Developing Protocols for Obstetric Emergencies
The emergency alarm goes off in Labor & Delivery (L&D) and every nurse within hearing distance runs to help. The patient’s room quickly fills with staff members who are looking for ways to assist. Questions fly, tasks are completed and hopefully the emergency situation is resolved. But is this momentary chaos the best way to handle an obstetric (OB) emergency?

Abstract: There is potential for important steps to be missed in emergency situations, even in the presence of many health care team members. Developing a clear plan of response for common emergencies can ensure that no tasks are redundant or omitted, and can create a more controlled environment that promotes positive health outcomes. A multidisciplinary team was assembled in a large community hospital to create protocols that would help ensure optimum care and continuity of practice in cases of postpartum hemorrhage, shoulder dystocia, emergency cesarean surgical birth, eclamptic seizure and maternal code. Assignment of team roles and responsibilities led to the evolution of standardized protocols for each emergency situation.

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According to the Centers for Disease Control and Prevention (CDC, 2013), the reported ratio for pregnancy-related deaths from 2006 through 2009 was 15.8 per 100,000 live births. This demonstrates an alarming upward trend in maternal mortality rates from previously reported 2006 statistics of 13.3 deaths per 100,000. While specific reasons for this rise are not completely understood, a search of the literature suggests that some of these deaths may be preventable (Berg et al., 2005; California Department of Public Health, 2011; Clark et al., 2008; Della Torre et al., 2011; Geller et al., 2004).

Identifying potential problems early, developing written protocols that outline a clear plan of response for common emergencies and using mock drills to train staff in protocol responses can help ensure that no tasks are redundant or omitted, and can ultimately create a more controlled environment that promotes positive health outcomes (Brown & Small, 2013; Clark, 2012; Simpson & O’Brien-Abel, 2014; The Joint Commission, 2010).

**The “Everyone Run” Team**

When many people are involved in an emergency, the assumption is that all factors will be considered. Surely, the thinking goes, if one person doesn’t think of a critical step, another will. But there’s plenty of potential for important steps to be missed, even in the presence of many team members. For example, during a postpartum hemorrhage staff might not recognize that a stand-alone cardiac monitor fails to deliver arterial blood pressure readings directly into the computerized documentation system. The monitor might be unplugged or turned off before recording vital signs, resulting in loss of crucial data. Failure to draw initial labs when starting a second intravenous line is a missed opportunity to determine baseline hematologic levels. During a maternal code, success of resuscitation might be impeded if displacement of the uterus doesn’t occur. These are all examples of how omitting even one key action can significantly affect the outcome.

**OB Emergency Response Team**

The American Heart Association (AHA) reported that use of rapid response teams in general hospital populations has demonstrated positive health outcomes, reducing cardiac arrests by 17 percent to 65 percent (AHA, 2006). Utilizing an OB emergency response team is an emerging idea in the OB health care community. Outcomes during common emergencies such as postpartum hemorrhage, shoulder dystocia and emergency cesarean surgical birth, and uncommon emergencies such as eclamptic seizure and maternal code, could improve with use of planned emergency protocols. Multidisciplinary mock drills for these scenarios are practiced in many institutions to create a team response, but step-by-step detailed plans that outline each member’s role might be missing.

Here we report on the development of such written protocols at our institution. The team assembled at this large community hospital included the OB chief (also an OB hospitalist), OB department medical director, OB anesthesia, perinatal safety nurse, clinical educator, women’s health nurse practitioner, unit managers from L&D and Couplet Care and staff nurses representing both day and night shifts. The goal was to create a team that would operate smoothly and ensure continuity of practice during an emergency. Assignment of team roles and responsibilities led to the evolution of protocols that were then presented and approved by the institution’s OB-GYN committee.
### POSTPARTUM HEMORRHAGE PROTOCOL

