POSTPARTUM HEMORRHAGE

Implementing Your Bundle

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No disclosures
U.S. Maternal Mortality

U.S. Maternal mortality is:

OB Hemorrhage is:
- Increasingly Common
- A leading killer of moms

OB hemorrhage deaths are largely preventable.

One state bucked the trend

United States

1. Statewide mortality review
2. Maternal Quality Care Collaborative (CMQCC)
3. Hemorrhage and Preeclampsia Bundles

California

Percentage of maternal hemorrhage-related deaths that could have been prevented with improved clinical response

The AWHONN Postpartum Hemorrhage Project

http://pphproject.org/
Why adopt OB “bundles”?

• Peer pressure.

• Performance measures matter.

• Patient care.
  Enhanced response.
  Improved outcomes.

Main Consensus Bundle on Obstetric Hemorrhage. Obstet Gynecol 2015.
Pathway to poor outcomes

A.k.a “Anatomy of failed systems”

Adapted from talk by Laurence Shields, MD (SMFM Quality Safety Chairman, Feb 2016)
Image: http://patientsafetyed.duhs.duke.edu/module_e/swiss_cheese.html
Stronger Swiss with Bundles

A.k.a “Anatomy of a successful system”

Adapted from talk by Laurence Shields, MD (SMFM Quality Safety Chairman, Feb 2016)
Image: http://patientsafetyed.duhs.duke.edu/module_e/swiss_cheese.html
POSTPARTUM HEMORRHAGE

KEY ELEMENTS OF A BUNDLE
### Four “R”s

<table>
<thead>
<tr>
<th>RECOGNITION &amp; PREVENTION</th>
<th>RESPONSE</th>
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<tr>
<td>• Risk Assessment</td>
<td>• Checklist</td>
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<td>• AMTSL</td>
<td>• Rapid response team</td>
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<th>READINESS</th>
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<tr>
<td>• Blood bank</td>
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<td>• Hemorrhage cart</td>
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<td>• Simulation / Team Drills</td>
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<th>REPORTING &amp; LEARNING</th>
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<td>• Culture of debriefing</td>
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<td>• Multidisciplinary review</td>
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<td>• Measure outcomes/process</td>
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RECOGNITION & PREVENTION

- Risk Assessment
- AMTSL

Every Patient
## Risk Assessment

<table>
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<th>Prenatal</th>
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<tr>
<td>Identify extraordinary risk</td>
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<tr>
<th>L&amp;D Admission</th>
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<td>Identify risk factors</td>
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<th>Intrapartum (&amp; Postpartum)</th>
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<td>Identify risk “on the fly”</td>
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- **Transfer to higher level of care**
- **Transfusion preparedness (e.g. T&S)**
- **Transfusion preparedness, mobilize resources**
Risk Assessment: Admission

**Moderate Risk**
- [ ] Prior uterine surgery or CS
- [ ] Multiple gestation
- [ ] >4 prior births
- [ ] Prior OB hemorrhage
- [ ] Large myomas
- [ ] EFW >4000 g
- [ ] Obesity (BMI >40)
- [ ] Hematocrit <30%

**High Risk**
- [ ] Previa
- [ ] Accreta / percreta
- [ ] Platelet count <70K
- [ ] Active bleeding
- [ ] Known coagulopathy
- [ ] >2 medium risk factors

**Transfusion preparedness**
1. Alert / huddle / SBAR
2. T&S?, crossmatch? Hold clot?
Risk Assessment: Intrapartum

***Key: Make reassessment systematic***
Every shift change?

**Moderate Risk**
- [ ] Chorio
- [ ] Prolonged oxytocin >24hr
- [ ] Prolonged 2nd stage
- [ ] Magnesium sulfate

**High Risk**
- [ ] Active bleeding
- [ ] >2 medium risk factors

**Transfusion preparedness**
1. Alert / huddle / SBAR
2. T&S?, crossmatch? Hold clot?
Universal AMTSL

Active management of the 3\textsuperscript{rd} Stage of Labor (AMTSL)

***Key: Every patient, every delivery***

1. Uterotonic within 1 min.
2. Controlled cord traction
3. Fundal massage after delivery of placenta
Oxytocin for the Third Stage of Labor

Delivery

Start Oxytocin 300ml/hr (18U/hr)

5 minutes

Uterine Atony?

