Maternal Safety Bundles for Obstetric Hemorrhage: ESCALATION

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SMI Meeting
Harlem Hospital
January 23, 2015
Current Escalation Tools

• TeamSTEPPS™

• **Team Strategies to Enhance Performance and Patient Safety**

• Program developed by AHRQ and the Department of Defense based on Crew Resource Management from the military, aviation, nuclear power, and other industries
# Team STEPPS™

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<td><strong>Check-back</strong></td>
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**Tools and Strategies**
- **Brief**
- **Huddle**
- **Debrief**
- **STEP**
- **I’M SAFE**
- Cross monitoring
- Feedback
- **Advocacy and Assertion**
- **Two-challenge Rule**
- **CUS**
- **DESC Script**
- **Collaboration**
- **SBAR**
- **Call-out**
- **Check-back**
- **Handoff**
- **Task Assistance**
Tool: Two-challenge Rule

• If an initial assertion by a team member is ignored...
  – It is the team member’s responsibility to assertively voice their concern twice to ensure it has been heard
  – Member being challenged must acknowledge
  – If outcome still not acceptable...
    • Escalate using chain of command
Two-challenge rule

- Patient with ongoing postpartum hemorrhage that the physician has not adequately responded to:
  - Nurse, who is concerned asks the physician to assess once—feels that she has not gotten an adequate response
  - Raises the issue again with more emphasis—still doesn’t get an adequate response
  - Calls another attending to assess situation
Tool: CUS

- Way of communicating when there is a safety issue
Can our SMI checklists be used to...
empower escalation??
reinforce collaborative multidisciplinary team work??
Obstetric Hemorrhage Checklist

- Call for assistance
- Response team to the bedside (P team)
  - Delivering attending MD/CNM
  - Primary RN
  - Anesthesiologist
- Huddle: appoint leader, recorder, nursing roles
- Identify hemorrhage stage → Document EBL & interventions
- Timekeeper will call out at 5 minute intervals

Blood loss > 500 ml vaginal OR blood loss > 1000 ml cesarean with normal vital signs and lab values

- Record VS O2 saturation every 5 minutes
- Record cumulative blood loss
- Insert Foley catheters
- IV access: 16 gauge if possible
- Increase IV fluid (crystalloid: estimated blood loss in 2:1 ratio without oxytocin)

- Fundal massage
- Determine and treat etiology (4 T: Tone, Trauma, Tissue, Thrombin)
- Blood bank: type and crossmatch 2 units PRBCs

Medications

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<td>Oxytocin (Pitocin)</td>
<td>40-80 international units/liter intravenously, or the equivalent</td>
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<td>Methylergonovine (Methergline)</td>
<td>0.2 milligrams intramuscularly (may be repeated every 2-4 hours)</td>
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<td>15-methyl PGF2α (Hemabate, Carabprost)</td>
<td>250 micrograms intramuscularly (may repeat every 15 minutes, maximum 8 doses)</td>
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<td>Misoprostol (Cytotec)</td>
<td>800-1000 micrograms rectally</td>
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Continued bleeding EBL > 1500 ml OR > 2 units PRBCs given OR patient at risk for occult bleeding (post-cesarean), DIC OR any patient with abnormal vital signs/lab values

- Outline management plan → Serial re-evaluation → Communicate with hemorrhage team
- Replacement → Hb:FFP:Platelets in a 6:4:1 ratio (trigger Massive Transfusion Protocol - MAP) → If coagulopathic, and cryoprecipitate
- Consider consultation for alternative agnets
- Identify etiology for bleeding (if unclear)
- Rule out lacerations (exam), coagulopathy (labs), occult bleeding (imaging)
- Achieve hemostasis immediately, interventions based on etiology
- Adopt additional measures (if poor response)

Cardiovascular Collapse: For patients with cardiovascular collapse in setting of massive hemorrhage

- Profound hypovolemic shock (blood loss not replaced)
- APE (sudden CV collapse followed by heavy uterine bleeding from uterine relaxation and associated coagulopathy)

In these situations, immediate surgical intervention to ensure hemostasis (hysterectomy) may be necessary. This should take place with simultaneous aggressive blood and factor replacement and medical interventions regardless of the patient’s coagulation status. Expedited hemostasis is the only step that will maximize survival rates for these critical patients.

