AHRQ SAFETY PROGRAM FOR PERINATAL CARE: EXPERIENCES FROM THE FRONTLINE

Agency for Healthcare Research and Quality

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ABOUT THE PROGRAM

Need for Change

Nine percent of all births in the United States involve serious obstetrical adverse events. At least 30 percent of these events are preventable.

For more than a decade, poor teamwork and communication have remained the leading causes of maternal adverse events. Enhancing patient safety in the crucial hours surrounding birth means reducing these preventable errors.

Ways to reduce obstetrical adverse events include improving teamwork and communication among care teams, following standardized protocols, creating independent checks, learning from defects, effectively engaging patients and families, and practicing these skills through in situ simulations.

AHRQ Efforts To Improve Safety for Mothers and Newborns

The goal of the AHRQ Safety Program for Perinatal Care is to decrease maternal and neonatal adverse events and to improve patient safety, team communication, and quality of care within labor and delivery (L&D) units nationwide.

AHRQ developed a comprehensive patient safety program that provides a platform and tools to improve patient safety in L&D units. The toolkit provides guidance and resources for implementing strategies to improve maternal and newborn safety within L&D units. The tools can be customized to local unit processes and procedures.

Several dozen L&D units across the country joined the Program. RTI International provided program materials and supported the units in implementing the toolkit through a series of Web–based trainings, ongoing technical assistance, and a comprehensive evaluation. This report describes implementation experiences of several L&D units that successfully implemented the Program.

Program Participants

THIS REPORT

This report features five case studies that describe the implementation of the AHRQ Safety Program for Perinatal Care in labor and delivery (L&D) units at University of Arkansas for Medical Sciences, Onslow Memorial Hospital, Winnie Palmer Hospital for Women & Babies, Carle Foundation Hospital, and WakeMed Health & Hospitals System.

Although all L&D units shared the same framework for safety improvements, each embarked on a unique implementation path that was best suited to its local needs and resources. The national implementation team has captured these experiences through visits to these organizations and interviews with unit staff and leadership.

An L&D team in the process of an in situ simulation

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CASE STUDIES

Click to read each case study.

University of Arkansas for Medical Sciences' L&D unit had no prior experience with in situ simulations and limited success with implementation of TeamSTEPPS® before joining the Program. As result of participation in the Program, local facilitators have trained many nurses and new residents in TeamSTEPPS, implemented perinatal safety strategies for oxytocin administration and electronic fetal monitoring, and facilitated these new skills through in situ simulations.

- Academic medical center in Little Rock, AR
- 483 total beds
- 14 L&D beds
- Level III neonatal intensive-care unit (NICU)

Strategies:

Safe oxytocin administration and safe electronic fetal monitoring

Onslow Memorial Hospital's L&D unit had no formal training in TeamSTEPPS prior to joining the Program but already used many teamwork and communication techniques and had a program of in situ simulations. During the course of the Program, the team implemented nearly all perinatal safety strategies and strengthened its teamwork and communication techniques and program of in situ simulations.

- Community hospital in Jacksonville, NC
- 162 total beds
- 10 L&D beds
- Level III NICU

Strategies:

Electronic fetal monitoring, rapid response systems, safe oxytocin administration, magnesium sulfate, obstetric hemorrhage, and shoulder dystocia

Winnie Palmer Hospital for Women & Babies trained more than 85 percent of its nurses in TeamSTEPPS, implemented daily safety huddles, expanded its in situ simulations program, and made safety improvements pertaining to three clinical strategies. Observable improvements in teamwork and communication on the unit have led other hospital units to request initiatives to help them make similar safety improvements.

- Maternity hospital in Orlando, FL
- 320 total beds
- 27 L&D beds
- Level III NICU

Strategies:

Obstetric hemorrhage, electronic fetal monitoring, and obstetric rapid response

Carle Foundation Hospital built on a prior statewide perinatal safety initiative by focusing on improvements pertaining to two clinical strategies and introduction of TeamSTEPPS. Unit staff reinforced the new processes through in situ simulations, which were already a standard practice. Due to the observable improvements in teamwork and communication on the unit, unit leaders are advocating for hospitalwide TeamSTEPPS training.

- Community-designated hospital in Urbana, IL
- 322 total beds
- 12 L&D beds
- NICU Level III

Strategies:

Obstetric hemorrhage and safe oxytocin administration

WakeMed Health & Hospitals System implemented the Program with the goal of ensuring standardization across all three system hospitals. Each hospital approached the Program in a way that met the local needs of each unit. Program participants incorporated some of the protocols into the system's electronic health record.

- Private, not-for-profit health system in Raleigh, NC
- Three hospitals

Strategies:

Shoulder dystocia, electronic fetal monitoring, obstetric hemorrhage, and safe use of magnesium sulfate

TOOLKIT COMPONENTS

AHRQ Safety Program for Perinatal Care

Teamwork and Communication

Learn About the Comprehensive Unit–Based Safety Program (CUSP) for Perinatal Safety
- Slide Presentation & Facilitator Notes

Assemble Team & Engage Leadership for Perinatal Safety
- Slide Presentation & Facilitator Notes

Implement Teamwork & Communication for Perinatal Safety
- Slide Presentation & Facilitator Notes

Understand the Science of Safety for Perinatal Safety
- Slide Presentation & Facilitator Notes

Sensemaking & Learn From Defects for Perinatal Safety
- Slide Presentation & Facilitator Notes

Engage Patients & Families for Perinatal Safety
- Slide Presentation & Facilitator Notes

Supporting CUSP Tools for Perinatal Safety
- Am I Ready To Become an Advisor
- Background Quality Improvement Team Information Form
- Be a Partner in Your Care
- Board Checklist
- CEO/Senior Leader Checklist
- Culture Checkup Tool
- Safety Issues Worksheet for Senior Executive Partnership
- Shadowing Another Professional Tool
- Staff Safety Assessment
- Team Checkup Tool
- Working With Patient & Family Advisors

Perinatal Safety Strategies

Monitoring for Perinatal Safety
Electronic Fetal Monitoring (EFM)
- Slide Presentation & Facilitator Notes
- Tool: Safe EFM Pocket Card

Safe Medication Administration
- Slide Presentation & Facilitator Notes
- Tool: Safe Oxytocin Administration
- Tool: Safe Magnesium Sulfate Administration

Rapid Response for Perinatal Safety
Obstetrical Rapid Response
- Slide Presentation & Facilitator Notes
- Tool: Rapid Response Systems

L&D Unit Safety
- Slide Presentation & Facilitator Notes
- Tool: Safe Cesarean Section
- Tool: Obstetric Hemorrhage
- Tool: Shoulder Dystocia
- Tool: Umbilical Cord Prolapse

In Situ Simulation

Getting Started
- Slide Presentation & Facilitator Notes
- Tool: Facilitation Instructions for In Situ Simulation
- Tool: Training Video

Simulation Scenarios
- Postpartum Hemorrhage
- Shoulder Dystocia
- Umbilical Cord Prolapse
- Antepartum Hemorrhage
- Preeclampsia/Seizure
- Uterine Tachysystole
- Magnesium Toxicity
- Vaginal Birth After Cesarean (VBAC)/Abdominal Pain
- Postoperative Cesarean Section Complication

DEFINITIONS

Brief: Short session prior to start of patient care to share the plan, discuss team formation, assign roles and responsibilities, establish expectations and climate, and anticipate outcomes and likely contingencies.

Callout: A strategy to communicate important or critical information that informs all team members simultaneously during emergent situations.

Check-back: Use of closed-loop communication to ensure that information conveyed by the sender is understood by the receiver as intended.

Cross-monitoring: A harm error reduction strategy that involves monitoring actions of other team members, providing a safety net within the team, ensuring that mistakes or oversights are caught quickly and easily, and "watching each other's back."

CUS (I am Concerned! I am Uncomfortable! This is a Safety issue! "Stop the line."): Reminds team members to make assertive statements.

Debrief: Informal information exchange session designed to improve team performance and effectiveness through lessons learned and reinforcement of positive behaviors.

DESC Script: A constructive approach for managing and resolving conflict.

Handoff: The transfer of information (along with authority and responsibility) during transitions of care across the continuum. It includes an opportunity to ask questions, clarify, and confirm.

Huddle: Ad hoc meeting to re-establish situational awareness, reinforce plans already in place, and assess the need to adjust the plan.

In situ simulations: Trainings that allow health care teams to practice teamwork and communication and clinical management skills in a team's usual work setting with typically available resources and equipment.

SBAR (Situation, Background, Assessment, Recommendation and Request): A technique for communicating critical information that requires immediate attention and action concerning a patient's condition.

Shared mental model: Results from each team member maintaining situation awareness and ensures that all team members are "on the same page."

Situation awareness: The state of "knowing what's going on around you."

Situation monitoring: The process of continually scanning and assessing a situation to gain and maintain an understanding of what's going on around you.

TeamSTEPPS: An evidence-based framework for teamwork and communication that optimizes team performance across the health care delivery system.

Two-challenge rule: Empowers all team members to "stop the line" if they sense or discover an essential safety breach.

Adapted from TeamSTEPPS® 2.0 Pocket Guide

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

Case Study

THE NEED TO CHANGE

Over the last 10 years, deliveries in the labor and delivery (L&D) unit at the University of Arkansas for Medical Sciences (UAMS) Medical Center have increased from 2,100 to 3,600 per year. To accommodate the increased demand for services, the hospital has hired many new nurses, most of whom have been recent nursing school graduates. These new staff lacked knowledge and experience on best practices for electronic fetal monitoring (EFM) and oxytocin administration. The implementation of the Agency for Healthcare Research and Quality (AHRQ) Safety Program for Perinatal Care (SPCC) at UAMS targeted these two topics because they complement each other, and because standardizing these practices among new nurses and resident physicians could improve patient safety.

The UAMS Quality Improvement Department has been involved in many internally and externally sponsored patient safety and quality improvement (QI) initiatives, including the Comprehensive Unit-based Safety Program (CUSP) for central line–associated bloodstream infections and a diabetes care initiative. However, the hospital had no prior experience with patient safety initiatives specific to the women's health service line or the L&D unit in particular. Joining the SPPC provided an opportunity to refocus the L&D unit around patient safety and offered a structured way to review and change current practices.

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES MEDICAL CENTER AT A GLANCE

- **438–bed academic medical center in Little Rock, AR**
- **14 labor and delivery beds**
- **Level III neonatal intensive–care unit**

THE IMPLEMENTATION TEAM

Selecting and implementing the two topics involved a large multidisciplinary team, including the women's health service line nursing director, a perinatal advanced practice nurse champion, staff nurses, the L&D nurse manager, QI coordinators, an obstetrician/gynecologist physician champion, an anesthesiologist physician champion, a resident physician, staff educators, a patient safety officer, and other ad hoc members such as a physician informaticist and pharmacists. Senior executives—including the medical director of obstetrics, the hospital's quality director, and the chief executive officer—supported the effort. They served as resources for any issues that arose, provided approvals needed during implementation, and were kept informed of the implementation team's progress throughout the Program. The implementation team saw the initiative as an opportunity to create a platform for subsequent improvements in patient safety and care.

