POSTPARTUM HEMORRHAGE

Implementing Your Bundle

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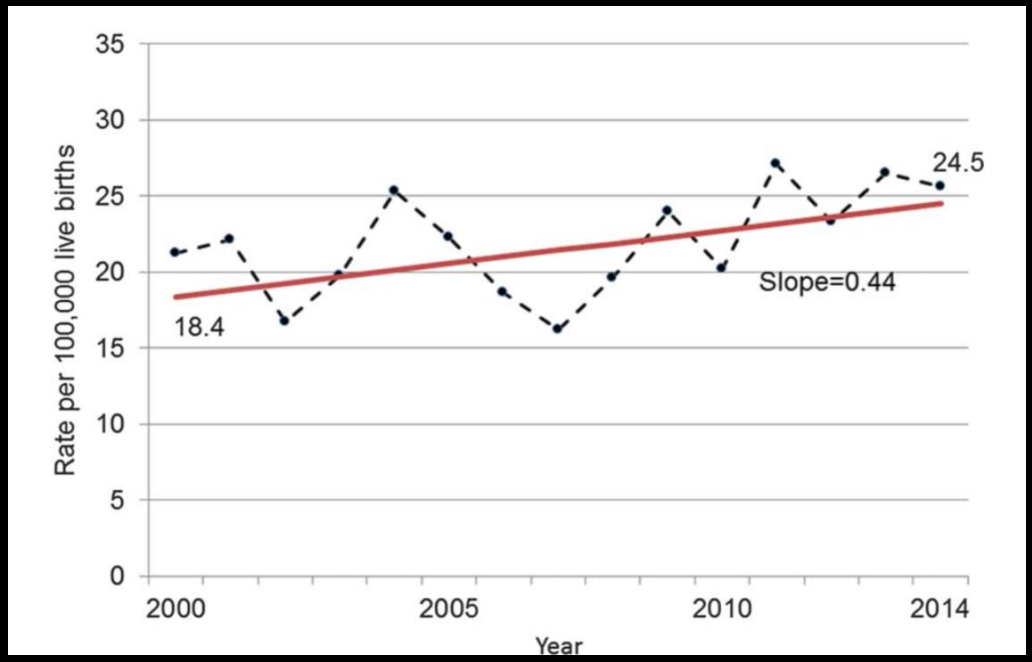
No disclosures

U.S. Maternal Mortality

U.S. Maternal mortality is:



MacDorman. U.S. Maternal Mortality Trends. Obstet Gynecol 2016.

OB Hemorrhage is:

- Increasingly Common
- A leading killer of moms

OB hemorrhage deaths are largely preventable.

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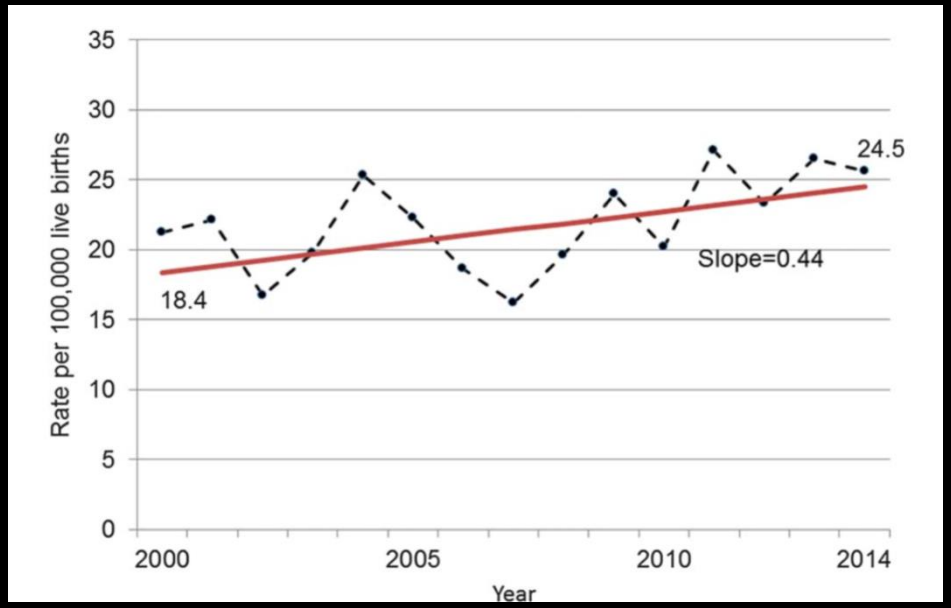
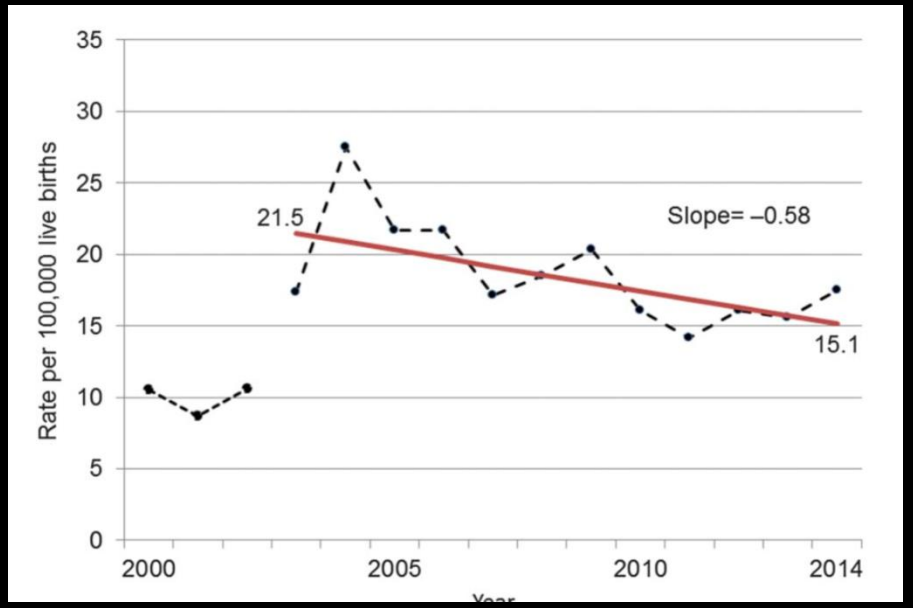
One state bucked the trend