<table>
<thead>
<tr>
<th>Stage 0: Every woman in labor/ giving birth</th>
<th>Stage 1: EBL &gt;500 ml vag or &gt;1000 ml C/S or VS changes (by &gt;15% or HR &gt;110, BP &lt; 85/45, O2 sat &lt;95%)</th>
<th>Stage 2: Bleeding with total blood loss &lt; 1500 ml</th>
<th>Stage 3: Total EBL &gt;1500 ml or &gt;2 units PRBC’s given, VS unstable, poss DIC</th>
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</thead>
</table>

#### Stage 0:
- Focus on risk assessment and active management of the third stage.
- Short: activate PPH protocol, be prepared and give misoprostol

#### Stage 1:
- Every woman in labor/ giving birth
- HR >110, BP < 85/45, O2 sat <95%

#### Stage 2:
- Focus on sequentially advancing through meds/procedures, mobilizing help, Blood Bank support, keeping ahead with volume and blood products

#### Stage 3:
- Focus on Massive Transfusion Protocol and invasive surgical control of bleeding

### Nurses
- Assess every pt for risk factors for PPH
- Type and Crossmatch on every laboring patient or per unit protocol
- Ongoing quantitative eval of blood loss for every birth

#### Primary Nurse:
- Initiate Emergency call light
- Continuously assess bleeding amounts by scale weight, keep running total
- Freq fundal Massage
- Vital signs with pulse oximetry at least q 5"
- Oxytocin, Cytotec, Methergine as ordered
- Support family
- Report to key personnel entering room
- Document

#### First Responder:
- Activate this protocol
- Assist with oxytocin, Cytotec, Methergine
- Notify MD, Supervisor and Anesthesia
- Start 2nd IV line at least 18g, hang blood tubing/NS
- Draw CBC, T&C, PT, PTT, Fibrinogen with 2nd IV start
- Perform Hemacue or sticks as ordered
- Change 1st line tubing to blood tubing

#### Second Responder:
- Obtain PPH cart and/or Emergency Cart
- Straight cath or Foley with urimeter
- Obtain items called for by team

#### Supervisor:
- Ask to move to OR after 2nd line drug administered
- Draw CBC, T&C, PT, PTT, Fibrinogen with 2nd IV start
- Perform Hemacue or sticks as ordered
- Change 1st line tubing to blood tubing

### MD
- Active Mgt 3rd Stage: Oxytocin IV or 10mU IM Vigorous fundal massage, 15 sec minimum
- Add additional Oxytocin 30U to IV
- Cytotec 1000 mcg PR x 1
- T&C 2 units PRBC’s
- Methergine 0.2 mg IM (not w/HTN or sepsis) +/or Hemabate 250 mg IM (not with hx of asthma) may be repeated q 15" x 7, or 2000 mcg total

### Blood Bank
- Type & Screen all patients
- High Risk: Type & Cross 2U
- Positive Antibody Screen (exclude low level anti-D): Type & Cross 2U
- Type & Cross 2 Units PRBC’s
- 2 U PRBC’s to bedside
- Ensure 2 FFP are thawed for transfusion
- Determine availability of other products which may be needed

### CALL OB EMERGENCY RESPONSE
- Team, House Rapid Response if needed
- Call MFM, Call House Intensivist
- Obtain order and Call verbal order to Blood Bank for Massive Trans Pack (PRBC’s 6 U, FFP 4 U, Platelet Pheresis 1 Pack, Cryo 10 U)
- Administer Massive Hemorrhage Pack using rapid trans/crisis/warmer
- Alert: Main OR/NR
- Repeat labs as ordered
- Call Resp for ABG’s (#____) Prep for Central Line
- Call CV Tech (#____) Consider call to Social Worker or Chaplain for family support

### Active Mangement 3rd Stage:
- Oxytocin IV or 10mU IM
- Vigorous fundal massage, 15 sec minimum
- Add additional Oxytocin 30U to IV
- Cytotec 1000 mcg PR x 1
- T&C 2 units PRBC’s
- Methergine 0.2 mg IM (not w/HTN or sepsis) +/or Hemabate 250 mg IM (not with hx of asthma) may be repeated q 15" x 7, or 2000 mcg total