UNDERTAKING CHANGE

Standardizing Oxytocin Administration

Oxytocin is listed as a high-risk medication by the Institute for Safe Medication Practices and is used daily on the L&D unit. Common errors when administering it are typically dose related and sometimes involve a lack of timely recognition and appropriate treatment of excessive uterine activity and/or maternal hypotension. In an effort to minimize the risk of errors and standardize oxytocin administration during the intrapartum and postpartum periods, the implementation team decided to institute the practice of administering oxytocin via an intravenous infusion pump.

To this end, they took the following steps—

- Programmed intravenous infusion pumps hospitalwide for standard oxytocin administration;
- Created a physician order set within the electronic health record for oxytocin administration to establish a standard dosing protocol to reduce variability and risk of error; and
- Prepared standard oxytocin admixture and dosing, resulting in a 1:1 ratio delivery that eliminated the need for dosing calculation by nurses.

The team also required all staff to view the CUSP "Understand the Science of Safety" video. This requirement

> **"WE CREATED THE STRUCTURE WHERE THE RIGHT THING TO DO WAS THE EASY THING TO DO."**

helped reinforce staff commitment to patient safety and gain support for the new processes and protocols. As one UAMS physician noted, "We created the structure where the right thing to do was the easy thing to do, and this was very powerful." In addition, the implementation team placed postpartum oxytocin administration reference cards in each L&D room. Together, these practices resulted in standardized, servicewide adoption for postpartum oxytocin administration.

Enhancing Safe EFM

To continue efforts toward standardized practices, nurse educators developed online educational modules to teach nurses the correct nomenclature for EFM documentation and communication with other L&D staff; these modules are now required for all new nursing staff. In addition, unit leadership offered an increased number of fetal monitoring courses based on a curriculum from the Association of Women's Health, Obstetric, and Neonatal Nurses. Courses are offered quarterly to new hires and existing staff. Training for anesthesia resident physicians now also incorporates standardized EFM nomenclature, and the UAMS College of Nursing has added EFM training to their curriculum as well. As one nurse noted, "Having a standardized way we approach these two topics [oxytocin administration and EFM] is a good way to orient new nurses and residents."

Through these EFM trainings, all unit staff have learned the same EFM nomenclature and are now able to more clearly communicate with and report to other staff members. L&D staff now use the same language to accurately interpret and document EFM strips. Because of the improved communication, staff members on the L&D unit now feel that they are "on the same page."

Program Challenges and Opportunities

The biggest challenge to program implementation was juggling the schedules of resident physicians and finding time to include them in the in situ simulation trainings. As a physician leader noted, "We recognize the importance of teaching our residents about patient safety, yet we struggle with this because they already have so much on their plates. We could use some discussion with others who are also trying to figure this out." In the future, the UAMS team will coordinate with the residency program to integrate patient safety and QI work into the residents' schedules.

The implementation team also acknowledged the difficulty of prioritizing QI and patient safety during a time when they experienced an increase in patient load and higher risk patients. A physician leader noted, "We have to do a better job of fitting this important quality improvement and patient safety work in when we are working at full capacity. We expanded our patient volume and are caring for more high-risk patients than ever before, so it is even more crucial that we do things right…it's a balancing act to get our work done and work to improve."

"WE EXPANDED OUR PATIENT VOLUME AND ARE CARING FOR MORE HIGH-RISK PATIENTS THAN EVER BEFORE, SO IT IS EVEN MORE CRUCIAL THAT WE DO THINGS RIGHT."

At the beginning of the Program, the implementation team also found it difficult to extract the data they needed to assess current processes related to the safe use of EFM and oxytocin administration, against which they could measure the progress of the implementation. To rectify the situation, they held several meetings with information technology staff and incorporated check boxes into their electronic health record system for documentation of EFM categories using standardized nomenclature and processes related to oxytocin administration during the third stage of labor. This change also automated data outputs and reports.

ENGAGING STAFF IN TEAMWORK AND COMMUNICATION TRAININGS

Although L&D unit staff had prior experience with teamwork and communication programs, none of those efforts were sustained. TeamSTEPPS® was implemented from 2009 to 2013, but the Program ended due to a sharp increase in patient volume and staff workloads. Likewise, the unit staff tried to implement a simulation program several years ago, but the effort was abandoned because of logistical challenges and difficulties related to holding the trainings at the simulation center and arranging the training for night shift staff.

The team resurrected past efforts and set an ambitious goal to train all unit staff in TeamSTEPPS. They offered a condensed 2-hour TeamSTEPPS refresher course for staff who wanted to participate. In situ simulations focused on teamwork and communication tools and techniques, specifically the SBAR technique, huddles, and debriefs. Simulations covered uterine tachysystole and included oxytocin management and electronic fetal heart rate interpretation, emergent cesarean section transfer to the operating room, and a mock code to simulate a cardiac or pulmonary arrest situation in an obstetric patient.

In Situ Simulation: Providing a Safe Learning Environment

The implementation team sought to make in situ simulation trainings fun. The trainings were introduced gradually, first by way of miniature simulations and debriefings. In these, the L&D unit staff began a simulation and allowed it to continue for a short period of time, then stopped the simulation and reviewed it with the staff. After a while, the team was instructed to run through the whole simulation, and a debriefing session was held at the end. This "ramping up" approach to simulations helped to gain staff buy-in and demonstrate the value of the simulations. It also reduced staff anxiety about the simulations. To accommodate the schedules of L&D unit staff, simulations were scheduled during shift changes to include staff who worked on day and night shifts. The hospital's simulation center provided assistance with preparation and debriefings.

The implementation team used a unitwide newsletter to keep staff informed and committed to in situ simulation. Eighty percent of the L&D nursing staff, as well as the obstetrician/gynecologist physician champion and resident physicians, participated in simulations during the Program. Participation was mandatory for nursing staff, and simulations were scheduled at times convenient for the majority of staff. Simulation facilitators were mindful not to present the simulations as just another mandatory low-level task. Instead, they set a collaborative and helpful tone: "We want to improve how we do things around here; we want to make it better. We're starting out too [learning how to facilitate these simulations], so help us help you." This reduced resistance to participation, and staff soon came to appreciate the safe learning environment.

Over time and with repetition, the facilitators felt more comfortable and more efficient in conducting simulations. As a nurse facilitator noted, "We now know how to plan and run the simulations and value it as an effective teaching strategy. It is a safe way to deal with high-risk situations. The simulations help tremendously with orienting new staff and provide an opportunity for them to ask questions."

"WE GAVE NURSES THE AUTHORITY TO 'STOP THE LINE.' THIS WAS A VERY DIRECT WAY TO CHANGE OUR CULTURE—AND HELP US THINK MORE WITH A TEAM MENTALITY."

The Benefits

As a result of the SPPC, the implementation team was able to incorporate more resources to conduct in situ simulations than in earlier efforts and develop a more organized framework to ensure the success of the renewed teamwork training and simulation efforts. TeamSTEPPS training and simulations enhanced teamwork and created a sense of empowerment among staff, especially among the nurses. It also helped to improve the staff's confidence and cross-unit communication: for example, direct communication between obstetricians, anesthesiologists, and pediatricians is now a standard practice in planning patient care. From the perspective of the implementation team, staff are now more comfortable reporting patient safety issues in the unit, and the decision-making process on the unit has moved from a hierarchical approach to a team-based approach: "By standardizing how we give oxytocin and by offering team-based approaches to communication, we empowered our nurses to prevent the induction of labor in mothers who were near term. We gave nurses the authority to 'stop the line.' This was a very direct way to change our culture—and help us think more with a team mentality."

GOING FORWARD

Participation in the SPPC provided a wonderful opportunity to organize and methodically work to improve perinatal care and safety. The changes made to oxytocin administration and EFM are now hard-wired into L&D unit policies and procedures; according to unit staff, the policies are now internalized as "how we do things around here." The UAMS team continues to conduct in situ simulations quarterly.

To formalize their commitment to ongoing quality and safety improvements, the UAMS implementation team re-branded themselves as the Women's Health Service Line Safety Committee. UAMS leadership approved new priorities for the women's health service line as part of a strategic 5-year quality and safety plan, ensuring support and resources for further improvements.

Because of the visible improvements prompted by the implementation of initiatives covering the initial two topics, the committee has decided to cover a new topic, obstetric hemorrhage, as the next area for improvement. The committee also plans to institute annual TeamSTEPPS training for new staff and for existing staff who have not yet participated in training.

KEY STRATEGIES FOR SUCCESS

Support from Medical Center's QI Department. The hospital QI helped navigate the change process, organize and guide the team, distribute materials, schedule and facilitate meetings, keep the team on target, and track progress.

Leadership commitment and support. The hospital and departmental leadership helped assure the Program team of ongoing support and guidance through open communication and engagement in the trainings and other program activities.

A multidisciplinary implementation team. This team included members with a wide range of expertise and knowledge. Involvement from physicians and pharmacy staff was critical in getting new order sets written for oxytocin and new policies and procedures for dispensing oxytocin to the unit.

Engagement strategies. The staff facilitating in situ simulations and providing staff education made the process fun and engaged staff through ongoing discussions about this program and by providing updates in a unitwide newsletter.

ONSLOW MEMORIAL HOSPITAL

Case Study

IMPLEMENTATION ENVIRONMENT: WE WANT TO BE THE SAFEST PLACE TO HAVE A BABY

Onslow Memorial Hospital (OMH) is located in Jacksonville, North Carolina, a midsized city with a population of about 70,000 near U.S. Marine Corps Base Camp Lejeune and New River Air Station. OMH is the only civilian hospital in the county.

As is typical of organizations in transient military communities, OMH has a high rate of staff turnover. Hospital management noticed that this lack of consistency led to a lack of communication, which in turn led to safety issues.

Hospital management knew they needed to make a change. As a hospital leader noted, "If we don't fix the problems...we're not going to get out of the situation. ...It's just going to cycle back around again."

In order to "be the safest place for women to have their babies in the community," the OMH administration undertook several quality improvement activities. The hospital joined the North Carolina/Virginia Hospital Engagement Network (NoCVA) and the Perinatal Quality Collaborative of North Carolina, and later the Agency for Healthcare Research and Quality (AHRQ) Safety Program for Perinatal Care (SPPC), to sustain the changes and initiate new improvements. In the words of the local SPPC facilitator, "my goal was to engage staff and to hardwire some of these best practices."

