Clinical Alert

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Perinatal Deaths: A Call for Teamwork

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In March of 2004, the State of Maryland began requiring hospitals to report Level 1 adverse events to the Office of Health Care Quality (OHCQ) under COMAR 10.07.06, Patient Safety Programs. A Level 1 adverse event is an unexpected occurrence related to an individual's medical treatment that is not related to the natural course of the person's illness or disease process that results in death or serious disability. At the time of inception, the Office of Health Care Quality categorized reported events using the National Quality Forum's (NQF) "serious reportable events (SRE)." In 2005, OHCQ realized, based on nine reports received that year, that Unanticipated Neonatal Death or Injury needed to be added to our classification list. The OHCQ has received 46 reports of unanticipated neonatal death or injury since March of 2004, along with 12 Level 1 events related to maternal death or injury associated with the birth process.

While the 58 perinatal events represent just 3.5% of the total number of Level 1 adverse events reported since March 2004 (58/1650), the effects are devastating. Of the reported events, 80% of the neonatal events were fatal (37/46). All but two of these fatalities occurred to full-term neonates (38 to 41 weeks). 44% of the surviving infants suffered permanent anoxic injury (4/9). 83% of the maternal adverse events were fatal (10/12), and both mother and baby died in two of the reported adverse events. Other injuries included broken bones and emergency hysterectomies. The emotional impact on families (and staff) affected by these events is profound, while the financial loss for hospitals can force the closure of obstetric services.

A look at the 11 birth events reported since January 1, 2011, shows that there were three postpartum maternal deaths, and eight Level 1 events involving neonates, of which six were fatal. Two infants had to be transferred emergently to a higher level of care, and one child spent 10 days in the neonatal ICU with a metabolic derangement and fractured femur. All of these events were preventable. Communication problems between providers are a known cause of adverse events, and this seems especially relevant to perinatal events. In most deliveries, there is one physician and one or more nurses literally behind closed doors on secure units. The isolation involved tends to magnify both the unspoken assumptions held by staff and any miscommunication between staff.

This Clinical Alert attempts to raise awareness of these tragic events by examining some of the commonalities in cause and effect between the events reported since January 1, 2011. Rather than focus on the birth process itself, it may be more helpful to focus on more generic causes such as inadequate communication and poor teamwork. All of the reported perinatal events included peer review as a separate track in the aftermath of the event.

Adverse Event No. 1:

A woman in her mid-30s, giving birth to her fourth child, presented to the hospital for a planned induction at 40 weeks. She was considered high-risk due to her age and the complications she had suffered after her previous deliveries, including heavy bleeding and anemia requiring blood transfusions. She was given Cytotec and Pitocin, two medications that induce labor, through her only peripheral IV and delivered a healthy infant approximately three hours after admission. Immediately following the delivery of the placenta and the membranes, she had a gush of approximately 1.2 liters of blood. She also had extensive perineal swelling and some varicose veins on her labia. Examination of her vagina showed a bleeding laceration. She was given medications to tighten up the uterus and was moved from the birthing room to the labor and delivery operating room. The laceration was repaired but she continued to have significant oozing. Despite several attempts to stop the bleeding, she became hemodynamically unstable, although she was awake and conversant throughout. Anesthesia recommended an emergency hysterectomy when attempts to control the bleeding failed. She was emergently intubated followed by the first of several cardiac arrests. Despite aggressive resuscitation, she ultimately expired.

Discussion:

The hospital determined that poor communication between the anesthesiologist and the obstetrician contributed to this patient's death. Although the anesthesiologist was very concerned about the hemodynamic instability that was evident on the monitors, he did not clearly communicate this information to the obstetrician. Meanwhile, the obstetrician was focused on the perineal area and, because the patient was awake and conversant, was not really hearing the concerns of the anesthesiologist. Care of the patient was further complicated by the fact that she only had one peripheral IV inserted even though she was considered a high risk patient.

Besides policy revision and staff education, the hospital has now designated operating room facilitators, who are to monitor all activities associated with the patient and to facilitate information exchange between providers. The hospital is also including anesthesia providers in Obstetrical (OB) simulation training.

