OBSTETRIC EMERGENCIES: PREPARING THE TEAM

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Disclosure

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☐ I have no relevant disclosures.

☐ I do not have any commercial support for this lecture.

☐ I do not endorse any specific product, service or system related to this lecture.
Objectives

- Describe the basic tools that provide the foundation for bedside nursing practice.
- Review how unit process and systems issues impact the care of high risk and critically ill pregnant women.
- Discuss how interprofessional simulation can be used to uncover system issues and process to support emergency response.
Scope of the problem
Healthcare = Complex

Recent examples:
- RN could not override emergency medications until patient was admitted; delayed care and resulted in injury
- Delays in getting the right team members to a code
- Conflicting documentation after a shoulder dystocia
- Patient with known preeclampsia presents to ER with c/o chest pain and SOB; stayed in ER for 8 hours working up for MI and PE; abruption
- RN gives methergine to a hypertensive patient due to no postpartum hemorrhage protocol; patient had hypertensive crisis
Maternal and Perinatal Sentinel Events
1995 - 2013

Reported Maternal and Perinatal Sentinel Events 1995-2013

Adapted from http://www.jointcommission.org/assets/1/18/Event_Type_by_Year_1995-2Q2013.pdf

*Note: Number of pregnancy-related deaths per 100,000 live births per year.*

http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html
<table>
<thead>
<tr>
<th>Cause of Pregnancy Related Death</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular Disease</td>
<td>15.1%</td>
</tr>
<tr>
<td>Non-Cardiovascular Diseases</td>
<td>14.1%</td>
</tr>
<tr>
<td>Infection/Sepsis</td>
<td>14%</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>11.3%</td>
</tr>
<tr>
<td>Cardiomyopathy</td>
<td>10.1%</td>
</tr>
<tr>
<td>Thrombotic pulmonary embolism</td>
<td>9.8%</td>
</tr>
<tr>
<td>Hypertensive Disorders of pregnancy</td>
<td>8.4%</td>
</tr>
<tr>
<td>Amniotic Fluid Embolism</td>
<td>5.6%</td>
</tr>
<tr>
<td>Cerebrovascular accidents</td>
<td>5.4%</td>
</tr>
<tr>
<td>Anesthesia complications</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/Pregnancy-relatedMortality.htm
Severe Maternal Morbidity in U.S.

http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PMSS.html
Pregnancy Related Morbidity

- Rate of severe complications have doubled in the last decade
- Near misses increased by 27%

- Obesity
- Diabetes
- Hypertension
- Cardiac Disease
- Older
- Multiple gestation
- C-section
- Substance use
Question: How would your unit handle an OB Emergency?

A. Unit always performs well; protocols are clear and easy to follow; staff nurses have comprehensive roles and roles are always filled; communication is clear and concise

B. Unit usually performs well; dependent on which team members are present; some teams perform better than others

C. Unit usually does not perform well; often response is chaotic and unorganized; communication is most often poor
Question: Does your unit respond with solutions only after a bad outcome occurs?

- Appropriate staffing
- Education
- Training
- Standardized Protocols
- Systems – effective, efficient, patient centered
- Process simplification
- Anticipation
Adjective of Choice Systems and Processes

- Staff RNs giving radiographic contrast on “off” shifts
- Management of arterial lines without an understanding of pathophysiology or vasoactive medication administration.
- Could not get emergent medications until admitted.
- Can’t take a woman to the OR for an emergent c-section due to bradycardia until a physician tells them it’s OK.
- “On the day shift we care for the patient __________, BUT on the night shift/weekend/holiday we_________.”
Systems and Processes

- Patient Harm = Hospital liability
  - Failure to have proper systems and processes in place to care for high risk and critically ill pregnant women
Moles: Blood Bank, Lab, Nursing, Medicine, Pharmacy.....
“Luck is not a Plan”

NASA
Solutions: Start with a Strong Foundation

IOM: Six Aims for Improvement
- Safety
- Patient-centeredness
- Efficiency
- Effectiveness
- Timeliness
- Equity
KISS

Patient Assessment

Critical Thinking

Systems and Processes
Evaluation of Systems and Processes

- Resources and support from administration
- Interprofessional analysis of current issues — may require outside assistance
- Determine measurable objectives
- Gather data
- Willingness to be open minded, recreate, to accept change
- Communication of results to ALL team members with rationale for change
Systems

- Rapid Response
  - OB specific
  - Early Warning Triggers of Maternal Compromise
- Code Response
- Pharmacy: Ability to give emergency medications
- Lab: Ability to get STAT lab results
  - Bedside lab testing
- Blood Bank: immediate availability of products
- Equipment
  - ECG monitoring
  - Hemodynamic monitoring
- Documentation
Processes

- Defined scope of care
  - What types of patients?