ONSLOW MEMORIAL HOSPITAL AT A GLANCE

- **162-bed community hospital in Jacksonville, NC**
- **10 labor and delivery beds**
- **Level III neonatal intensive-care unit**

IMPLEMENTATION TEAM

The core implementation team included the assistant nurse manager for labor and delivery (L&D) and postpartum, the director for maternal and child services, the senior vice president of nursing/chief nursing officer, a physician champion, two staff nurses, and the assistant manager for nursery and pediatrics. The L&D nurse manager facilitated program activities, and the director for maternal and child services and the physician champion provided support.

Despite high staff turnover on the L&D unit, the OMH leadership team has had a long tenure, and this stability led to an organizational commitment to a culture of safety. OMH leaders recognized that in order to overcome the challenges that arise from the frequent staff changes, they would need to hardwire teamwork and efficient communication into the hospital's culture.

Decisionmaking at this hospital is based on what is the best for the patients. An OMH senior leader noted, "What I share with my [unit] leaders is that, just on a day-to-day basis, as long as you're making the decision that's in the best interest for the patient, you'll always have 100 percent of my support." As confirmation of this commitment, the senior leadership provided guidance and support to the implementation team and held them accountable for program implementation. Hospital leadership received regular updates during bimonthly obstetrics and gynecology committee meetings where the local facilitator provided updates on program activities and debriefed on near-misses or adverse events.

The implementation team was bolstered by a highly engaged physician champion who is well-respected at the hospital and in the community and who chairs the hospital medical staff committee. The physician champion's stature and authority facilitated the engagement and buy-in of other physicians, especially during the introduction of new protocols and procedures.

The implementation team found that many of the SPPC focus topics would benefit their unit. However, they also knew that they could not tackle multiple topics at once, so they selected those that were most feasible to implement on their unit: safe administration of magnesium sulfate, and safe practices and teamwork related to care provided during deliveries complicated by shoulder dystocia.

"WHAT I SHARE WITH MY [UNIT] LEADERS IS THAT, JUST ON A DAY-TO-DAY BASIS, AS LONG AS YOU'RE MAKING THE DECISION THAT'S IN THE BEST INTEREST FOR THE PATIENT, YOU'LL ALWAYS HAVE 100 PERCENT OF MY SUPPORT."

STANDARDIZING MAGNESIUM SULFATE ADMINISTRATION

In order to decrease the chance of possible harm during labor, it was important to standardize protocols for the administration of magnesium sulfate. A unit nurse explained, "It's a dangerous drug that we need to be respectful of, so having a plan and knowing it is always better than going on the fly." As a first step, the local facilitator and physician champion met to review the evidence and discuss the best practices. They then designed a protocol for administration and presented it to the governing board of physicians for approval. Changes included—

- starting the magnesium in the closest line to the hub;
- labeling the tubing in a standardized manner;
- using a 4-gram load and then 2 grams per hour; and
- performing hourly maternal assessments, including monitoring of deep tendon reflexes and respirations.

To support the new protocols, OMH purchased new intravenous pumps and added independent verification of the dose and line setup by instituting double checks at shift changes and during times of dosing changes. The OMH pharmacy changed the standard magnesium sulfate concentration dispensed to the 500 mL bag instead of the 1,000 mL bag used before.

The implementation team deployed multiple strategies to institutionalize the new protocols during staff meetings

and utilized an internal shift scheduling and communication tool, a weekly newsletter, and other educational opportunities.

To reinforce the new practices and protocols for magnesium sulfate administration and monitoring, all staff—including nurses, physicians, technicians, secretaries, and scrub technicians—were required to participate in in situ simulations. Physicians at OMH were required to participate in at least one in situ simulation per year. Scheduling these trainings in coordination with physician office managers helped ensure physician participation.

IMPROVING RESPONSE TO SHOULDER DYSTOCIA

The implementation team also sought to improve the care provided during deliveries complicated by shoulder dystocia. They first identified areas that needed improvement and then developed specific tools, such as the Shoulder Dystocia Debriefing Form (see page 7). The team introduced the new tools during staff meetings and via email, and reinforced the changes through in situ simulations.

In addition to the debriefing form, the OMH team developed a tool for documenting critical events during a delivery complicated by shoulder dystocia, such as time of recognition and times of maneuvers attempted to resolve the dystocia. The team placed the tool in all L&D rooms and worked with the hospital information technology staff to integrate the tool into the hospital's electronic health record.

BUILDING ON MOMENTUM

After these successful implementations, the team looked for ways to improve other clinical areas. They updated their checklist for emergency cesarean sections, streamlined their oxytocin administration protocol to incorporate key safety elements, updated electronic fetal monitoring policies to promote standardized language for documenting and communicating findings, and standardized carts and protocols for responding to obstetric hemorrhage. To improve the safe use of oxytocin, the team implemented a hard-stop policy prohibiting its use for elective induction prior to 40 weeks gestation. In addition, they established a uniform premixed solution, standardized the dosing protocol, established parameters for maternal and fetal assessment during use, implemented independent checks by another staff member when starting and restarting, and used TeamSTEPPS® techniques for communication among clinical staff.

A fortunate coincidence led to another policy change. One day, a woman in labor arrived at the hospital emergency room, but the unit staff only learned of her arrival by chance. This event demonstrated the need for a more coordinated and rapid response to obstetric patients arriving at the emergency room. As a result, the team implemented a code specific to obstetric medical emergencies and a policy that guides the obstetric staff response when the code is activated.

ROUTINIZING NEW PRACTICES THROUGH TEAMSTEPPS AND IN SITU SIMULATION

Onslow L&D staff began using TeamSTEPPS and in situ simulations two years prior to the SPPC. After the hospital joined the Program, the assistant nurse manager of L&D and the assistant nurse manager of the nursery took the online TeamSTEPPS Master Training course and rolled out the Program to the L&D, pediatric, medical-surgical and postpartum units and the nursery. All nurses received 2.5-hour mandatory TeamSTEPPS training and were required to participate in in situ simulations. According to OMH policy, missed mandatory trainings count as a work absence. Such requirements encouraged all unit staff to attend and get onboard quickly.

OMH incorporated TeamSTEPPS techniques into their daily practice without a single TeamSTEPPS master trainer on staff. The L&D unit had implemented TeamSTEPPS as part of the NoCVA collaborative before joining this program and routinely used SBAR, briefs, debriefs, huddles, hand offs, check-backs, and callouts. Likewise, unit staff had conducted in situ simulations in the past, but joining the SPPC helped the unit solidify its approach and refocus on practicing teamwork and communication.

Before each simulation, staff were required to review the TeamSTEPPS pocket guide, sign the confidentiality agreement, and get a refresher on the TeamSTEPPS tools and techniques. Simulation facilitators recorded all the simulations so that participants could review their performance and identify opportunities for improvement. According to the nurse manager, these trainings are now a common part of practice at OMH: "The simulation is like a second nature now, and everybody expects it...it's something that's ingrained now."

Reinforcing TeamSTEPPS through in situ simulations has empowered the nursing staff to speak up and resolve conflicts more easily, and has helped to improve staff satisfaction. "TeamSTEPPS has definitely helped with empowering the nurses to feel more comfortable with working as a team with the [medical staff] providers (...) versus nurses taking just the role of fulfilling orders and translating information assessments," the local facilitator observed.

TeamSTEPPS was particularly helpful to the new nurses who had less than 3 years of working experience. Because the unit does not have an in-house physician at all times, communication between nurses and physicians often occurs over the phone. The new nurses especially benefited from the use of closed-loop communication and challenging authority techniques, including language such as *I am concerned, I am uncomfortable, this is a safety issue* (CUS) and employing the two-challenge rule when stating their concerns about a physician's orders or decisions.

"THE SIMULATION IS LIKE SECOND NATURE NOW, AND EVERYBODY EXPECTS IT...IT'S SOMETHING THAT'S INGRAINED NOW."

Patient satisfaction scores reflected improvements in teamwork and communication within clinical teams; scores for the L&D unit increased such that they are now higher than for any other hospital unit. These visible improvements further solidified OMH leadership's commitment to roll out TeamSTEPPS and an in situ simulation program to other hospital units: "We had already started and planned on rolling it out, but [patient satisfaction and staff satisfaction] just validated it. TeamSTEPPS definitely made a difference."

The impact of staff training through in situ simulation became apparent in responding to a recent shoulder dystocia emergency. "We had a 2-minute-and-49-second shoulder dystocia, but we had a baby that had a good outcome and a mom that had a good outcome. I specifically saw all the things that we had worked on. (...) Anesthesia was already on the unit, we had a provider and a midwife (...) We had nursery there. (...) There were stools in the room; we went through all of the maneuvers that we were calling out the times. We debriefed right afterwards with the physician."

ENGAGING PATIENTS

The L&D unit staff at OMH use several TeamSTEPPS techniques to engage patients. For example, the team conducts each shift report in front of the patient and concludes the report by asking whether the patient or family has questions or concerns. Staff conduct rounds at least hourly to identify patient needs and changes in status. Patients are also included in debriefings during which the care team asks the patient and family what went well and what the team could improve on.

Many patients in this community are young, single, or first-time parents, which can create certain engagement challenges: because some families have intricate webs of family relationships, it can be difficult to identify which individuals are appropriate to engage, debrief, or share health-related information with. Histories of sexually transmitted diseases, domestic violence, or substance abuse can further complicate the issue. For example, providing instructions for appropriate care for a baby with a neonatal abstinence syndrome in the presence of other family or community members may not be appropriate or acceptable to the patient, and maintaining patient confidentiality has to take precedence. OMH staff continue to seek ways to address these complex challenges.

Last, meeting the needs of patients with low literacy provides continuous challenges in patient-provider communication. According to unit nurses, they sometimes have to use "street" language to ensure that the patient understands important health information, because even a fourth-grade reading level can be too high.

PROGRAM IMPACT ON ORGANIZATIONAL CULTURE

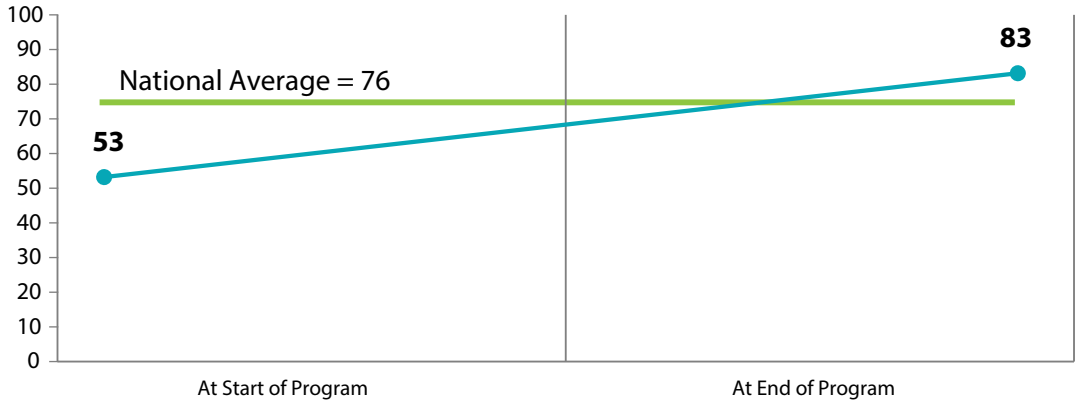
Participation in the SPPC had a measurable impact on unit safety culture, as shown in the graph on page 6.