Adverse Event No. 2:

A 28 year-old patient presented to the hospital for an elective induction at 40 weeks. In the first four hours of labor, her membranes were artificially ruptured, an intrauterine pressure catheter was inserted to monitor the strength of her contractions, an ultrasound transducer was placed on her abdomen to monitor the fetal heart rate, and she was placed on oxygen and Pitocin. After an epidural was placed for pain, the fetal heart rate (FHR) showed a decrease from 150 beats per minute to 80-90 beats per minute. The RN was concerned about the drop in FHR, and requested a scalp electrode. The OB declined, took the patient's O2 off, and over the next hour, increased the Pitocin from 1 mU (milliunits) to 5 mU. Over the next six hours, the FHR continued to show significant variability with frequent decreases to the 50s. The nurses spent a great deal of that time trying to troubleshoot the ultrasound transducer and the monitor. The physician was in and out of the room. The patient started pushing after approximately 10 hours in labor while the FHR monitor was consistently reading in the 60s. A scalp electrode was placed, and replaced, as the nurses tried to establish the accuracy of the FHR tracing. After the patient pushed for approximately 30 minutes, the MD ordered a bedside sonogram, which confirmed that the FHR was dangerously slow. Within 30 minutes, the patient was in the OB operating room for an emergency C-section. The infant could not be resuscitated.

Discussion:

Besides the obvious peer review issues regarding evidence-based practice, the RCA stated that there was a communication breakdown within the team, and that the chain of command policy was poorly understood. The RCA explained what happened but not why it happened. Why did so many presumably well-trained and experienced professionals fail to appreciate the seriousness of the situation? This patient was in labor for about 11 hours. There were ample opportunities to intervene. Where was the charge nurse or nurse manager? The RCA states that the nurses did not use the chain of command policy. Sometimes the chain of command must go to the nurse. To the hospital's credit, even though the RCA did not explain why these failures occurred, the corrective actions did address the apparent lack of engagement by nursing leadership on the unit as well as knowledge deficits related to monitoring and fetal resuscitation. The medical leadership of the OB unit facilitated combined RN-MD workshops related to communication and teamwork.

Adverse Event No. 3

A 30 year-old woman presented to the hospital in labor two hours after her membranes ruptured. The full-term fetus was face up with his arm in the vagina. The mother continued in labor for 24 hours at which time the MD attempted a vacuum assisted delivery, with three contractions over 5 minutes. The fetal heart rate dropped precipitously with the last attempt and the decision was made to do an emergency c-section. Delivery was accomplished within 20 minutes but the infant could not be resuscitated. The subsequent autopsy showed no abnormalities.

Discussion:

The Labor and Delivery (L&D) staff and physicians had participated in TeamSTEPPS training but failed to implement the program's principles. The OB nurses were very concerned about the fetal heart rate from the first day of admission but failed to activate the OB rapid response team, failed to alert the charge nurse, and failed to initiate the chain of command. While the hospital set the expectation for completing TeamSTEPPS, there was no follow up after training to ensure that everyone understood it and its effective use. The MD's clinical decision making was handled in peer review.

All of these events share common causes. All involved poor communication, unspoken assumptions, and staff who did not speak up or seek assistance until it was too late.

All events seem to be examples of a technique of communication referred to as "Hint and Hope.[1]" The nurse (or, in adverse event no. 1, the anesthesiologist) knows something is wrong but for many reasons related to role definitions and power differentials, cannot effectively communicate his or her concerns to the medical team. In 2000, the Institute of Medicine (IOM) urged health care organizations to train in teams those who are expected to work in teams.[2] Members of healthcare teams are usually trained in separate disciplines, may not appreciate each other's strengths, and may not have been trained together on new or well-established technology.

Obstetric care on the L&D unit is characterized by high specificity and multiple distractions, increasing the likelihood that subtle changes in a patient's condition may go unnoticed. OB care usually involves hours of acute focus on the laboring patient and family. Because of the hours spent at the bedside, the effects of any communication failures between providers are magnified. It would be advantageous for hospitals to treat this area as any other critical care area and pay attention to team dynamics. According to the IOM, "People make fewer errors when they work in teams. When processes are planned and standardized, each member knows his or her responsibilities as well as those of teammates, and members look out for one another, noticing errors before they cause an accident. In an effective interdisciplinary team, members come to trust one another's judgments and attend to one another's safety concerns."

The L&D unit is also a unit with very high expectations for happy outcomes. These expectations on the part of the staff and patient may cause the staff to focus more on evidence that shows that the birth process is proceeding well,

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and to discount evidence that it might not be going so well. Everyone at the bedside is susceptible to this confirmation bias, and team training is one antidote. By emphasizing the strengths of team members, and communicating effectively from those strengths, care can be made safer.

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