Yes

Increase Oxytocin to 600ml/hr (36U/hr)

No

Continue Oxytocin 300ml/hr (18U/hr) for the first hour

Then decrease Oxytocin to 60ml (3.6 U/hr) until 500 ml/30 U is infused.
Increase Oxytocin to **600 ml/hr** (36 U/hr)

5 minutes

**Uterine Atony?**

- **Yes**
  - Increase Oxytocin to **900 ml/hr** (54 U/hr) for up to 30 minutes
  - Consider other uterotonics or treatments for uterine atony as indicated by the patient’s clinical condition

- **No**
  - Run @ **600 ml/hr** for a total of 30 minutes
  - When atony has resolved gradually step down the infusion
    - **300 ml/hr** (3.6 U/hr) for **30 minutes**

**Clinical Decision:** If Oxytocin was increased to **600 ml/hr** Nurse/practitioner to decide if a 2\textsuperscript{nd} bag of Oxytocin is indicated

When atony resolves gradually step down the infusion:

**600 ml/hr** (36 U/hr) for **30 minutes** → **300 ml/hr** (3.6 U/hr) for **30 minutes**

**Clinical Indication:** All patients who have required the Pitocin rate to be increased to 900 must have a 2\textsuperscript{nd} bag of Pitocin/follow algorithm.
Every Unit
(yes, that means postpartum too)
***Key: Access to transfusion in a hurry***
(even without a crossmatch)

1. Massive Transfusion Protocol (MTP)
   (should be written & multidisciplinary)
   (should include RBC, coagulation factors, platelets)

2. Emergency Release Transfusion Protocol (ERT)
   (minimum 4 units O-neg / uncrossed RBCs)

Details available from resources at the end of this presentation
Surprising] Barriers to Transfusion

• How do I activate the MTP?

• What phone number do I call?

• Who is delivering the blood? When?

• Where is blood bank? Where do I send the RN/MD?

• How do I effectively communicate urgency of need?
Hemorrhage Cart / OR Kits

***Key: Easy access, universal awareness***
***Key: Know when to go to the operating room***

Hemorrhage Cart Components
1. Hemorrhage checklist!
2. Uterotonics
3. Intrauterine balloon
4. Supplies for phlebotomy, fluids, transfusion
5. Fridge?
6. Instructions, doses, contraindications, contact #s

Don’t forget to design a “OR PPH Action Kit”
Every hemorrhage
(yes, that means every hemorrhage)
(and yes, that means postpartum too)
Rapid Response Team

***Key: You need an extra hand***

The first step is always... mobilize additional help.

Know **who** is doing **what**.
Pre-define RN and MD roles.

Use the checklist!

Frequent Timeouts (make up acronym... ELBOW?)
  - Etiology, Labs, Blood bank, Other help, What’s Next

Practice (simulation, team training)
### Checklist

#### Stage 2: OB Hemorrhage

Meet Stage 1 criteria with continued sustained active bleeding not responding to interventions within 10 minutes with < 1500 mL cumulative blood loss

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<thead>
<tr>
<th>MOBILIZE</th>
<th>ACT</th>
<th>THINK (differential diagnosis)</th>
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<tr>
<td>L &amp; D Send out the OB Rapid Response Stage 2 PPH (come now) page This alerts the whole team to respond</td>
<td>Primary nurse/L&amp;D Rapid Response Team</td>
<td>Sequentially advance through procedures and other interventions based on etiology</td>
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</table>
| **Recommend that the patient is moved to the OR at this time.** | • Call the Blood Bank and notify them of the need for emergency blood products as directed | **Vaginal Birth:** Evaluate for uterine atony:  
- Continue with uterotonics  
- Uterine tamponade balloon  
- Consider surgical interventions  
**Evaluate for lacerations:**  
- Visualize and repair  
**Evaluate for retained products of conception:**  
- Manual removal  
- D&C  
**Evaluate for uterine inversion:**  
- General anesthesia or Nitroglycerine for uterine relaxation for manual reduction | **Cesarean Section:**  
- Continue with uterotonics  
- B-Lynch  
- O’Leary  
- Uterine tamponade balloon |
| If the patient is on a postpartum unit and has progressed to a Stage 2 PPH she is transferred immediately to L&D > Notify L&D of transfer | • Tasks/ responsibilities as designated on the OB Rapid Response grid | |
| If this is a CHC, UUHN, UFP, BCHC or private provider patient please notify | | If Amniotic Fluid Embolism (AFE):  
Maximally aggressive respiratory, vasopressor and blood product support |

Once Stabilized: modified postpartum management with increased surveillance

If cumulative blood loss > 1500 mL, >2 units of PRBC’s given, hemodynamically unstable or suspicion for DIC: Proceed to Stage 3
Checklist

Don’t forget...

...to debrief (with staff, with patient/family)

...and to document
REPORTING & LEARNING

- Culture of debriefing
- Multidisciplinary review
- Measure outcomes/process

Every unit / hospital
Reporting & Systems Learning

• Establish a **culture of huddles** for high risk patients
• Establish post-event **debriefs**

• Conduct multidisciplinary review of serous hemorrhages with an **intent to learn**, not blame

• Track outcomes & process metrics
Resources for your bundle

Safe Motherhood Initiative
http://www.acog.org/About-ACOG/ACOG-Districts/District-II/SMI-OB-Hemorrhage

AWHONN
http://pphproject.org/index.asp

Safe Health Care
http://www.safehealthcareforeverywoman.org/

CMQCC
https://www.cmqcc.org/resources-tool-kits/toolkits/ob-hemorrhage-toolkit
Resources for your bundle

Utah Department of Health: Every Mother Initiative

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