"WE HAD A 2-MINUTE-AND-49-SECOND SHOULDER DYSTOCIA, BUT WE HAD A BABY THAT HAD A GOOD OUTCOME AND A MOM THAT HAD A GOOD OUTCOME. I SPECIFICALLY SAW ALL THE THINGS THAT WE HAD WORKED ON."

The unit increased its overall patient safety score on the AHRQ Hospital Survey on Patient Safety Culture from 54 to 83 percent, exceeding the national benchmark of 76 percent.[1] The unit's patient safety scores consistently improved across all 12 composite measures. For example, Handoffs and Transitions increased from 39 to 71 percent, Nonpunitive Response to Errors increased from 17 to 44 percent, Feedback and Communication About Errors increased from 45 to 75 percent, and Communication Openness increased from 43 to 76 percent. Based on the successes and visible improvements in the safety culture in L&D, the unit facilitators are leading the implementation of TeamSTEPPS across the entire hospital.

[1] Sorra J, Famolaro T, Yount ND, et al. Hospital Survey on Patient Safety Culture 2014 Comparative Database Report, Appendixes, Parts II and III (Prepared by Westat, Rockville, MD, under contract No. 290201300003C.). AHRQ Publication No. 14-0019. Rockville, MD: Agency for Healthcare Research and Quality; March 2014.

Overall Patient Safety Score on Hospital Survey on Patient Safety Culture



KEY STRATEGIES FOR SUCCESS

A shared goal and mission. All staff shared the common goal and mission for their hospital to be "the safest place to have a baby."

Stable and committed leadership. This provided steadiness in a transient community and helped to institute changes that were sustained and continued to evolve over time.

An accountable implementation team. Leadership held the implementation team accountable and supported participation in new quality and safety initiatives.

A physician champion with stature and credibility within the unit, hospital, and community. This facilitated buy-in of other physicians.

Previous experience with quality improvement initiatives. This provided a foundation for SPPC activities.

Mandatory TeamSTEPPS and in situ simulations trainings. These trainings reinforced new clinical protocols and practices as well as teamwork and communication techniques among all unit staff.

Integration of new protocols and procedures within the electronic health record. This facilitated the incorporation and documentation of new practices and procedures in the unit's clinical workflow.

SHOULDER DYSTOCIA DEBRIEF FORM

To be completed by the Labor and Delivery (L&D) Team after all shoulder dystocia deliveries. Please ensure all members of the team are given an opportunity to speak.

What went well? (check all that apply)

- ☐ Pre-case planning
- ☐ Effective communication
- ☐ Task assistance
- ☐ Shared workload
- ☐ Maintained shared mental model
- ☐ Use of resources
- ☐ Call outs
- ☐ Check-backs
- ☐ SBAR
- ☐ Brief
- ☐ Huddles
- ☐ Patient/family involved

Specifics/Comments:

What could be improved?

Improvement can be made in the following areas (check all that apply):

☐ Clinical ☐ Process ☐ Team ☐ Patient-centered care

Specifics/Comments:

Any follow-up items?

Specifics/Comments:

WINNIE PALMER HOSPITAL FOR WOMEN & BABIES

Case Study

GIVING TEAMSTEPPS® ANOTHER TRY

Winnie Palmer Hospital for Women & Babies (WPHWB) is an 11-story hospital entirely devoted to caring for women and babies and is home to one of the nation's largest neonatal intensive-care unit (NICU). WPHWB, which delivers more than 14,000 babies per year, is well equipped to provide specialty care to obstetrical patients from throughout the State of Florida. Across the street and connected by a two-story sky bridge, Arnold Palmer Hospital for Children provides pediatric care and shares specialists and diagnostic resources with WPHWB. Based on root cause analyses, WPHWB recognized the need to improve clinicians' teamwork and communication within and across units. Root cause analyses of adverse events and near-misses (events that did not produce patient injury) revealed that 60 percent were due to lack of teamwork and communication, consistent with Joint Commission sentinel event data. For example, although all clinicians were properly trained to respond to obstetric emergencies, they lacked a formalized process and communication tools to respond in a coordinated manner. This often resulted in too many staff responding to an emergency without clear roles, increasing the risk of wasting critical time. Although each patient had a thoughtful care plan, the staff lacked the processes and tools to communicate a change in the plan of care. This resulted in sometimes having the same patient treated based on different plans of care.

WINNIE PALMER HOSPITAL FOR WOMEN & BABIES AT A GLANCE

- **320-bed maternity hospital in Orlando, FL**
- **27 labor and delivery beds**
- **Level III neonatal intensive-care unit**

WPHWB's labor and delivery (L&D) unit tried to implement the TeamSTEPPS program more than 10 years ago but failed to achieve sustainable improvements. Although the materials offered a great value, the implementation approach did not meet the realities of the unit: the sheer volume of materials and training required too much time from busy clinicians. However, because poor communication remained the top cause of near-misses and adverse events, the leaders at WPHWB decided to give TeamSTEPPS another try. In Fall 2014, unit leadership decided to enroll in the Agency for Healthcare Research and Quality (AHRQ) Safety Program for Perinatal Care (SPPC) because it targeted teamwork and communication in concert with multiple clinical areas of focus to meet their local needs.

Getting Started

WPHWB runs multidisciplinary collaborative groups that select and prioritize large quality improvement projects. These collaboratives review potential projects to ensure that there is adequate support from both physicians and nurses, assess necessary resources, help identify internal change agents, and assist in gaining physician buy-in. The obstetric care collaborative reviewed several national quality improvement projects and selected the SPPC because it met their local needs best and integrated teamwork and communication with safety improvements targeting obstetric emergencies. Thus, by the time the SPPC local facilitator—the nurse leader responsible for program implementation on the unit—began to assemble her team and engage senior executives, she already had the backing of change leaders throughout the hospital.

Once program implementation began, the original local facilitator realized it would require more time and attention from her than initially anticipated, so she identified a project manager who was a seasoned L&D nurse, well respected by peers, and well aware of unit dynamics. The project manager transitioned into the local facilitator role and worked approximately 20 hours per week, collaborating with the nursing operations manager and the learning specialists to plan and roll out the Program. They received full support from the hospital president, the chief quality officer (CQO), and the director of obstetrical anesthesia.

Based on the challenges the hospital staff had experienced when rolling out TeamSTEPPS in the past, the implementation team decided to condense the materials into a 2-hour training course that met its local culture and needs. Reflecting on her vision for the TeamSTEPPS training, the local facilitator recalled, "I didn't want them to see [TeamSTEPPS] as the flavor of the day or the flavor of the month and think it's going to go away." The course focused on helping the staff utilize TeamSTEPPS procedures and tools, such as SBAR, CUS, DESC, briefs, huddles, debriefs, and escalating up the chain of command.

"I DIDN'T WANT THEM TO SEE [TEAMSTEPPS] AS THE FLAVOR OF THE DAY OR THE FLAVOR OF THE MONTH AND THINK IT'S GOING TO GO AWAY."

Later, the facilitators gradually introduced other tools—such as "I Pass the Baton," check-backs, and the two-challenge rule—through weekly "TeamSTEPPS Tuesdays" e-newsletters and in situ simulation.

First, the implementation team strategically began training nurse managers, assistant nurse managers, and other potential change agents. Next, they began rolling out TeamSTEPPS training to all 300 unit nurses. The trainings were mandatory, and nurses received compensation to attend the 2-hour training. The classes were conveniently provided on the unit floor, and other mandatory trainings were put on hold to sustain the enthusiasm and momentum for this program. "It was something that I just knew was going to be the best thing for our unit and our patients, so I made it happen," said the nurse operations manager. As result, the team trained more than 95 percent of all unit nurses.

The last round of trainings focused on physicians. To spread the word, implementation team members got on the agenda of department meetings, quality meetings, and any other meetings where they could discuss TeamSTEPPS and share some of its tools. As a result, they successfully gained buy-in and stimulated interest from department chairs and other leaders throughout the hospital, stirred widespread interest in the training,

and trained all of the hospitalists and residents. The last challenge was to train 150 private obstetrics and gynecology physicians. Because this group was the most challenging to include in the trainings due to their schedules, the unit team met with providers for an informal 30-minute overview of the Program and taught one provider and one tool at a time, as scheduling allowed. Physician training is an ongoing process that is being supported by the posting of TeamSTEPPS newsletters in all provider areas, including the providers in simulation drills, and updating them at provider meetings.

The CQO, an actively practicing obstetrician at WPHWB, played an important role in facilitating physician engagement. He recognized that it would take time to build support for the initiative, and for physicians and staff to improve their communication skills. As he put it, "culture doesn't change one day to the other." And so, he modeled the new behaviors by initiating huddles and debriefs during and after a cesarean section and requesting reports in SBAR format. He also emphasized the importance of maintaining a comfortable learning environment. He noted, "I'm never confrontational—that never works. So it's just an explanation, education, and give it another try. That's how we do it, a little bit at a time."

Putting the New Skills to Practice Through In Situ Simulations, Debriefings, and Huddles

Although some staff were already familiar with TeamSTEPPS, the local facilitator understood that basic knowledge of a tool does not always translate into its mastery and consistent use. For example, although most staff knew what SBAR was, they did not necessarily know how to use it properly or confidently. Unit nurses particularly struggled with the "recommendation" part of SBAR, often lacking the confidence to give a physician their recommendation. During one instance, a staff nurse thought she had conveyed to the physician that she needed him to come to the bedside right away; however, the provider did not perceive the message as urgent and did not respond right away, which escalated the situation into an emergency.

After initial TeamSTEPPS trainings, the local facilitator created short videos demonstrating examples of poor and effective communication. The first video showed a comical account of a nurse giving a shoddy report to a doctor; the humor resonated with the staff and made the episode memorable. The second video showed a nurse using TeamSTEPPS communications tools to provide a more effective report to the doctor. A training session after the videos provided an opportunity to practice and helped instill the confidence nurses needed to deliver the recommendation component of SBAR.

Previous trainings and simulations had used a high-tech Noelle birth simulator that focused only on honing clinical skills. This time around, WPHWB used in situ simulation to hardwire TeamSTEPPS into the behavior of staff members on the unit. The hospital developed several simulation scenarios that included barriers to successful communication, which required teams to call the charge nurse, the assistant nurse manager, or physician and use the SBAR tool to communicate their current situation. As the scenarios unfolded, the nurses needed to effectively communicate the sense of urgency and escalate the situation up the chain of command.