- Work flows

- Policies, Protocols, Checklists

- Transport
  - Where to take the patient once stabilized?
    - L & D
    - ICU
    - OR
    - Transport to another facility
  - Who determines if a patient needs to be transported?
  - What is the process to initiate a transport?
  - Who accompanies patient during transport?
Committee on Patient Safety and Quality Improvement

This document reflects emerging concepts on patient safety and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Preparing for Clinical Emergencies in Obstetrics and Gynecology

Proactive v. Reactive
Examples of Tools for Managing Clinical Emergencies

• Availability of appropriate emergency supplies in a resuscitation cart (crash cart) or kit
• Development of a rapid response team
• Development of protocols that include clinical triggers
• Use of standardized communication tools for huddles and briefs (e.g., SBAR)
• Implementation of emergency drills and simulations
Availability of appropriate emergency supplies in a resuscitation cart (crash cart) or kit

- Appropriate medications for resuscitation of the pregnant woman
  - Magnesium sulfate

- Kits
  - Hemorrhage
  - Perimortem c-section
  - Difficult intubation

Knowledge and comfort level of Team Members
Rapid Response Team

- When should you activate a RR?
  - Indicators

- How should you activate a RR?
  - Operator

- Who should be a part of the RR Team?
  - # of providers
  - Skill set

- Where should the RR team members come from?

Develop standardized protocols for OB emergencies

- What makes a good protocol?
  - Evidence based
  - Comprehensive
  - Interprofessional collaboration
  - Accountability

> "Research has shown that when protocols and clinical policies are implemented systematically, adverse maternal outcomes are reduced significantly."

CDC
Implementation of emergency drills and simulations

- Utilize simulation to practice care of high risk/CCOB woman
  - Video recording training to emphasize team skills
  - Embed metrics to improve processes, systems
Test the Protocol on Your Unit

- Can the critical behaviors in the protocol be carried out easily by staff?
  - Run a drill on the unit with experienced staff
  - Uncover system issues and resolve them

- Is the critical behaviors checklist easy to use?
  - Identify areas where staff will need additional training

- Train staff AFTER protocol vetted, system issues addressed
Develop a cognitive aid with critical behaviors based on the protocol.
US Airways Engine Dual Failure Checklist

ENG DUAL FAILURE

1. If no fuel remaining:
   a. THR LEVERS.......................... Confirm................................. IDLE
   b. EMER ELEC PWR (if EMER GEN not on-line) ....................... MAN ON
   c. FAC 1...................................................... OFF then ON
   [Resetting FAC 1 enables the recovery of characteristic speeds displayed on the PFD, and enables rudder trim recovery, even if no indication is available. Once hydraulic power is lost, the right aileron is lost, and is in the up float position. Rudder trim may be used to compensate for this up floating aileron.]
   d. Optimum speed................................. Green Dot
   e. Landing Strategy............................... Determine
   [Determine most appropriate place for forced landing/ditching.]
   f. ATC (VHF1, HF1, ATC1).......................... Notify
      (1) If unable to contact ATC on assigned frequency:
      (a) ATC Code ........................................... A7700
      (b) Distress Message ................................. Transmit
          [Use one of the following frequencies: VHF 121.5 MHz, HF 2182 KHz or 8364 KHz]
   g. Oxygen Masks (above 10,000')........... Verify................................. ON
   h. Go to step 2.

2. If fuel remaining:
If fuel remaining:

a. ENG MODE Selector ................................................................. IGN
b. THR LEVERS .............................................................. Confirm ..................................................... IDLE
c. Airspeed ................................................................. Optimum relight speed 300 kts(CFM)/280 kts(IAE)

(1) If A319 or A320:

[For airspeed indication failure (volcanic ash) the pitch attitude for optimum relight speed is 4.5°(CFM)/2.5°(IAE) nose down. Add 1° nose up for each 22,000 lbs. above 110,000 lbs.