Post-Hemorrhage Management

- Clinical considerations (including disposition of patient)
- Debrief
- Document after team debrief
- Discuss with patient/family members
Let's use our checklist to empower escalation...

27yo G2P1001 @ 39w4d IOL for category II FHR. Prior CD, GDMA1, GBS positive. Desiring TOLAC. 1/L/H. Pitocin, AROM, progressing.

0 Prolonged deceleration to 70s.
2 min FD/+1, attending called to room
9 min Patient pushed to FD/+3 and vacuum applied
10 min Infant delivered with one pull.
12 min Placenta delivered. EBL 1500cc.
  Pitocin, Cytotec, Methergine x2.
  2nd degree lac repaired.
  Repeat Gush of blood. BPs 57/27, HR 114→ dizzy
  Additional IV access
  Called blood bank for 2 U RBCs.
  Hemabate.
Let’s use our checklist to empower escalation...

16 min  Anesthesia called to LDR. BP 56/24, HR 84. Pressors.  
Continued repair of laceration. QEBL 1750cc.

50 min  S/P 2U RBCs.  
Active hemorrhage again.  
Second OB attending called to room.  
Deep laceration noted.  
Vagina packed  
Transferred to OR.

75 min  In OR

90 min  Patient placed in Allen stirrups.  
Sulcus laceration repaired, bleeding vessel suture ligated.  
Further evaluation uterine rupture extending into abdominal cavity
Let’s use our checklist to empower escalation...

125 min  GYN Oncology called
150 min  Laparotomy with uterine defect
         Supracervical Hysterectomy
155 min  H&H 12.3/37.6, Plts 55 PTT 78.3, PT/INR 21.6/2.2 Fibrinogen <70.
         Ongoing transfusion per hemorrhage protocol.
         Additional FFP & Platelets requested.
245 min  Abdomen closed
         Vagina repaired and packed
265 min  Labs: H&H 8.2/24.4, Plt 94, PTT 26, PT/INR 11.7/1.2

Total Products received intra-op: 34u RBC, 19FFP, 10plts, 6 cryo
Total EBL: 13L
Safe Motherhood Initiative

Obstetric Hemorrhage Checklist

- Call for assistance
- Response team to the bedside (P team)
  - Delivering attending MD/CNM
  - Primary RN
  - Anesthesiologist
- Monitor fetal heart rate
- Oxygen supplementation
- Identify hemorrhage stage
- Document EBL & interventions
- Timekeeper will call out at 5 minute intervals
- Blood loss > 500 ml vaginal OR blood loss > 1000 ml cesarean with normal vital signs and lab values
- Record VS O2 saturation every 5 minutes
- Record cumulative blood loss
- Insert Foley catheter
- IV access: 16 gauge if possible
- Increase IV fluid (crystalloid: estimated blood loss in 2:1 ratio without oxytocin)
- Fundal massage
- Determine and treat etiology
  (4 T: Tone, Trauma, Tissue, Thrombin)
- Blood bank: type and crossmatch 2 units PRBCs

Medications
- Oxytocin (Pitocin) 40-80 international units/liter intravenously, or the equivalent
- Methylergonovine (Methergline) 0.2 milligrams intramuscularly (may be repeated every 2-4 hours)
- 15-methyl PGF2α (Hemabate, Carboprost) 250 micrograms intramuscularly (may repeat every 15 minutes, maximum 8 doses)
- Misoprostol (Cytotec) 800-1000 micrograms rectally

Continued bleeding EBL > 1500 ml OR 2 units PRBCs given OR patient at risk for occult bleeding (post-cesarean), DIC OR any patient with abnormal vital signs/lab values
- Outline management plan
- Serial re-evaluation
- Communicate with hemorrhage team
- Replacement: RBC:PRC-Patients in a 6:1 ratio (trigger Massive Transfusion Protocol - MTP)
- IF coagulopathic, consider cryoprecipitate.
- Consider consultation for alternative agencies
- Identify etiology for bleeding (if unclear)
- Rule out lacerations (exam), coagulopathy (labs), occult bleeding (imaging)
- Achieve hemostasis immediately, interventions based on etiology
- Adopt additional measures (if poor response)

Cardiovascular Collapse: For patients with cardiovascular collapse in setting of massive hemorrhage
- Profound hypovolemic shock: blood loss not replaced
- AFE (sudden CV collapse followed by heavy uterine bleeding from uterine relaxation and associated coagulopathy)

In these situations, immediate surgical intervention to ensure hemostasis (hysterectomy) may be necessary. This should take place with simultaneous aggressive blood and factor replacement and medical interventions regardless of the patient’s coagulation status. Uterine hemostasis is the only step that will maximize survival rates for these critical patients.