The most visible and valuable improvements in unit teamwork and communication were brought about by unitwide safety huddles. The safety huddles were designed to establish situational awareness and reinforce plans of care already in place by providing unitwide updates on high-risk patients following a shift change. This cross-disciplinary huddle is a 5-minute gathering on the L&D unit attended by all key staff from the L&D unit, the intensive-care unit (ICU), the NICU, anesthesia, and the operating room. At first, the local facilitator was concerned about the feasibility of covering so much information in a short span of time and led some of the huddles for the first week. However, after 2 weeks of practice, unit staff began to

routinely attend and independently facilitate the 5-minute huddles, succinctly reporting on their highest-risk patients. From then on, the local facilitator and her nurse champions continued to check in to ensure that the huddles were well attended and ran smoothly and efficiently at the beginning of each shift.

Safety huddles also allowed staff to come up with a standardized approach for communicating changes in patient care plans. In the past, unit nurses reviewed a plan of care for each patient every morning, but the nurses did not have a standard process for communicating with other providers when care plans changed. This led to potentially dangerous situations in which different clinical staff might proceed with different plans of care for the same patient. The new safety huddles helped to mitigate this problem by providing a platform for communicating changes in care plans to everyone working on the unit.

To further instill a culture of safety, the implementation team also focused on improving the unit's debriefing process. During a previous initiative, the unit tracked how many debriefing forms were filled out, which did not yield desired improvements and placed emphasis on the piece of paper over the debriefing conversation. The nurses viewed this activity as another paperwork requirement and not something that made care better for the next patient. Physicians also did not see the value in the exercise. Through the SPPC, the local facilitator also instituted a 5-minute debriefing conversation following every near-miss or adverse event. These conversations addressed three key questions: (1) What went well? (2) What didn't go well? and (3) What can the team do better next time? Although the implementation team restructured the debriefing form to match the key questions, the team placed most of the emphasis on helping the staff understand the value of the debriefing conversation itself and not on how many debriefing forms were completed each day. To keep the staff accountable for debriefing, the assistant nurse managers were responsible for pulling everyone together to debrief any unexpected outcome if the staff did not independently initiate a debriefing.

SAFE PRACTICES RELATED TO ELECTRONIC FETAL MONITORING: MANAGING CATEGORY II TRACINGS

Prior to enrolling in the SPPC, all L&D nurses and physicians took a mandatory online course tied to re-credentialing through Advanced Practice Strategies on fetal assessment and monitoring, which included training on the National Institute of Child Health and Human Development (NICHD) terminology. This standardized language for communicating about electronic fetal monitoring (EFM) provided a strong foundation for the L&D unit. As a first step toward continuing to improve processes related to the use of EFM through the SPPC, a team consisting of the local facilitator and other unit leaders assessed the evidence base of the existing policy. The second step was to standardize the unit's approach to handling the most challenging type of EFM tracings, category II tracings. The team accomplished this by revising and revamping the oxytocin management checklist[1] (see page 9), which the team refers to as the "Oxytocin Stoplight." Prior to the Program, the stoplight was introduced and posted around the unit, but staff did not interpret and implement it in a standardized way until it was paired with TeamSTEPPS tools. The unit nurses had no problems understanding how to handle the green and red categories, but the yellow category, which involved category II tracings, was problematic because it required the nurses to interpret the tracings, make decisions, and communicate those decisions with other team members, including the physician. This was exacerbated by the fact that, over the years, clinician training regarding the management of and terminology for category II tracings has changed, so clinicians had been using a variety of management approaches. This variation created a risk of both time lags in patient care and miscommunication among the care team.

The unit implemented an algorithm that standardized each step in the management of a patient with a category II

[1] WPHWB developed the oxytocin stoplight based on the 2009 American Congress of Obstetricians and Gynecologists Practice Bulletin Number 106, "Intrapartum Fetal Heart Rate Monitoring: Nomenclature, Interpretation, and General Management Principles."

tracing by identifying each person's role and specifying when and how to engage the physician, how often to check on the patient, when to notify the assistant nurse manager, and when to notify the nursing operations manager. This algorithm included the use of TeamSTEPPS communication techniques and a clear notification of the chain of command as the situation escalated.

To standardize care and ensure that everyone worked together efficiently, it was essential to effectively engage multidisciplinary care teams—the obstetrics and gynecology providers, the in-house anesthesiologists, the certified registered nurse anesthetists (CRNAs), and the L&D nurses. Nurses now feel empowered to ask physicians about inconsistencies or variances in patient care, such as when oxytocin is switched off at a point inconsistent with standard guidelines.

The team practiced the use of the revised EFM policy through in situ simulations in groups of three nurses at a time. Simulation facilitators used an enlarged poster as a mockup of a real-time tracing, and nurses were required to communicate the changes they saw in the tracing and to escalate any issues up the chain of command. According to the facilitators, this technique was highly effective because it allowed novice nurses and seasoned nurses to work together in managing the situation.

CLARIFYING THE ROLES AND IMPROVING DOCUMENTATION IN RESPONSE TO OBSTETRIC EMERGENCIES

WPHWB also standardized its approach in responding to obstetric emergencies. In the past, too many clinicians would respond to an emergency, leading to confusion and unnecessary distractions. Using TeamSTEPPS principles, the team defined each person's role on each shift, so that if an emergency occurred, no time would be lost deciding who was to do what. Now, following each L&D safety huddle, all staff return to their pods, two identical halves of the unit with separate staff, and determine their roles in case of an urgent care situation or emergency. During an in situ simulation, staff determined that important time could be lost moving staff between pods to address emergencies, so each pod has a full set of designated responders (e.g., the recorder during shoulder dystocia). For example, the unit implemented an algorithm to identify who contacts whom, in what order, and at what time during a delivery complicated by shoulder dystocia. To improve shoulder dystocia documentation, the unit embedded popup windows into its electronic medical record to remind the responding staff to document key findings and care processes; for example, the nurse is prompted to enter the time between when the head was delivered and when the body was delivered. This improved the documentation of deliveries complicated by shoulder dystocia.

The local facilitator and other unit leaders also realized the need for a protocol allowing staff to activate a chain of command that reached the correct staff in an emergency. Under the protocol change, the bedside nurse notifies the rapid response nurse and attending physician. The rapid response nurse then alerts the charge nurse in the operating room. If a second attending physician is needed, the unit secretary calls for one. Establishing role clarity and a standard chain of command for these emergencies has saved time and reduced the risk of miscommunication.

In situ simulations provided a platform for practicing the revised process of responding to emergencies and working out the details. For example, simulations revealed that the charge nurse responsible for calling all necessary staff was experiencing delays because of inconsistency in communications with other units. The revised process requires the charge nurse to contact only the anesthesiologist, and the anesthesiologist is then responsible for bringing a CRNA to the room. As result of these changes, all staff know their role before they enter the room, reducing response time and the risk of miscommunication. The bedside nurse now focuses on providing immediate care to the patient and providing a report of the patient to responders, and not on orchestrating the response.

ENGAGING PATIENTS AND FAMILIES

WPHWB has a long history of patient and family engagement that preceded participation in SPPC. The hospital's patient advisory committee reviews all policies and educational materials from a patient perspective, and offers recommendations to improve the patient experience. The committee contributed to several safety improvements.

For example, the committee challenged an existing policy that limited family members in the delivery room to three at a time. In response, the unit changed the policy to a guideline of four to five people (with approval by the physician), and opened a dialogue concerning the times throughout labor when the family might be asked to step out, such as during the placement of epidural anesthesia or in case of an emergency.

Other changes involved standardizing the birthing plan for patients. Unit staff observed that many patients were arriving with their own birthing plans that had not been discussed with a physician. Some plans included requests for no intravenous line, no oxytocin, or no continuous EFM, which made it difficult for the patient's care team to create a safe plan of care. Often, the patient's birthing plan and the clinical team's plan of care contradicted each other, as in the case of a patient arriving for induction who had a birthing plan that clearly stated a preference against using oxytocin. This type of disconnect led to unhappy patients and unhappy physicians.

To address this challenge, a multidisciplinary collaborative team consisting of physicians, midwives, bedside nurses, the nursing operations manager, and the CQO designed a standardized birth plan template, which includes preselected options that the hospital and the physicians can safely accommodate and that all physician groups who practice at WPHWB have agreed to (see page 10). Now physicians discuss this plan with patients and use it to guide their care. The plan is available online, and many private physicians direct their patients to it.

The plan also became an educational tool, opening a dialogue between the patients and physicians about why and when oxytocin is used and why patients are asked stay on fetal monitoring when walking around the hospital. As a result, patients were empowered and felt safer because they were told of the rationale behind various decisions regarding their care—for example, that intravenous access is established for use in case of an emergency. Now, when a patient comes in with a plan that differs from the standard WPHWB birthing plan, the nurse asks whether she has talked to her physician about her proposed plan. These changes have greatly improved patient satisfaction.

EARLY IMPACTS

The most recent root cause analyses of adverse events and near-misses indicated that poor communication is no longer a root cause; in fact, near-misses and adverse events attributed to lack of teamwork and communication have dropped to nearly zero. The Program also helped to improve the safety culture within the unit, as evidenced by improved scores on several components of the AHRQ Hospital Survey on Patient Safety Culture[2] that exceeded the average for obstetric units nationally. As presented in the figure on page 7, the composite measure for Teamwork Within Units increased from 75 to 90 percent, exceeding the national benchmark of 76 percent. Organizational Learning and Continuous Improvement increased from 70 to 79 percent, Supervisor/Manager Expectations and Actions Promoting Patient Safety increased from 69 to 77 percent, and Management Support for Patient Safety increased from 64 to 74 percent. Teamwork Across Units and Hand-offs and Transitions measures decreased, which may be due to the fact that TeamSTEPPS was not yet rolled out to other units because these two measures assess transitions between units.