### Complete Evaluation of Vag Wall, Cervix, Placenta, Uterine Cavity
- OB DIC Panel order
- Uterine Inversion, AFE
- Bimanual massage
- Order 2 U PRBC’s
- Oral need for repair, D&C, Bakri or Ebb’s balloon or embolization
- If C/S, consider inspection of broad lig, posterior uterus and retained placenta; consider B-Lynch suture; consider Bakri or Ebb’s balloon

### Active Massive Hemorrhage Protocol:
- Order PRBC’s 6 U, FFP 4 U, Platelet Pheresis 1 Pack, Cryo 10 U
- Consider rFactor VIIa
- Ratio PRBC:FPF should be near 1:1
- Ultalio PRBC:PTF should be near 6:1
- Check calcium levels
- Laparotomy – B-Lynch Suture, Uterine Artery Ligation, Hysterecomy

### Provide Massive Hemorrhage Pack
- Other products as called for
**Maternal Code Protocol**

**Stage 0:** Every woman in labor/giving birth  
**Focus on risk assessment**

**Stage 1:** Maternal Respiratory/Cardiac Arrest  
**Stage 1:** Focus on resuscitation of mother and delivery of infant in a timely manner

**Continuing Team Assignments**  
**Stage 2:** Post-event  
**Stage 2:** Focus on communication with patient and family

### Nurses
- Identify risk factors  
- ACLS/ACLS OB certification current

**Primary Nurse:**
- Identify problem, Call Code Blue (#_______)
- Call for OB Emergency Response Team: MD, Hospitalist, Supervisor, Anesthesia, NP, other staff and scrub techs
- RN caring for patient reports to team members as they arrive
- Note times
- Maintain as calm environment as possible
- RN to start compressions immediately (slightly higher on chest), relief from alternate asap, continues to perform uterine displacement
- First responder assures Code Blue has been called, begins to use Bag & Mask, assists anesthesia when they arrive
- Second responder gets Code Cart and opens, turns on defibrillator and places pads on patient’s chest, runs defibrillator and prepares meds until Code Team arrives
- Stop compressions only long enough to identify rhythm, <10 seconds
- Supervisor documents or assigns documenter
- Shock for shockable rhythm asap, remove fetal monitors prior.
- Continue ACLS algorithm

**Primary Nurse:**
- Keep team informed, maintain calm, is Circulator
- Supervisor:
- Ensure all players present, assign roles if team members not available, task Nurse Practitioner, Clinical Educator, or Patient Safety Nurse to roles as available, assign documentation
- First responder:
- Assist anesthesia, coordinate blood administration
- Second responder:
- Assist in moving patient, prepping patient, supplies
- L&D unit secretary:
- Assist in making calls
- Couple unit secretary:
- Assist in running labs/blood
- Scrub Tech:
- Prepare room, bring stat C/S pack, assist with surgery
- Maintain control of instruments, sponges and needles
- Assist in moving patient to OR or ICU as indicated
- Document times of events as near to occurrence as able
- Assist Anesthesia as needed
- Provide support to family

### MD, Hospitalist, Anesthesia,
- Identify risk factors
- Recommend that ACLS/ACLS OB certification current

- Respond asap to bedside, first MD to arrive takes over running code until Code Blue team arrives
- Deliver patient at 4-5 minutes after patient arrest
- Continue to participate as obstetrical provider

- Support patient and family members
- Document events, coordinate with documenting nurse for times
The goal was to create a team that would operate smoothly and ensure continuity of practice during an emergency

Protocol Development Process

The California Maternal Quality Care Collaborative (CMQCC, 2010) developed a protocol for postpartum hemorrhage that is comprehensive and available as a checklist, flow chart or table chart. These table charts became a springboard for our development of one-page protocols that further defined actions by specific team members during different stages of an event. The first protocol developed was for postpartum hemorrhage (see Figure 1) and it was met with positive responses from unit nurses. The Unit-Based Patient Care Councils for L&D and Couplet Care made suggestions for improvement, which included laminating the pages and including a checkbox for each item so that tasks could be checked off as completed. A dry-erase marker was utilized so that sheets could be reused. Working with this tool during postpartum hemorrhage events enabled nurses to suggest further content and format changes, making the checklist as user-friendly as possible.

