obstetrics, "I get more knocks on my door with a nurse saying, 'I just collaborated with Dr. Jones on a patient issue and he really was receptive to what I had to say.'"

Conclusion

Communication gaps can adversely affect patient care. Teamwork training can address these gaps, providing staff with effective communication tools and shifting the organizational culture to support improved collaboration. BIDMC, at which the obstetrical team training program was developed, has experienced improvement in patient outcomes. The program has been successfully spread to other obstetrics departments across the country. Participants have seen improvements in the safety culture and staff interactions at their organizations. Additionally, most of the hospitals that have one year or more of data post-implementation have demonstrated reductions in obstetrical adverse events. On the basis of the experience with obstetrics, the team training program is currently being adapted for use in other clinical areas in which effective teamwork is essential, including the emergency department and the operating room. PSQH

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