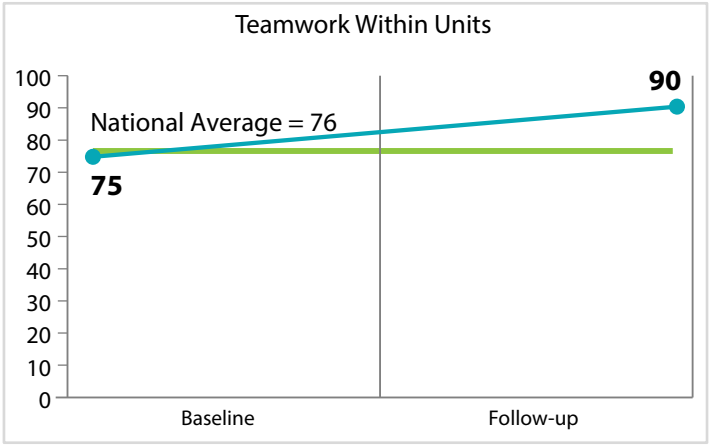
[2] http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/hospital/2014/hosp14tableb-1.html

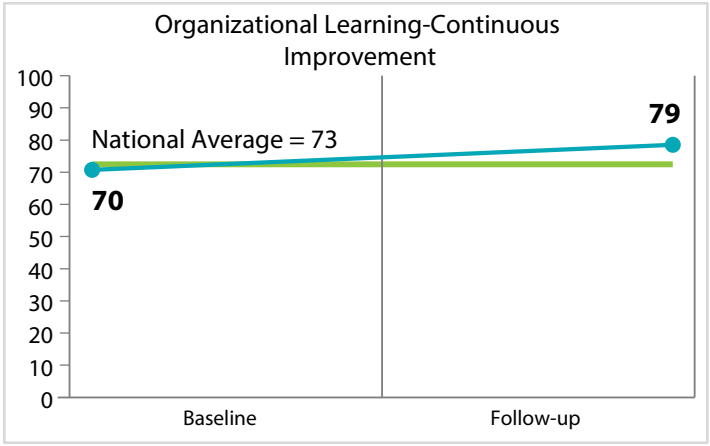
WPHWB also experienced an approximately 7 percent decrease in the Modified Adverse Outcome Index (MAOI)[3] after implementing the Program. One component of this index, the Unanticipated Operative Procedure measure, decreased by 51 percent. The AHRQ Patient Safety Indicator 18 (Obstetric Trauma–Vaginal Delivery with Instrument) decreased by 32 percent.

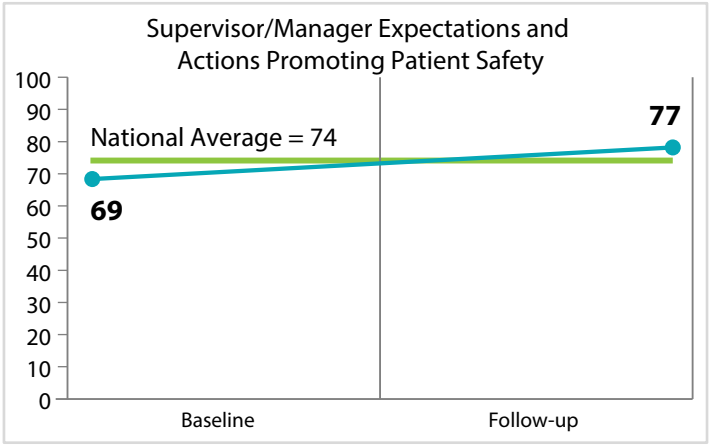
The Program also led to demonstrable improvements in staff engagement. The most recent employee engagement pulse survey scores indicated an increase of 19 percent since the unit joined the SPPC and are the highest scores in the unit's history. According to local facilitator, "[The unit nurses] just feel, first of all, valued, empowered. They feel like their relationships now with the physicians and between departments have been so much better since we've been able to get everybody together, debriefing." As a result of visible improvements in teamwork and communication, the local facilitator, with strong support from hospital leadership, is directing the rollout of TeamSTEPPS to other units at WPHWB and across the larger heath system. WPHWB is only rolling TeamSTEPPS out to one unit at a time, despite widespread demand, in order to ensure quality and sustainable success on each unit. The L&D local facilitator is coaching leaders on other units to teach TeamSTEPPS and run their own localized implementation.

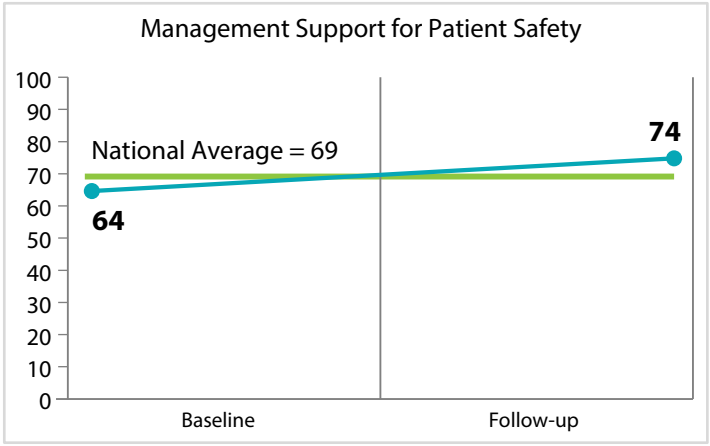
[3] The MAOI is the number of patients with one or more of the following nine identified adverse events as a proportion of total deliveries. The weighted adverse events included in the measure are in-house maternal death, in-house neonatal death, uterine rupture during labor, unplanned maternal admission to ICU, birth trauma, unanticipated operative procedure, admission to NICU, maternal blood transfusion, and third- and fourth-degree laceration. The index is modified due to the exclusion of Apgar 5 <7 cases.

Improved Scores in the Hospital Survey on Patient Safety Culture









KEY STRATEGIES FOR SUCCESS

An assessment of program fit. An in-house collaborative ensured the Program had buy-in from physician and nurse change agents and was not hindered by competing initiatives.

A local facilitator. The local facilitator was assigned 20 hours per week for SPPC planning, training, and implementation.

Revised and condensed TeamSTEPPS materials and training. This made the course relevant to the unit and feasible for busy clinicians. Additional video-based tools featuring local staff and role playing of correct and incorrect behaviors facilitated buy-in from the local staff.

A focus on TeamSTEPPS training first. Prioritizing TeamSTEPPS paved the way for successful implementation of revised policies and practices related to specific clinical areas, such as safe use of EFM, use of oxytocin, and response to obstetric emergencies.

Training all unit nurses first. This created momentum, established new cultural expectations, and facilitated unitwide adoption of new policies and practices among other providers.

Well-established processes for patient engagement. These processes ensured that new policies and practices continued to center on patients and families.

WPHWB LABOR AND DELIVERY: OXYTOCIN MANAGEMENT CHECKLIST

Reassessments occur at a minimum of every 30 minutes with patients on oxytocin

Category I (green = go)

Baseline rate: 110-160, moderate variability, accelerations present or not, early decelerations present or not

May increase oxytocin per protocol/order if—

- No more than five uterine contractions in 10 minutes during a 30-minute interval
- No two contractions longer than 120 seconds
- Uterus palpates soft between uterine contractions

May increase oxytocin per protocol/order if—

- At least one acceleration in 30 minutes OR moderate/minimal variability

AND

- No more than two variables longer than 60 seconds and decrease in 60 beats per minute from baseline

Category II (yellow = caution)

Oxytocin management with caution. Examples of category II fetal heart rate (FHR) tracings include any of the following:

- **Baseline rate**
  - Bradycardia not accompanied by absent baseline variability
  - Tachycardia
- **Baseline FHR variability**
  - Minimal or absent baseline variability not accompanied by recurrent decelerations
  - Marked baseline variability
- **Accelerations**
  - Absence of induced accelerations after fetal stimulation
- **Periodic (with contractions) or episodic decelerations**
  - Recurrent variable decelerations accompanied by minimal or moderate baseline variability
  - Prolonged deceleration at least 2 minutes but less than 10 minutes
  - Recurrent late decelerations with moderate baseline variability
  - Variable decelerations with other characteristics, such as slow return to baseline or "shoulders"
- **Uterine resting tone**
  - If intrauterine pressure catheter is in place with increasing resting tone and if Montevideo Units are no greater than 300mmHg
- Initiate nursing interventions
- Document plan of care
- Notify obstetric provider if pattern persists longer than 30 minutes following nursing interventions.
- If oxytocin is off less than 30 minutes and FHR is category I resume at no more than half the rate.
- If oxytocin is off longer than 30 minutes resume at original dose ordered

Category III (red = STOP)

Stop oxytocin for category III. Examples of category III FHR tracings include any of the following:

- Absent base FHR variability AND any of the following:
  - Recurrent late decelerations
  - Recurrent variable decelerations
  - Bradycardia
  - Sinusoidal pattern

Prompt evaluation is needed

- Notify obstetric provider
- Initiate nursing interventions (maternal oxygen, maternal position change, discontinue labor stimulation, treatment of maternal hypotension or tachysystole with FHR changes)
- If Category III tracing does not resolve then prompt delivery should be undertaken

Restarting oxytocin:

- FHR must meet ongoing management criteria for 30 minutes before restarting oxytocin
- Oxytocin should be restarted at no more than 50 percent of prior oxytocin dosage

WPHWB HOSPITAL BIRTH PLAN

My Birth Plan

A birth plan is a list of preferences or wishes for your childbirth experience. It will not limit your options once you begin to experience labor. You can change your mind at any time. Since every labor and birth is different, we cannot guarantee that all your preferences will be appropriate for your delivery. We encourage you to discuss your birth plan with your doctor or midwife. We will work with you to try and keep your birth experience as close to your wishes as possible; however, the safety of you and your baby is our number one priority.

Name:_____

Partner's Name:_____

Baby's Name: _____

OB Provider: _____

Baby's Doctor: _____

Baby's Due Date:_____

For Labor:

- ○ Dimmed Lights
- ○ Limited Guests: _____
- ○ I would like to be out of bed as much as possible.
- ○ I would prefer to have an saline lock instead of IV fluids.
- ○ I would like to use alternative pain relief options such as breathing exercises, massage, shower and position changes.
- ○ I will ask for pain medication if I need it.
- ○ I would like to have an epidural as soon as possible.
- ○ I would like to be offered pain medication if you see I am uncomfortable.
- ○ I am unsure what I want for pain relief, I will decide when I am in labor.
- ○ I would like to use my portable music and headphones during labor.

During Delivery:

- ○ I would like the option to deliver in other positions besides my back if possible.
- ○ I would like to delay cord clamping for 30-60 seconds.
- ○ I would like skin-to-skin contact immediately after birth.
- ○ I would like my partner to cut the umbilical cord.
- ○ I would like a mirror to view my birth.
- ○ I would like to touch my baby's head as it crowns.

Postpartum/Newborn Care:

- ○ I would like to delay newborn procedures for the first hour so I can bond with my baby.
- ○ I would like to delay my newborn's bath for ___ hours and done in my and/or partner's presence.
- ○ I would like my baby evaluated in my or my partner's presence.
- ○ I would like to exclusively breastfeed my baby while in the hospital.
- ○ I would like to be consulted before formula or a pacifier is given to my baby.
- ○ If my baby should need to be separated due to medical care/treatment, I would like _____ to accompany him/her.
- ○ I would like to be discharged as soon as possible.