Positive responses to the postpartum hemorrhage protocol led to development of protocols for maternal code (see Figure 2), shoulder dystocia (see Figure 3), emergency cesarean (see Figure 4) and eclamptic seizure (see Figure 5). An in-depth literature search was completed to ensure that content was current and comprehensive for each emergency scenario (Clark, 2012; Creasy, Foley, Strong, & Garite, 2011; Resnick et al., 2014; Riley & Stark, 2012). Organizational statements from the American College of Obstetricians and Gynecologists (ACOG, 2013) and the Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN, 2013) were also utilized to verify that the protocols were meeting national standards (Riley & Stark, 2012). All protocols were reviewed by the multidisciplinary team before implementation.

The maternal-fetal medicine specialist groups at the hospital were consulted for protocol development. Upon finalization of the protocols, staff members were educated on the new process during monthly perinatal symposiums, which are a formalized lecture series taught by maternal-fetal medicine specialists, a clinical educator and a unit-based women’s health nurse practitioner.

Structure of the Written Protocols

Each protocol is composed of colored columns that represent stages of the event. Criteria for each stage are listed at the top of column sections. The body of the protocol is divided into duties for nurses, physicians and laboratory personnel. Nursing responsibilities are further divided into designated actions for the woman’s nurse, as well as the first, second and third responders. Responders are assigned at the beginning of each shift. This assignment remains flexible according to unit activity and nursing involvement with patients. For example, a nurse assigned as the first responder may be caring for a woman who needs to go to the operating room for a cesarean surgical birth. The first responder role will then be assigned to another nurse by the supervisor or charge nurse.

So that designated nurses can review assignments for each role in the emergency protocol, a lanyard containing pocket cards listing steps that should be initiated during the emergency is given to each responder at the beginning of the shift. A copy of the protocol is also available on the supervisor clipboard for easy reference. Additionally, laminated copies of the maternal code protocol are kept on top of the OB department’s code blue carts and emergency postpartum hemorrhage cart for ready access.

The physician section of the protocol outlines medical responsibilities. These steps coordinate with nursing activities and provide direction for variations in care based on a woman’s individual needs. In addition, some protocols also include a laboratory section that indicates the steps that must be taken to ensure that delays are kept to a minimum in blood bank and hematology.
Details of Each Protocol

Postpartum Hemorrhage

For the postpartum hemorrhage protocol, defined tasks were primarily based on the CQMCC (2010) protocol, but the tasks were tailored to our specific institution. For example, the protocol says that nurses should request a move to the operating room after administration of the second medication (oxytocin + misoprostol or methylergonovine maleate or carboprost promethamine) in order to maintain consistency of practice. Although use of the massive hemorrhage pack was already in practice, a reminder of the contents (6 units packed red blood cells, 4 units fresh frozen plasma, 1 platelethpheresis and 10 packs cryoprecipitate) was listed on the protocol. In light of the concerns regarding methylergonovine maleate in women with hypertension (Food and Drug Administration, 2012), misoprostol was chosen as the second-line medication. Staff nurses also suggested that phone numbers be added to streamline notification of necessary personnel.

The postpartum hemorrhage protocol was used with high-fidelity simulation in the institution’s 2014 OB annual skills fairs, combining L&D and Couplet Care nurses, and quarterly unit mock code drills with all team members (ACOG, 2006; Berkowitz & Bernstein, 2012; Hansen & Arafeh, 2012). Written evaluations from the nurses during skills fairs were consistently positive. Additionally, an Institutional Review Board approved study is in progress to review contributing factors for patients who have had a postpartum hemorrhage before initiation of the protocol and to evaluate if the protocol’s use is affecting rates of postpartum hemorrhage and related morbidity.