CFM: At 300 kts, the aircraft can fly approximately 2.0 nautical miles per 1000 feet (no wind)

IAE: At 280 kts, the aircraft can fly approximately 2.2 nautical miles per 1000 feet (no wind)]

or

If A321:

[For airspeed indication failure (volcanic ash) the pitch attitude for optimum relight speed is 4.5° nose down. Add 1° nose up for each 22,000 lbs. above 132,000 lbs.

At 300 kts, the aircraft can fly approximately 2.0 nautical miles per 1000 feet (no wind)]

d. Landing Strategy ................................................................. Determine

[Determine most appropriate place for forced landing/ditching.]
OBLS: ARREST IN A PREGNANT PATIENT

CALL a Code Blue: Pull emergency cord/button
- OB stat
- NICU
- Get Crash Cart
- Identify Team/Code Leader
- Assign Timer/Documenter

CIRCULATION

- There is no pulse – Start compressions
  - Left uterine displacement
  - Remove fetal monitor
  - Backbone (or bed in CPR mode)
  - 100 compressions/minute
  - Push hard, push fast
  - Change compressors q 1 to 2 min

AIRWAY

- Chin lift
- Oral airway

BREATHING

- There is no breathing – Start ventilation
  - With ambu bag and mask
  - 30 compressions: 2 breaths
  - Intubation should not be attempted in 1st 5 minutes
  - If already intubated
  - breath every 6 seconds
  - “C and E” position

DEFIBRILLATE & DELIVER FETUS

- Apply pads
- Analyze/defibrillate via AED
- Immediately resume CPR x 2 min
- Prepare for c-section/operative vaginal delivery
- Reanalyze q 2 minutes with AED
- STAT DELIVERY: goal of 5 min
  - Recommended by AHA, ref. by Katz

Epinephrine

- Give 1mg (1 dose)

Team Skills: Effective Communication

- Closed loop communication
  - Consider communication patterns — who needs to communicate with who
  - Concentrate on most important actions — communication from leader, medication administration

Provider to nurse: Nurse, please give 0.2 mg of methergine IM.
Nurse to provider: Provider, you want 0.2 mg of methergine IM?
Provider to nurse: Yes. Nurse to provider: 0.2 mg of methergine IM being given now. Provider to nurse: Thank you.
Team Skills: Effective Communication

- Hand-off/Report
  - Format
    - SBAR
    - One line
  - Timing of report to leader, to arriving team
Team Skills: Effective Communication

- Shared mental model
  - Team aware of plan, next actions
  - Terms or phrases to denote certain actions or conditions
Team Skills: Speaking Up

- Interprofessional simulations and debriefing allow team members to talk about how to speak up and how to acknowledge someone who speaks up.
Team Skills: Speaking Up

- Simulations/drill considerations
  - Actor/confederate who is a team member makes a mistake
  - Address issues in other simulations as they occur
    - If a team member does not speak up, why?
    - What would help team members to speak up?
Team Skills: Situation Awareness

- Maintaining awareness of patient condition and response to care

- Strategies to maintain awareness
  - Thinking out loud
  - Assign a person to announce time and key vital signs during emergency/resuscitation
  - Documenter role expanded to include time keeping particularly in a resuscitation
“The weakest link in patient care is the tendency of the clinician to convince himself or herself that somehow everything will be alright”

Stephen Ayres, MD
Key Priorities in Maternal Safety

- Supplemental Patient Safety Bundles
  - Maternal Early Warning Criteria: criteria to identify maternal patients who require urgent bedside evaluation
  - Facility Review: case review packages for facility-based, miniroot cause analysis for use in all cases of severe maternal morbidity and mortality
  - Family and Staff Support: recommendations for support of patients, families, and staff who experience a severe maternal event
Patient Assessment

- Cardiovascular
- Pulmonary
- Genitourinary
- Neurologic
- Lab values

REACT
MEOWS
National Partnership
REACT Process

1. Recognition of obstetric early warning signs/symptoms
2. Communication
3. Bedside assessment by provider
4. Critical thinking as to cause
5. Documentation