Cesarean Section:

- ○ I would like skin-to-skin contact as soon as possible.
- ○ I would like _____ to accompany me in the operating room. *(1 person)*

Other Requests:

- ○ _____
  _____
- ○ _____
  _____

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CARLE FOUNDATION HOSPITAL

Case Study

WHERE WE STARTED: THE CARLE FOUNDATION'S LABOR AND DELIVERY ENVIRONMENT

The Carle Foundation's participation in the Agency for Healthcare Research and Quality (AHRQ) Safety Program for Perinatal Care (SPPC) built on previous experience with safety initiatives, quality improvement (QI) efforts, and specific adverse outcomes that galvanized leadership. Carle Foundation staff had previously completed training to address obstetric hemorrhage as required by the Illinois Department of Public Health, but an adverse event spurred leadership to seek out additional resources to further reduce hemorrhage rates. To ensure success with the SPPC, the medical director of obstetrics and gynecology engaged senior leadership to gain buy-in and support for participation. Senior leaders remained engaged throughout the Program.

Because the SPPC complemented the Carle Foundation's existing focus on QI for obstetric hemorrhage, the team reviewed the SPPC's strategies and incorporated resources from the California Maternal Quality Care Collaborative (CMQCC) obstetric hemorrhage toolkit to develop their approach to hemorrhage reduction. The team hoped this would provide the needed momentum to ensure ongoing progress in reducing the rate of obstetric hemorrhage: "When we got together we reviewed the research and adapted the available tools from SPPC, CMQCC, ACOG [American Congress of Obstetricians and Gynecologists], and AWHONN [Association of Women's Health, Obstetric, and Neonatal Nurses] to make sure we were going to provide the best evidenced-based care for our patients. Our goal is to decrease our incidence of hemorrhage by 50 percent."

CARLE FOUNDATION HOSPITAL AT A GLANCE

- **322-bed community-designated hospital in Urbana, IL**
- **12 labor and delivery beds**
- **Level IIIC neonatal intensive-care unit**

Getting Started

A large, multidisciplinary team was involved in implementation. The team included the perinatal administrator (local facilitator), a director of maternal fetal medicine (physician champion), a labor and delivery (L&D) nurse manager (nurse champion), a quality outcomes coordinator (data coordinator), senior executives, a clinical informatics coordinator, the director of women's and children's services, and the perinatal and mother/baby educators. The implementation team also worked with

"LET'S BRING DOWN HEMORRHAGE. IF WE WANT TO MAKE A DIFFERENCE, WE'RE GOING TO DECREASE OUR INCIDENTS OF HEMORRHAGE BY 50 PERCENT."

pharmacy, laboratory, and informatics staff to ensure completion of all implementation tasks, such as changes to the electronic health record (EHR) or changes to the standard dosage of medication available to be ordered and dispensed. The SPPC team met weekly to assign tasks, maintain buy–in, and review progress benchmarks.

In addition to the team described above, the Carle Foundation assigned a dedicated project manager who worked with the implementation team to perform a gap analysis; develop a communication plan, charter, and project plan; define the clinical components and resources; and create benchmarking reviews. The project and communication plan provided the framework for implementation and helped staff remain accountable to the process and to each other.

Understanding How to Track Data

A key consideration as the team studied and developed the project plan was where clinical information can be documented in the EHR so that it can easily be extracted for measuring implementation progress. The data coordinator looked at what clinical information was being documented and where it was being captured in the EHR. She attended meetings with the clinical team to help address any issues related to documentation and data capture and to help the team identify how to capture key performance indicators. By integrating the quality reporting component with the documentation of clinical practices, the Carle Foundation can now document and extract the information needed to evaluate progress toward ensuring key care processes related to obstetric hemorrhage are implemented.

Leading by Example

The physicians and nurse managers led by example when working with their colleagues. As one nurse manager noted, "I wouldn't ask my staff to do something I wouldn't do." She also expressed a willingness and commitment to review the unit's current practice against best evidence and determine whether their practices were in fact rooted in evidence or in history (i.e., how they had "always done it"). A physician champion remarked that "Everything changes in medicine. Nothing stays the same. We want that best practice here because we want to be the best." By maintaining a clear vision and communicating it to their colleagues, the physician and nurse champions drove the changes in practice and maintained a focus on quality and safety.

Defining the Challenges

At the outset, the team anticipated that the process of implementation would be relatively straightforward. However, as one project leader soon recognized, "If we're going to do a [hemorrhage] risk assessment for a patient, it affects every patient that walks through this door."

Even the definition of hemorrhage proved to be more complicated than the team expected: "It started, really, with, what is the definition of hemorrhage? And we spent 3 weeks making sure we got that right. I think we all had a different understanding of what it was. Is it equal to, greater than? [Vaginal] versus cesarean section? Midstream the requirements change, but we are still holding ourselves to the highest standard of the 500 [milliliters of blood loss in a vaginal delivery]. So, it's just getting that straight, because if we're going to pull information out of our electronic medical record, we've got to all be on the same

page of what it is, and then we have to do a better job of quantifying blood loss."

To properly quantify blood loss, the team made a number of changes to the equipment and information available in each patient room, developed policies, and made changes to the EHR. Working with the physicians and nurses who would be using the equipment, the team purchased new delivery drapes and scales for each room. Previously, blood loss was estimated visually, which was highly imprecise and often inaccurate. Weighing the absorbent pads allows for a consistent and accurate way to quantify blood loss. The team developed policies to determine which member of the care team was responsible for actually weighing the pads. In addition, hemorrhage staging guidelines were posted in each patient room so that the steps and person responsible are clearly specified for each level of risk and action. Finally, the team implemented a "hard stop" in the EHR where blood loss must be documented before the physician can close out of the record. As the physician champion noted, when you take a step like that, "you have to get buy-in because you're stopping every physician in the middle of something." In creating the hard stop, the team worked to ensure that the physicians all knew the importance of documenting blood loss and that they would be accepting of the change to the EHR. The change also involved quantification of total blood loss, which included blood loss before and after the delivery. Previously, only blood loss after delivery was quantified, which resulted in an underestimation of the number of hemorrhages.

"ARE WE DOING WHAT WE DO BECAUSE IT'S EVIDENCE BASED, OR ARE WE DOING WHAT WE DO BECAUSE WE'VE ALWAYS DONE IT?"

Changing Protocols for Obstetric Hemorrhage

In addition to the changes described above, the team made the following changes to their current policies, protocols, and practices for obstetric hemorrhage—

- Standardized procedures and timing for routine hemorrhage risk assessment for obstetric patients during prenatal care and upon admission to L&D
- Customized obstetric hemorrhage staging tools and posted in all patient rooms
- Standardized documentation and delivery of routine oxytocin during the third stage of labor via an integrated order set in the EHR
- Created a "no blood banner" to clearly identify patients who will decline blood products in the event of a hemorrhage emergency
- Standardized hemorrhage identification processes at the point of care to include specific maternal parameters, including blood loss, blood pressure, and administration of uterotonics
- Developed and included a "problem list" field in the discharge record for each patient with risk for hemorrhage as well as interventions provided so that their history of hemorrhage was documented for their regular obstetrician

Sustainability: Integrating Revised Policies and Procedures Into Daily Practice

To ensure successful integration of the revised policies and procedures related to obstetric hemorrhage, the clinical team provided updates to clinical staff via email and presented at unit and shared governance meetings to all staff regarding the obstetric hemorrhage staging tool, EHR order sets, and other changes. In addition, the L&D and mother/baby unit educators developed educa-tion modules and trained unit staff on these changes. Unit staff practiced the use of the new tools and proto-cols through in situ simulations while reinforcing TeamSTEPPS® communication techniques.

The changes to the protocols, procedures, and policies were systematic. The nurse manager emphasized that it is important to allow time for new procedures to settle and not abandon changes at the first sign of a problem. The team took time to assess the Program implementation carefully; their intent was to avoid "knee-jerk reactions" and to understand and appreciate the impact of their work.

Local facilitators acknowledge the work that staff do to improve quality by celebrating improvements in reducing hemorrhage and by sending thank-you notes to individual nurses for work well done.

GOING FORWARD

The Carle Foundation team has ensured sustainability of the changes made to patient care by obtaining buy-in from the myriad of individuals and departments involved in implementation, using a careful and deliberative approach, leveraging existing meetings and structures that support clinical practices to implement change, and taking a wider perspective on the implementation that includes private practice physicians who deliver at the Carle Foundation as well as the staff at the hospital.

The new processes introduced as part of SPPC are now a regular practice. For example, the core team of nurses continues to hold quarterly meetings, which are also attended by the physicians and the quality outcomes manager. These meetings are used to review key safety issues and how practice patterns contribute to safety events. By addressing processes and policies related to the care of obstetric hemorrhage in these standing meetings, the team ensures it remains a topic of focus for clinical staff.

Working with and obtaining buy-in from various departments across the organization will help to ensure broad changes that will be sustained over time. The SPPC team is also currently advocating for hospitalwide TeamSTEPPS training. TeamSTEPPS techniques (i.e., huddles, SBAR, and debriefs) have standardized communication between providers and nurses in the L&D and postpartum units and increased transparency.

The affected departments were engaged during the implementation process, but the team also considered their provider partners in the region who send patients to the Carle Foundation. For example, several of the providers in the community use different EHRs. In making changes to processes or documentation requirements, the team worked to ensure that analogous changes were possible in the other four EHRs being used in the broader community. The Carle Foundation plans to roll out SPPC with those community partners to drive improvement in clinical practices in the broader community.

"YOU HAVE TO GET BUY-IN BECAUSE YOU'RE STOPPING EVERY PHYSICIAN IN THE MIDDLE OF SOMETHING."

STRATEGIES FOR SUCCESS

Leading by example. The physicians and nurse managers led by example in working with their colleagues.

Supportive relationships across staff and across units. As the physician champion stated, "This program is for everyone." Hierarchical communication is almost nonexistent, and improved communication promises to lead to better patient care and outcomes.

Institutional support. A dedicated project manager helped the team to develop a communications plan and work plan for the implementation rollout, to update and revise the communication plan as implementation progressed, and to keep staff accountable for deliverables.

Building on prior experiences. The Carle Foundation already had behavioral expectations in place for staff that supported the use and spread of TeamSTEPPS communication techniques, and the implementation team learned from previous safety and quality work to achieve buy-in.

Focus on data quality and tracking. The data coordinator worked with clinical staff so that the documentation of clinical practices could also be used as data to monitor QI efforts, minimizing undue burden on staff to collect additional data.

WAKEMED HEALTH & HOSPITALS SYSTEM

Case Study

BEST PRACTICES AND QUALITY IMPROVEMENT: THE WAKEMED ENVIRONMENT

The WakeMed Health & Hospitals System is a three-hospital, 784-bed, private, not-for-profit health system based in Raleigh, NC. The women's service line—which includes labor and delivery (L&D) units, neonatal intensive-care units (NICUs), a milk bank, maternal-fetal medicine and urogynecology—is the largest service line in the WakeMed system.