Maternal Code

The maternal code protocol was developed in accordance with the AHA’s Advanced Cardiac Life Support (ACLS) algorithms (Vanden Hock et al., 2010). There are OB-specific additions to the ACLS algorithms from the AHA that are pertinent to the maternal code protocol. Displacement of the uterus during cardiopulmonary resuscitation facilitates blood return to the heart and is critical to return of spontaneous circulation. Fetal monitor components should be removed prior to defibrillation or cardioversion to decrease potential risks of arcing and damage to monitor components. Hand placement for chest compressions should be slightly higher on the maternal chest due to cardiac displacement during pregnancy. Early advanced airway should be considered and performed by an experienced professional, as intubation of pregnant patients can be difficult. Delivery of a fetus ≥28 weeks gestation by emergency cesarean or hysterotomy should be accomplished approximately 4 minutes after the initial arrest to facilitate blood return to the heart and improve maternal resuscitation success (ACOG, 2009). Mock code drills utilizing the maternal code protocol have assisted in keeping nurses’ skills current in performing ACLS steps that are rarely implemented.

Shoulder Dystocia

Shoulder dystocia is often an unexpected, sudden event and nurses must act quickly to complete all necessary steps associated with this emergency. The shoulder dystocia protocol enables staff to review these steps if a woman with risk factors for shoulder dystocia presents to the OB unit. The protocol can

Use of protocols during mock emergency drills can assist in educating staff on critical steps that must be taken while maintaining a calm, collected setting, thus creating a positive learning environment.
### Shoulder Dystocia Protocol

#### Stage 0: Every woman in labor/giving birth
**Stage 0:** Focus on risk assessment

- Assess every pt for risk factors for Shoulder Dystocia:
  - Previous shoulder dystocia
  - GDM/Diabetic mother
  - Fetal Macrosomia
  - Prolonged second stage of labor
  - Multiparity
  - Postdates
  - Obesity
  - Previous operative delivery from midpelvis

- Identify Turtle sign
- Call for help
- Document time
- McRobert’s Maneuver or knee-chest position
- Suprapubic pressure
- Call for NICU team

#### Stage 1: Shoulder Dystocia encountered
**Stage 1:** Focus on delivery of infant in a timely manner

- Assist as needed with infant resuscitation
- Postpartum oxytocin as ordered
- Observe closely for PPH
- Reassure patient and family
- Document:
  - Mode of delivery
  - Anterior Shoulder: Right or Left
  - No fundal pressure applied
  - Suprapubic pressure if needed
  - McRoberts maneuver
  - Episiotomy/ Extension/ Laceration
  - Cord gasses to lab & results
  - Infant status (Apgar, evidence of injury, weight)
  - Staff present
  - Family present
  - Counseling with family and by whom

- Assist as needed with infant resuscitation
- Postpartum oxytocin as ordered
- Observe closely for PPH
- Reassure patient and family
- Document:
  - Mode of delivery
  - Anterior Shoulder: Right or Left
  - No fundal pressure applied
  - Suprapubic pressure if needed
  - McRoberts maneuver
  - Episiotomy/ Extension/ Laceration
  - Cord gasses to lab & results
  - Infant status (Apgar, evidence of injury, weight)
  - Staff present
  - Family present
  - Counseling with family and by whom

#### Stage 2: Post-event
**Stage 2:** Focus on communication with patient and family

- Assist as needed with infant resuscitation
- Postpartum oxytocin as ordered
- Observe closely for PPH
- Reassure patient and family
- Document:
  - Mode of delivery
  - Anterior Shoulder: Right or Left
  - No fundal pressure applied
  - Suprapubic pressure if needed
  - McRoberts maneuver
  - Episiotomy/ Extension/ Laceration
  - Cord gasses to lab & results
  - Infant status (Apgar, evidence of injury, weight)
  - Staff present
  - Family present
  - Counseling with family and by whom