<table>
<thead>
<tr>
<th>Maternal</th>
<th>Yellow</th>
<th>Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td>21-30</td>
<td>&gt; 30</td>
</tr>
<tr>
<td>HR</td>
<td>100-120 bpm</td>
<td>&gt; 120 bpm</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>90-100 mm Hg or 150-160 mm Hg</td>
<td>&lt; 90 mm Hg or &gt; 160 mm Hg</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>90-100 mm Hg</td>
<td>&gt; 100 mm Hg</td>
</tr>
<tr>
<td>SpO2</td>
<td></td>
<td>&lt; 95%</td>
</tr>
<tr>
<td>Temperature</td>
<td>&lt; 36°C</td>
<td>&gt; 38°C or &lt; 35°C</td>
</tr>
<tr>
<td>Neurologic</td>
<td>responds to voice</td>
<td>responds to pain only or is unresponsive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Looks Unwell</td>
</tr>
</tbody>
</table>
National Partnership for Maternal Safety Criteria

- SBP < 90 or > 160
- DBP > 100
- HR < 50 or > 120
- RR < 10 or > 30
- SpO2 < 95%
- Oliguria mL/hr ≥ 2hrs less than 35 mL
- Agitation, confusion, unresponsiveness
- Pre Eclampsia: SOB, unrelenting HA

Early Warning System

- Documentation strategy that assists in alerting the bedside provider to changes in patient status
- Ability to see trends

<table>
<thead>
<tr>
<th></th>
<th>98.6 (37)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp src</td>
<td>Oral</td>
</tr>
<tr>
<td>BP</td>
<td>150/75 155/77 183/91 161/72</td>
</tr>
<tr>
<td>MAP Cuff (mmHg)</td>
<td>109 129 103</td>
</tr>
<tr>
<td>Does patient have an arterial line?</td>
<td></td>
</tr>
<tr>
<td>Arterial Line BP</td>
<td></td>
</tr>
<tr>
<td>Arterial Line MAP (mmHg)</td>
<td></td>
</tr>
<tr>
<td>Pulse</td>
<td>85 89 95 95 93</td>
</tr>
</tbody>
</table>
Core Patient Safety Bundles

- Obstetric hemorrhage
- Severe hypertension in pregnancy
- Venous thromboembolism prevention in pregnancy

KEY ELEMENTS

- Recognition and Prevention
- Readiness
- Response
- Reporting/Systems Learning
Obstetric Hemorrhage

- Nationwide, blood transfusions increased 92% during delivery hospitalizations between 1997 and 2005.

1. Department of Public Health, Maternal, Child, and Adolescent Health Division. Public Released Data available at: [www.cmqcc.org](http://www.cmqcc.org)

PPH 10 Most Common Mistakes

1. Treating “Postpartum Hemorrhage” as a diagnosis (as opposed to a sign) and not identifying underlying cause(s)
2. Underestimating blood loss
3. Inattention to vital sign trends
4. Delay in laboratory assessment for developing anemia and coagulopathy
5. Delay in instituting blood component therapy
6. Delay in surgical intervention
7. Not making the mental shift from “normal delivery” to “life-threatening emergency”
8. Poor perioperative communication between the Obstetrician and Anesthesiologist regarding who will primarily manage blood loss estimation, laboratory assessment, and blood component therapy
9. Poor postpartum communication between Nurse and Obstetrician regarding estimated blood loss, patient vital signs and other clinical indicators
10. Lack of preoperative preparation for massive hemorrhage (e.g. placenta previa with prior cesareans and suspected placenta accreta)

HCA online PPH course, Advanced Practice Strategies
Angiographic embolization is not meant to be used for acute, massive postpartum hemorrhage.

If more than a single dose of medication is necessary to treat uterine atony, go to the patient’s bedside until the atony has resolved.

Never treat “postpartum hemorrhage” without simultaneously pursuing an actual clinical diagnosis.

In the postpartum patient who is bleeding or who recently has stopped bleeding and is oliguric, furosemide is not the answer.

Any woman with placental previa and one or more cesarean deliveries should be evaluated and delivered in a tertiary care medical center.