Post-Hemorrhage Management
- Clinical considerations (including disposition of patient)
  - Get IV
- Document after team debrief
- Discuss with patient/family members
Let’s use our checklist to empower escalation…

27yo G2P1001 @ 39w4d IOL for category II FHR. Prior CD, GDMA1, GBS positive. Desiring TOLAC. 1/L/H. Pitocin, AROM, progressing.

0 Prolonged deceleration to 70s.
2 min FD/+1, attending called to room
9 min Patient pushed to FD/+3 and vacuum applied
10 min Infant delivered with one pull.


**Anesthesia to bedside, Identify stage**

12 min Placenta delivered. EBL 1500cc.

**Already AT LEAST Stage 2- additional line, warming, consider move to OR, mobilize additional team members**

- Pitocin, Cytotec, Methergine x2.
- 2nd degree lac repaired
- Repeat Gush of blood. BPs 57/27, HR 114→ dizzy

**Stage 3 to 4- MTP, Identify etiology, achieve hemostasis, immediate surgical intervention**

- Additional IV access
- Called blood bank for 2 U RBCs
- Hemabate
Let’s use our checklist to empower escalation…

16 min   Anesthesia called to LDR. **BP 56/24**, HR 84. **Pressors**.
Continued repair of laceration. **QEBL 1750cc**.

**Stage 3 to 4 - MTP, Identify etiology, achieve hemostasis, immediate surgical intervention**

50 min   S/P 2U RBCs.
**Active hemorrhage again.**
Second OB attending called to room.
Deep laceration noted.
Vagina packed
Transferred to OR.

**Stage 3 to 4 - MTP, Identify etiology, achieve hemostasis, immediate surgical intervention**

75 min   In OR
90 min   Patient placed in Allen stirrups.
Sulcus laceration repaired, bleeding vessel suture ligated.
Further evaluation **uterine rupture extending into abdominal cavity**

**Stage 3 to 4 - MTP, Identify etiology, achieve hemostasis, immediate surgical intervention**
Let’s use our checklist to empower escalation...

125 min  GYN Oncology called
150 min  Laparotomy with uterine defect
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**Total Products received intra-op:** 34u RBC, 19FFP, 10plts, 6 cryo
**Total EBL:** 13L
Continued bleeding EBL up to 1500 ml OR any patient requiring ≥ 2 uterotonics with normal vital signs and lab values

- 2nd IV access (16 gauge if possible)
- STAT labs, with coags & fibrinogen
- Warming blanket
- For uterine atony → Consider uterine balloon or surgical interventions
- Blood bank: DO NOT wait for labs. Transfuse per clinical signs/symptoms
  - Notify of OB hemorrhage, bring 2 units PRBCs to bedside, thaw 2 units FFP
- Medications: Continue medications from Stage 1
- Consider moving patient to OR (better exposure, potential D&C)
- Mobilize additional team members as necessary
Continued bleeding with EBL > 1500 ml OR > 2 units PRBCs given OR patient at risk for occult bleeding (post-cesarean), DIC OR any patient with abnormal vital signs/labs/oliguria

- Outline management plan ➔ Serial re-evaluation ➔ Communicate with hemorrhage team
- Replacement ➔ RBC-FFP-Platelets in a 6:4:1 ratio (trigger Massive Transfusion Protocol - MTP) ➔ If coagulopathic, add cryoprecipitate. Consider consultation for alternative agents
- Identify etiology for bleeding (if unclear)
- Rule out lacerations (exam), coagulopathy (labs), occult bleeding (imaging)
- Achieve hemostasis immediately, interventions based on etiology
- Adopt additional measures (if poor response)
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Post-Hemorrhage Management

- Clinical considerations (including disposition of patient)
- Get brief
- Document after team debrief
- Discuss with patient/family members
Conclusions

• We identified numerous places that our hemorrhage emergency management plan checklist could have...
  – Aided in empowering early escalation
  – Facilitated earlier, aggressive resuscitation
  – Brought additional resources to the bedside
References

• ACOG Safe Motherhood Initiative
• http://teamstepps.ahrq.gov/