WakeMed Raleigh is a 567-bed hospital with 15 L&D beds and a Level IV NICU that delivers more than 5,000 babies per year. Its physicians include private practitioners, hospitalists, and resident physicians. Prior to joining the Agency for Healthcare Research and Quality (AHRQ) Safety Program for Perinatal Care (SPPC), almost half of the staff in this hospital were trained in AHRQ's TeamSTEPPS® system, including nine staff trained as master trainers. L&D unit staff have participated in several other quality improvement (QI) collaboratives at the State and regional level. Participating in the SPPC offered an opportunity to continue their QI activities.

WakeMed Cary is a 156-bed hospital with 10 L&D beds and a Level III nursery. It delivers more than 2,200 babies per year. Community-based, private-practice physicians staff the L&D unit. Before the SPPC, the WakeMed Cary team had two TeamSTEPPS master trainers and was involved in a statewide perinatal quality initiative related to preeclampsia. L&D unit staff at WakeMed Cary joined the SPPC program to improve patient safety, increase their knowledge on evidence-based practices, and participate in a national patient safety program.

WakeMed North Family Health & Women's Hospital opened in May 2015. It is a 61-bed facility with six L&D beds and a Level III nursery. Shortly after WakeMed North opened its doors, their L&D team requested to join the SPPC, as it allowed a timely opportunity to build staff skills around a culture of safety in the new hospital and integrate best practices across the hospital system. Several staff at WakeMed North were already TeamSTEPPS master trainers, including the hospital administrator.

WAKEMED HEALTH & HOSPITALS SYSTEM AT A GLANCE

- **Three private, not-for-profit medical centers in Raleigh and Cary, NC**
- **31 labor and delivery beds**
- **Level IV neonatal intensive-care unit**

TOP–DOWN AND BOTTOM–UP IMPLEMENTATION

Through participation in the SPPC, WakeMed sought to improve L&D unit practices pertaining to shoulder dystocia, electronic fetal monitoring, obstetric hemorrhage, and safe use of magnesium sulfate.

The Role of Leadership

WakeMed used a combination of top–down and bottom–up strategies that contributed to the successful implementation of the Program across their three hospital sites. The executive leadership recognized that evidence–based best practices are the foundation for safe and high–quality patient care. They provided the direction and commitment for aligning and standardizing policies and processes across the three L&D units to optimize patient safety and maximize efficiencies. However, leadership also recognized the experience and firsthand knowledge of frontline staff and clinicians, allowing each site the flexibility to design implementation processes that worked best for each individual hospital.

When the director of Women's and Children's Services at the WakeMed Raleigh hospital learned about the opportunity to participate in the SPPC, she brought it to the attention of the chief nursing officer (CNO) for the WakeMed system. Ultimately, the system's chief executive officer, chief operating officer, and CNO approved the hospital system's participation in the SPPC.

Education, Communication, and Standardization

Staff described the organizational culture as supportive of staff education, patient safety, and QI. The system maintains and promotes a nonpunitive culture of safety in which staff are encouraged to report patient safety issues without fear of repercussions. This type of climate is conducive to identifying problems and making changes that result in improvement.

The three hospitals also share an electronic health record (EHR) system. This facilitates standardization of practices across the sites, as changes made to EHR–based clinical decision resources and documentation templates can be configured for use across the system. This is particularly helpful because many L&D nurses rotate across all three hospitals during staffing shortages. Standardizing work processes across the hospitals reduces variation and opportunities for error.

"GETTING INVOLVED RIGHT AWAY ON A QUALITY INITIATIVE WHEN YOU ARE A NEWLY OPENED HOSPITAL SENDS A POWERFUL MESSAGE TO STAFF THAT WE TAKE PATIENT SAFETY VERY SERIOUSLY."

FOCUSING ON PERINATAL SAFETY STRATEGIES

At WakeMed Raleigh: Magnesium Sulfate Administration and Obstetric Hemorrhage Care

The Implementation Team

The WakeMed Raleigh team included key leaders from the L&D unit and the director of women's services. The team identified gaps in its current practices and chose to focus on the safe administration of magnesium sulfate and obstetric hemorrhage, which they had started to address as part of previous patient safety initiatives.

Modifying Magnesium Sulfate Administration

The WakeMed Raleigh staff integrated the SPPC planning and implementation activities into the team's regular unit meetings. They established a standard process for blood pressure measurement upon admission and during labor to ensure consistent measurements for the accurate and timely diagnosis of preeclampsia, and also developed a clinical guideline for magnesium sulfate administration. To improve safe use of magnesium sulfate, the implementation team used the key safety elements for safe medication administration provided in the SPPC such as assessing the appropriateness of use, notifying the provider before initiating, and following uniform parameters for maternal and fetal monitoring during administration. To support the adoption and sustainability of the changes to these procedures, they modified the hospital system's EHR. The L&D unit manager educated staff on the new procedures during meetings and via newsletters. The medical director shared updates with physicians during regular medical staff meetings.

Ensuring Best Practices Related to Obstetric Hemorrhage: In Situ Simulations

At WakeMed Raleigh, improving care practices related to obstetric hemorrhage dovetailed with unit work that began as part of a prior QI collaborative. The team reviewed policies and procedures to streamline and ensure best practices. It conducted in situ simulations to reinforce the use of the obstetric hemorrhage emergency cart and the need to keep the cart stocked. Staff from both the L&D and mother/baby units participated in the simulations, which allowed for the development of communication and teamwork skills across units. The team also revised the obstetric hemorrhage order set in their EHR; these changes were also implemented at the other two hospital sites within the WakeMed system.

Next Steps

Improvements in administration of magnesium sulfate and the management of obstetric hemorrhage are now fully integrated into unit practices and procedures. These processes are included in new staff trainings and reinforced through ongoing in situ simulations. These improvements have set the stage for the next phase of the hospital's QI work, which will target safe electronic fetal monitoring.

At WakeMed Cary: Shoulder Dystocia

The Implementation Team

At WakeMed Cary, many unit staff and supervisors from the Women's Pavilion and Birthplace were involved in program implementation. The core team included the Women's Pavilion and Birthplace director, risk manager, several nurse educators, the day and night shift L&D nursing supervisors, and an obstetrician/gynecologist physician champion. The director of the Women's Pavilion kept the senior nursing leader informed of the team's progress and participation in the Program. To maintain progress toward their goals and make efficient use of their time, the core team held monthly meetings, sent regular email communications, and arranged ad hoc discussions with each other.

Improving Response to Shoulder Dystocia Emergencies: Reducing Variation and Improving Communication

The WakeMed Cary team originally elected to focus on care processes for births complicated by obstetric hemorrhage and shoulder dystocia. Soon after beginning the Program, they determined that in order to be successful, they would need to scale back and focus on one safety strategy at a time. They began by addressing ways to reduce variation in their care process during births complicated by shoulder dystocia and to improve their team communication in these situations by using the TeamSTEPPS tools like callouts and check-backs. The team took advantage of their newly installed EHR to reinforce and sustain best practice response and documentation of management for shoulder dystocia cases. They trained staff on the use of the shoulder dystocia module that came installed in the EHR. The team noted that their participation in the SPPC advanced the mastery of this module because staff were eager to apply a standardized process for shoulder dystocia and evaluate their efforts.

After reviewing the SPPC key safety elements related to the management of births complicated by shoulder dystocia, the team determined that its existing EHR-based module was closely aligned and met the unit's needs. The module provided an independent check to guide a systematic approach to manage and document shoulder dystocia. A dropdown checklist functioned as a reminder of the order in which to attempt the various clinical maneuvers while recording the time attempted.

Reinforcing New Practices Through In Situ Simulation

Because the module included a standardized approach to improve the clinical team's facilitation of a safe delivery, the team focused implementation efforts on mastering module content and practicing the skills through in situ simulations. Debriefing after in situ simulation helped expedite the team's learning.

The WakeMed Cary hospital team stated that the changes implemented for shoulder dystocia management are now their standard practice. The unit plans to reinforce the new processes through continued in situ simulations. Additional staff will become TeamSTEPPS master trainers and will provide teamwork and communication trainings to the entire women's service line staff.

Next Steps

The team remains conscientious of the pace of their roll out of QI changes, recognizing that implementing too many changes at once might result in staff resistance to change. The team plans to use the momentum and skills gained through its experience with shoulder dystocia to continue its efforts on obstetric hemorrhage care management next.

At WakeMed North: Obstetric Hemorrhage Care

The Implementation Team

The WakeMed North implementation team consisted of the clinical educator supervisor, nursing manager, a staff nurse, a hospitalist/physician champion, and the hospital administrator. Having a senior leader on the implementation team was unique to WakeMed North among the three WakeMed hospital teams and likely influenced the unit's ability to accomplish so much, despite joining the Program later. The team met once a month and communicated via email between meetings.

Targeting Obstetric Hemorrhage Care

The team chose to target obstetric hemorrhage care practices because the unit was experiencing a larger-than-expected number of hemorrhage cases. They utilized the WakeMed Raleigh team's work on the policies and procedures to jump-start implementation. Team activities included creating a standardized obstetric hemorrhage cart and changing the medication dispensing system to provide ready access to appropriate pharmacologic therapies to

manage hemorrhage, training staff on how to accurately quantify blood loss during and after deliveries, and practicing clinical and communication skills through in situ simulations. Participation in the Program raised the team's awareness that changes to the EHR system were needed in order to allow monitoring of the frequency of obstetric hemorrhage. The team is now able to generate a periodic report to track all cases of obstetric hemorrhage, whether they occur antepartum, intrapartum, or postpartum.

Next Steps

The WakeMed North team plans to continue implementation of the obstetric hemorrhage key safety elements and focus on the quantification of blood loss. Over the course of the next year, they will also train additional staff as TeamSTEPPS master trainers.

GOING FORWARD

The WakeMed teams took full advantage of their health care system's supportive culture of patient safety and QI. They were empowered by their executive leadership to participate in the SPPC and mobilized nursing and physician resources to reach implementation goals.

The hospitals have institutionalized the changes by codifying them in written policies and procedures and training all staff accordingly. New staff members will be oriented to these practices as they join the L&D units. The three hospital teams have committed to using TeamSTEPPS in their units and to training new staff on TeamSTEPPS techniques.

KEY STRATEGIES FOR SUCCESS

A culture of safety across the health care system. The WakeMed system is committed to patient safety and QI. The corporate environment empowered hospitals to implement the Program in the way that worked best in their local setting, while achieving standardization of practices through teamwork and communication trainings and a shared EHR.

Flexible implementation led by local staff. Because each hospital had its own needs and priorities, it was important to empower the staff at each site to plan program activities to address the issues important to their local setting. This empowerment maximized staff support and buy-in for the new initiatives.

Physician engagement. Nurse leaders were the driving force at each site for decision making and program implementation. They recognized that there would be no success without physician engagement and cooperation, so they strategically recruited their physician champions. They chose the right physician leaders with the skills to get other physicians on board with the team's work.