If your Labor and Delivery unit does not have a recently updated Massive Transfusion Protocol based on established trauma protocols, get one today.
Patient Assessment: EBL

- Visually estimated blood loss
  - Underestimation approached 88% in one study
  - Underestimation → Delayed diagnosis → Increased M&M
- Prompting to periodically assess blood loss can also improve accuracy

Patient Assessment: 
Quantification of Blood Loss

- AWHONN Postpartum Hemorrhage Project 
  www.pphproject.org/

- Safe Motherhood Initiative Hemorrhage Bundle 

"All obstetric units and practitioners must have the facilities, personnel, and equipment in place to manage this emergency properly."
Example: CMQCC Hemorrhage

**OBSTETRIC EMERGENCY MANAGEMENT PLAN: FLOW CHART FORMAT**

**CMQCC**

*Pre-Admission*
- Identify patients with special consideration:
  - Placenta previa/accreta, Bleeding disorder, or those who decline blood products

*Time of admission*
- Screen All Admissions for hemorrhage risk:
  - Low Risk, Medium Risk and High Risk

**Stage 0**
- All women receive active management of 3rd stage:
  - Oxytocin IV infusion or 10 Units IM, 10-40 UI infusion

**Stage 1**
- Activate Hemorrhage Protocol
  - Blood Loss: >500 ml Vaginal
    - >1000 ml CS
      - Increase IV Oxytocin Rate
      - Methergine 0.2 mg IM (if not hypotensive)
      - Vigorous Fundal massage; Empty Bladder; Keep Warm
      - Administer O2 to maintain Sat >95%
      - Rule out retained POC, laceration or hematoma
      - Order Type & Crossmatch 2 Units PRBCs if not already done

**Stage 2**
- Sequentially Advance through Medications & Procedures
  - Vaginal Birth:
    - Simanual Fundal Massage
    - Retained POC: Dilatation and Curettage
    - Lower segment/Implantation site/Atony: Intravenous Balloon
    - Laceration/Hematoma: Packing, Repair as Required
    - Consider IR (if available & adequate experience)
  - Cesarean Birth:
    - Continued Atony: B-Lynch Sutures/Intravenous Balloon
    - Continued Hemorrhage: Uterine Artery Ligation

**Stage 3**
- Unresponsive Coagulopathy:
  - After 10 Units PRBCs and full coagulation factor replacement, may consider (Factor VIIa)

**Activate Massive Hemorrhage Protocol**
- B-Lynch Sutures/Intravenous Balloon
- Uterine Artery Ligation
- Hypogastric Ligation (experienced surgeon only)
- Consider IR (if available & adequate experience)

Ongoing Evaluation:
- Quantification of blood loss and vital signs

Cumulative Blood Loss:
- >500 ml/dec >1000 ml CS
- <15% Vital Sign change:
  - HR: 2110, BP: 85/52, SG: 60
- Standard Postpartum Management: Fundal Massage

Increased bleeding:
- CALL FOR EXTRA HELP
- Continued heavy bleeding

Decreased blood loss:
- Transfuse 2 Units PRBCs per clinical signs
- Do not wait for lab values
- Consider shaving 2 Units FFP

Cumulative Blood Loss:
- >1000 ml, 2 Units Given, Vital Signs Unstable
- Consider ICU Care, Increased Postpartum Surveillance

**To OR (if not there):**
- Activate Massive Hemorrhage Protocol
- Mobilize Massive Hemorrhage Team
- TRANSFUSE AGGRESSIVELY
- RBC-FFP RATIO: 1:1 or 2:1

Definitive surgery:
- Hemostatic surgery
- Consider Hysterectomy

HEMORRHAGE CONTINUES

California Maternal Quality Care Collaborative (CMQCC), Hemorrhage Taskforce (2005) visit www.CMQCC.org for details.

This project was supported by funds received from the State of California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Division.
## Example: Accreta Process