### Nurses

- Assess every pt for risk factors for Shoulder Dystocia:
  - Previous shoulder dystocia
  - GDM/Diabetic mother
  - Fetal Macrosomia
  - Prolonged second stage of labor
  - Multiparity
  - Postdates
  - Obesity
  - Previous operative delivery from midpelvis

- Identify Turtle sign
- Call for help
- Document time
- McRobert’s Maneuver or knee-chest position
- Suprapubic pressure
- Call for NICU team

### MD

- Assessment as above
- Identify Turtle sign
- Call for McRoberts’ Maneuver or knee-chest position and Suprapubic pressure
- Woods maneuver
- Rubin maneuver
- Delivery of posterior arm
- Consider Zavanelli Maneuver

- Identify Turtle sign
- Call for McRoberts’ Maneuver or knee-chest position and Suprapubic pressure
- Woods maneuver
- Reverse Woods Screw maneuver, all fours (Gaskin maneuver), anterior scapula (Rubin maneuver), Zavanelli maneuver, abdominal delivery

- Examine for vaginal and lower uterine segment lacerations; repair as needed
- Assess for PPH risks
- Reassure patient and family
- Assist as needed with infant resuscitation
- Postpartum oxytocin as ordered
- Document:
  - Mode of delivery
  - Anterior Shoulder: Right or Left
  - No fundal pressure applied
  - Suprapubic pressure if needed
  - Use of: McRoberts, Delivery of posterior arm, Woods maneuver, Reverse Woods Screw maneuver, all fours (Gaskin maneuver), anterior scapula (Rubin maneuver), Zavanelli maneuver, abdominal delivery
  - Episiotomy/ Extension/Laceration
  - Cord gasses to lab & results
  - Infant status (Apgar, evidence of injury, weight)
  - Staff present
  - Family present
  - Counseling with family and by whom

- Postpartum: perineal assessment, Monitored for PPH, PPD, Communicate with Pedi re: infant status, Coordination of follow-up care for mom and baby
<table>
<thead>
<tr>
<th>Stage 0: Every woman in labor/giving birth</th>
<th>Stage 1: Emergent event requiring Cesarean Section encountered:</th>
<th>Team Assignments</th>
<th>Stage 2: Post-event</th>
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<tr>
<td>Stage 0: Focus on risk assessment</td>
<td>• Acute Fetal Bradycardia</td>
<td></td>
<td>Stage 2: Focus on communication with patient and family</td>
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<td></td>
<td>• Prolapsed Umbilical Cord</td>
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<td>• Massive Vaginal Bleeding</td>
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<td>• Maternal Embolism: Blood Clot/Amniotic Fluid</td>
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<td>• Fetal Cardiac Arrest: Post-Procedure</td>
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<td>Stage 1: Focus on delivery of infant in a timely manner</td>
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<td><strong>FIGURE 4</strong></td>
<td><strong>EMERGENCY CESAREAN PROTOCOL</strong></td>
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</tbody>
</table>

**Nurses**
- Utilize current NICHD guidelines for fetal monitoring nomenclature and strip interpretation
- Communicate in a timely manner with other members of the team
- Identify problem, Call OB Emergency Response Team
- Call for help: MD, Hospitalist, Supervisor, Anesthesia, Nurse Practitioner, other staff and scrub tech
- RN caring for patient reports to team members as they arrive
- Note times (Supervisor to assign)
- Maintain as calm environment as possible
- Utilize initial intrauterine resuscitation measures, including:
  - Position change,
  - Oxygen @ 10L per NRB mask,
  - Decrease uterine activity (if on Pitocin, discontinue),
  - Start/increase IV fluids,
  - SVE as appropriate,
  - Terbutaline SQ/IV per protocol
- If FHR does not respond to resuscitation measures within 4-5 minutes, move patient to OR. Get verbal consent. Reassure family.
- Call for NICU team and First Assist
- Simultaneously place Foley, Shave prep, bovie pad, abdominal prep, instruments to table
- Deliver asap