<table>
<thead>
<tr>
<th>Scenario: Patient is in LDR or OR with previously undiagnosed accreta</th>
<th>Role</th>
<th>Specifics</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk factors for placenta accreta assessed prior to c-section</td>
<td>OB Physician; Anesthesiologist; Circulating RN</td>
<td>Prior c-section; prior myomectomy; placenta previa</td>
<td></td>
</tr>
<tr>
<td>Patient in OR</td>
<td>ALL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placenta Accreta suspected or diagnosed</td>
<td>OB Physician</td>
<td>Communicates diagnosis with OR Team</td>
<td></td>
</tr>
<tr>
<td>Charge RN notified</td>
<td>Circulating RN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Circulating RN assigned</td>
<td>Charge RN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anesthesiology requests backup</td>
<td>Anesthesiologist</td>
<td>Coverage for L &amp; D and/or additional help in OR</td>
<td></td>
</tr>
<tr>
<td>OB Hospitalist notified and requested to come to OR</td>
<td>Charge RN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consider activating RRT</td>
<td>Any team member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accreta Team paged</td>
<td>Charge RN</td>
<td>Via Hospital Operator</td>
<td></td>
</tr>
<tr>
<td>Blood Bank notified and MTP activated</td>
<td>Charge RN</td>
<td>Charge RN returns to unit in order to cover other patient care needs as indicated</td>
<td></td>
</tr>
<tr>
<td>Elective OR or induction cases put on hold</td>
<td>Charge RN</td>
<td>Allows for all available resources to assist with case</td>
<td></td>
</tr>
<tr>
<td>Accreta surgical instruments opened</td>
<td>2nd ORT</td>
<td>Accreta Cart</td>
<td>To be developed with identical instruments and supplies in all ORs</td>
</tr>
<tr>
<td>Accreta Team returns page to House Supervisor</td>
<td>House Supervisor</td>
<td>Checklist of Accreta Team</td>
<td></td>
</tr>
<tr>
<td>Blood prepared by Blood Bank</td>
<td>Blood Bank</td>
<td>Consider O Negative blood if emergent need</td>
<td></td>
</tr>
</tbody>
</table>
## Placenta Accreta Safety Checklist

### Antepartum and BPR Pre-Surgical Checklist

<table>
<thead>
<tr>
<th>Consults</th>
<th>Consents</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ MFM</td>
<td>□ Cesarean Section</td>
</tr>
<tr>
<td>□ GYN Oncologist</td>
<td>□ Hysterectomy</td>
</tr>
<tr>
<td>□ Urology</td>
<td>□ Cystoscopy with Bilateral Stent Placement</td>
</tr>
<tr>
<td>□ Anesthesiology</td>
<td>□ Epidural/Spinal/General</td>
</tr>
<tr>
<td>□ Intensive Care</td>
<td>□ Arterial Line</td>
</tr>
<tr>
<td>□ Interventional Radiology</td>
<td>□ Central Line</td>
</tr>
</tbody>
</table>

### OR Pre and Intra-operative Checklist

<table>
<thead>
<tr>
<th>Anesthesiology</th>
<th>Risk of Blood Loss (&gt; 1000mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Antibiotic prophylaxis</td>
<td>□ Blood in OR (4 units PRBCs; 4 units FFP; 4 &amp; 4 in Blood Bank)</td>
</tr>
<tr>
<td>□ Methergine in OR</td>
<td>□ Cell Saver (equipment and personnel)</td>
</tr>
<tr>
<td>□ Hemobate in OR</td>
<td></td>
</tr>
<tr>
<td>□ Misoprostil in OR</td>
<td></td>
</tr>
<tr>
<td>□ Normothermia measures</td>
<td></td>
</tr>
</tbody>
</table>

### Laboratory

- Hemoglobin _________ Hematocrit _________
- Prenatal Labs
- Type and Cross within last 72 hours
- Other:

### Blood Bank Notified: ____________________________ (date)

- 4 Units PRBCs and FFP to OR

### Nursing

- VTE Prophylaxis: SCDs on
- EFM during/after Epidural/Spinal

### Surgical Specialties

- MFM and GYN-Oncology
- Cesarean Section/Hysterectomy

### Urology

- Instruments, Equipment and Supplies

### Interventional Radiology

- On Stand-by
- Instruments, Equipment and Supplies

### Medications

- Pre-op Anesthesia
- Antibiotic to OR

### Other Equipment/Supplies Requested by Surgeon

- Pre-Brief Completed
- Patient Sticker
Activate MTP

Determine Team Roles
- Team Leader
- Documentation
- Runner
- Blood Administration

Documentation
- RN - stands by Team Leader
- Notifies Blood Bank, Lab, RRT

Runner
- Obtains MTP coolers from blood bank (can be non-licensed personnel)

Blood Administration
- Initial Labs
  - Hg, Hct, platelets
  - DIC panel: Fibrinogen, D-dimer, PT/INR, PTT
  - ABG with metabolites (iCa, K, Glucose)

- Use Rapid Infuser
  - Keep Patient Warm

Anticipate ongoing bleeding?