**MD, Hospitalist, Anesthesia, First Assist, NICU team**
- Utilize current NICHD guidelines for fetal monitoring nomenclature and strip interpretation
- Communicate in a timely manner with other members of the team
- Respond asap to bedside, if >4-5 minutes, proceed directly to OR and prep for operative delivery
- Support patient and family members
- Document events, coordinate with documenting nurse for times

**Primary Nurse:**
- Keep team informed, maintain calm, Circulator
- Supervior:
- Ensure all players present, assign roles if team members not available, task Nurse Practitioner, Clinical Educator, or Patient Safety Nurse to roles as available, assign documentation role
- First responder:
- Assist anesthesia, coordinate blood admin.
- Second responder:
- Assist in moving patient, prepping patient, supplies
- L&D unit secretary:
- Assist in making calls
- Couplet unit secretary:
- Assist in running labs/blood
- Scrub Tech:
- Prepare room, assist in surgery

**In OR:**
- Count sponges, needles, instruments asap, x-ray prior to final closing if opening count not done if possible. X-ray must be done prior to patient leaving OR.
- Document times of events as near to occurrence as able
- Assist Anesthesia as needed
- Provide support to family
- After surgery, prepare patient to move to PACU and proceed with recovery.
When unexpected crises occur on the OB unit, nurses and other clinicians must act quickly and take appropriate steps to ensure best health outcomes.

Also be used as a guide following a shoulder dystocia occurrence to ensure that documentation includes all relevant information or as a checklist for mock drills.

Key steps in the nursing process include identification of the turtle sign (retraction of the fetal head at delivery), call for help, documentation of time when the head delivers and when the body delivers, McRobert's maneuver or Gaskin all-fours maneuver, application of suprapubic pressure and notification of the neonatal intensive care unit team. Physician's steps include identification of the turtle sign, Woods screw maneuver, Rubin maneuver, delivery of the posterior arm and Zavenelli maneuver (ACOG, 2002a; Rodis, 2013; Simpson & O'Brien-Abel, 2014; Thorp & Laughon, 2014). Items for documentation are included in the protocol.

Emergency Cesarean

High-volume L&D units are likely to have the emergency cesarean process refined. However, even the most seasoned clinician can forget crucial steps. Opportunity exists to make the process more orderly as an “all hands on deck” mentality can take over, causing everyone to rush to the operating room without thought about who is caring for remaining patients. Using the emergency cesarean protocol provides an opportunity for the team to create a more orderly, consistent process with reminders of critical tasks that otherwise might be overlooked. Assigning responsibility of specific jobs to individual team members assures that all necessary steps are completed or delegated to other personnel.

Given the emergent nature of this situation, it’s unlikely that anyone will have time to review the protocol during the initial phases. The tool’s primary purpose is as a reference and guide for mock emergency cesarean drills, where steps and procedures might be refined and reviewed, allowing the actual event to run smoothly with few missteps (ACOG, 2014). The protocol may be useful in OB units with smaller volume and less frequent occurrence of emergency cesarean to ensure all steps are completed.

Eclampsia

Use of magnesium sulfate for eclamptic seizure prophylaxis has reduced the incidence of eclamptic seizures to the point that many nurses have never experienced this event. Even seasoned OB nurses might not be able to clearly delineate or prioritize the appropriate steps to be taken during a seizure. The eclampsia protocol was developed as a guideline for nurses to reference in the event of an eclamptic seizure. Articles by Creasy et al. (2014) and Foley et al. (2011) and the CMQCC Preeclampsia Toolkit (Druzin et al., 2013) were referenced to provide current treatment guidelines.

The CMQCC Preeclampsia Toolkit (Druzin et al., 2013) provides a thorough literature review and care guideline for women presenting with gestational hypertension, pre-eclampsia without severe features, pre-eclampsia with severe features, eclampsia and superimposed pre-eclampsia on chronic hypertension. Recommendations are outlined for antepartum, intrapartum and postpartum care at all gestational ages. The toolkit includes information from 18 articles and the ACOG (2002b) Practice Bulletin on pre-eclampsia and eclampsia. Based on this information, our eclampsia protocol was modified slightly to provide consistency with current evidence, adding airway considerations and pretreatment with medications prior to intubation. The toolkit includes high-fidelity simulation examples, which will be integrated into future unit mock eclampsia drills.
FIGURE 5

ECLAMPSIA PROTOCOL

Stage 0: Every pregnant woman / given birth in past 12 weeks
Focus on risk assessment

Stage 1: Eclampsia (Seizure)
Focus on safety of the mother and fetus

Stage 2: Post-event
Focus on communication with patient and family

Nurses
- Assess every pt for risk factors for Eclampsia:
  - Primary hypertension (HTN) prior to 20 weeks gestation
  - Gestational Hypertension (HTN after 20 weeks gestation)
  - Preeclampsia (Gestational HTN with proteinuria)
  - Primary HTN with Superimposed Preeclampsia

Primary Nurse:
- Initiate Emergency call light
- Put up side rails on bed, turn patient to lateral position if able, protect patient from self harm as able, facilitate open airway
- Assess uterine activity and FHR once seizure has passed

First responder:
- Call OB Emergency Response Team
- Prepare oxygen for administration post seizure at 10L with non-rebreather bag, ensure suction is available to clear airway as needed
- Assist anesthesia, airway management complicated and must be managed by anesthesia or qualified provider
- Pre-intubation medications may be necessary and may include IV Esmolol, IV Lidocaine, or IV Remifentanil; be prepared to assist in preparation of these medications for administration by anesthesia
- Vital signs, Pulse ox, call RT for ABG’s post-seizure
- Assist with moving patient to OR if needed for abdominal delivery
- See Emergent CS role

Second responder:
- Obtain Crash Cart
- Draw up 6 Gms MgSO4 for bolus if not on Mag
- Draw up 2 Gms MgSO4 for IVP bolus if on IV Mag
- Have Ativan, Versed or Dilantin (undelivered) or Valium (delivered) available.
- Administer antihypertensives as ordered

Supervisor (do or assign):
- If moved to OR:
  - Assist with OR setup
  - Count
  - Surgical Field Lights
  - White Board Times
  - Obtain items called for, make calls to Blood bank (#33204) and Lab (#35800) as appropriate
  - Direct other available personnel as needed

MD
- Assessment as above
- Go to bedside
  - MgSO4 6 Gms for bolus if not on Mag
  - MgSO4 2 Gms for IVP bolus if on IV Mag
  - Order Versed 1-2 mg IVP (repeat q 5-10 min), Ativan 4 mg IVP over 2-5 min. (repeat q 5-15 min. up to 8 mg/12 hours), or Dilantin 1000 mg IV over 20 min. (undelivered) or Valium 5-10 mg IV slowly repeat q 15 min up to 30 mg total (delivered only)
  - Order antihypertensives (Labetolol 20 mg IV or apresoline 5-10 mg), follow antihypertensive protocol
  - Make decision regarding emergent Cesarean Section

- If patient remains undelivered, continue to monitor fetus
- Repair as needed
- Assess for PPH risks
- Reassure patient and family
- Assist as needed with infant resuscitation
- Post Event MgSO4 as ordered
- Observe closely for PPH
- Reassure patient and family
- Document
Conclusion
When unexpected crises occur on the OB unit, nurses and other clinicians must act quickly and take appropriate steps to ensure best health outcomes. Use of protocols during mock emergency drills can assist in educating staff on critical steps that must be taken while maintaining a calm, collected setting, thus creating a positive learning environment. In the event these drills become reality, preparation that has occurred through use of these protocols can promote a controlled atmosphere with optimal results for both the women experiencing a health crisis and the health care staff caring for them. NWH

References


Food and Drug Administration (FDA). (2012). Safety labeling changes approved by FDA Center for Drug Evaluation and Research (CDER)—June 2012: Methergine
Letters to the Editor

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