Team Leader
- Anesthesiologist or CRNA
- Obstetrician
- Intensivist

Initial MTP Blood Cooler
- 4 units RBCs
- 4 units FFP
- NOTE: if not previously typed and crossed, use O negative blood

Repeat Labs
- Hg, Hct, platelets
- DIC panel: Fibrinogen, D-dimer, PT/INR, PTT
- ABG with metabolites (iCa, K, Glucose)

Subsequent MTP Blood Cooler(s)
- 4 units RBC
- 4 units FFP
- 1 apheresis platelet unit
- 1 dose cryoprecipitate

Team Leader Deactivates MTP
- Criteria: normalization of lab values and/or or no evidence of ongoing bleeding
Situation Awareness During Hemorrhage Emergency

- Scanning/checking the cooler v. individual units
- Signing one sheet v. individual units
- Visual system to see how many units have been given
- Communication between providers
  - lab values, continued bleeding, QBL, vital signs, I & O
Systems and Processes: Kits

- Bakri
  - Balloon max 500 mL
  - Has a drainage tip (3.6 cm)
- ebb™ has TWO BALLOONS
  - Uterine balloon max 750 mL
  - Vaginal balloon max 300 mL
- Foley
  - 30 mL each
  - Need multiple
  - Drainage tip

Skill — how to assist with insertion
Nursing documentation with balloons
Systems and Processes: Defining Team Roles for Emergency Response

- Activation – who, how, triggers
- Team Leader identified
  - Physician
    - OB
    - Anesthesia
- Best utilization of resources
  - Delegation
- RN in charge of the room
## Example: Defining Team Roles

<table>
<thead>
<tr>
<th>Responder</th>
<th>Primary Role</th>
<th>ZONE</th>
<th>Responsibilities</th>
<th>Secondary Role</th>
<th>Education Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB Hospitalist</td>
<td>Assessment</td>
<td>3</td>
<td>Collaboration with RRT Team Leader</td>
<td>Assists RRT Leader with H&amp;Ts</td>
<td>CRM; ACLS; ECG</td>
</tr>
<tr>
<td>ICU Physician</td>
<td>Team Leader</td>
<td>4</td>
<td>Clearly identifies self as the RRT Leader; communicate with the 1st responder and Recorder; ensure assignment of specific tasks to RRT team members; direct overall resuscitation efforts; ensure optimal airway management; issues all medical and resuscitative orders</td>
<td>None</td>
<td>CRM; ACLS; ECG</td>
</tr>
<tr>
<td>L &amp; D RN</td>
<td>Recorder</td>
<td>4</td>
<td>Stands by RRT Leader; records interventions and timing of interventions; reminds RRT Leader of timing of interventions; ensures paper work is appropriately completed and scanned into patient's chart</td>
<td>None</td>
<td>CRM; ACLS; ECG</td>
</tr>
<tr>
<td>OB Resident</td>
<td>Assessment</td>
<td>3</td>
<td>Collaboration with RRT Team Leader</td>
<td>Delivery</td>
<td>CRM; ACLS; ECG</td>
</tr>
<tr>
<td>Respiratory Therapy</td>
<td>Airway; E-Proc</td>
<td>1</td>
<td>Brings bedside lab, pulse oximeter and end tidal CO2; manages the airway as directed by the RRT Team Leader; draw blood gases</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Medications</td>
<td>2</td>
<td>Brings separate &quot;box&quot; of medications to code (contains refrigerated medications which may be needed in a code); stands by code cart and assists with hand-off medications</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
Code Zones

ZONE 1
• airway, oxygen administration, placement of monitors, central access
• anesthesiologist(s), CRNA, anesthesia tech, RN, RT

ZONE 2
• Blood draws, IV start, medications, infusions, blood products, chest compressions
• RN, pharmacists

ZONE 3
• Fetus and blood loss assessment
• OB, CNMA, CNN, resident, RN room leader, primary RN

ZONE 4
• Recorder, leader
• Retrieves equipment and supplies
• RN, Nurse supervisor, critical care MD, Charge RN, APRN, supervising OB, security, supply chain
Additional References


Additional References


- Department of Public Health, Maternal, Child, and Adolescent Health Division Public Released Data available at: www.cmqcc.org

- Hansen SS et al. Implementing and sustaining in situ drills to improve multidisciplinary health care training. JOGNN 2012;41(4):559-70

Additional References