United States



California

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

MacDorman. U.S. Maternal Mortality Trends. Obstet Gynecol 2016.

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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.

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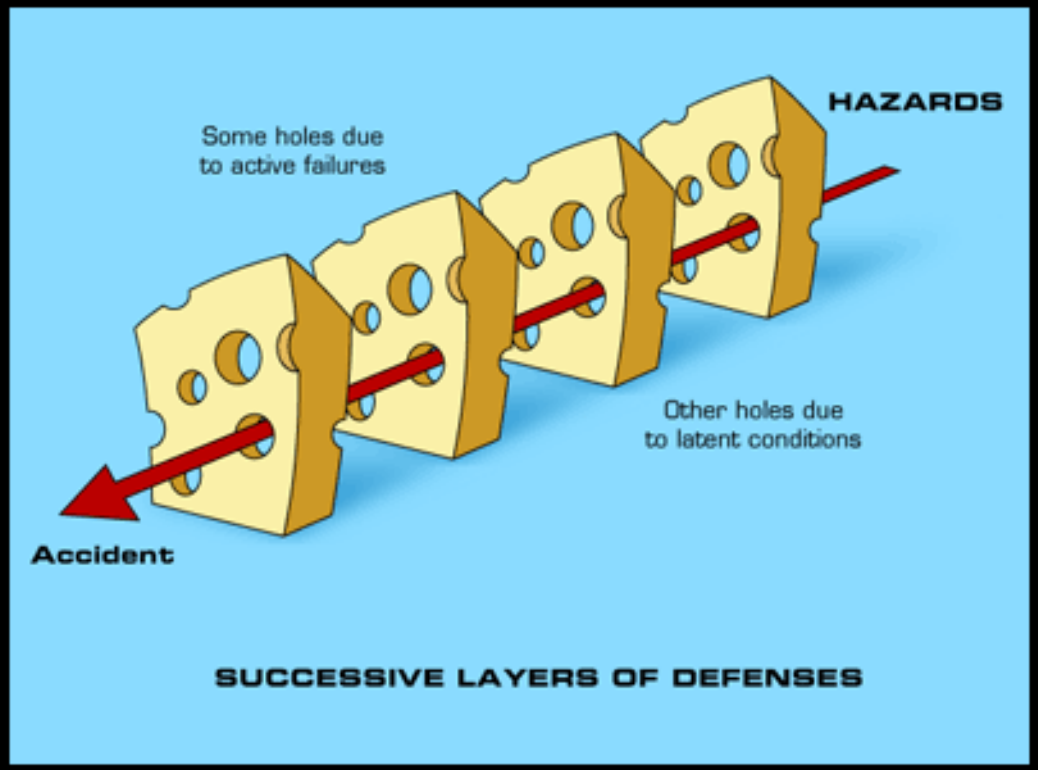
Pathway to poor outcomes

A.k.a "Anatomy of **failed** systems"



OB Hemorrhage

Symptoms/signs unrecognized

Assumptions of safety

Delayed Diagnosis

Delayed Treatment

Keep trying failed treatment

SERIOUS MORBIDITY

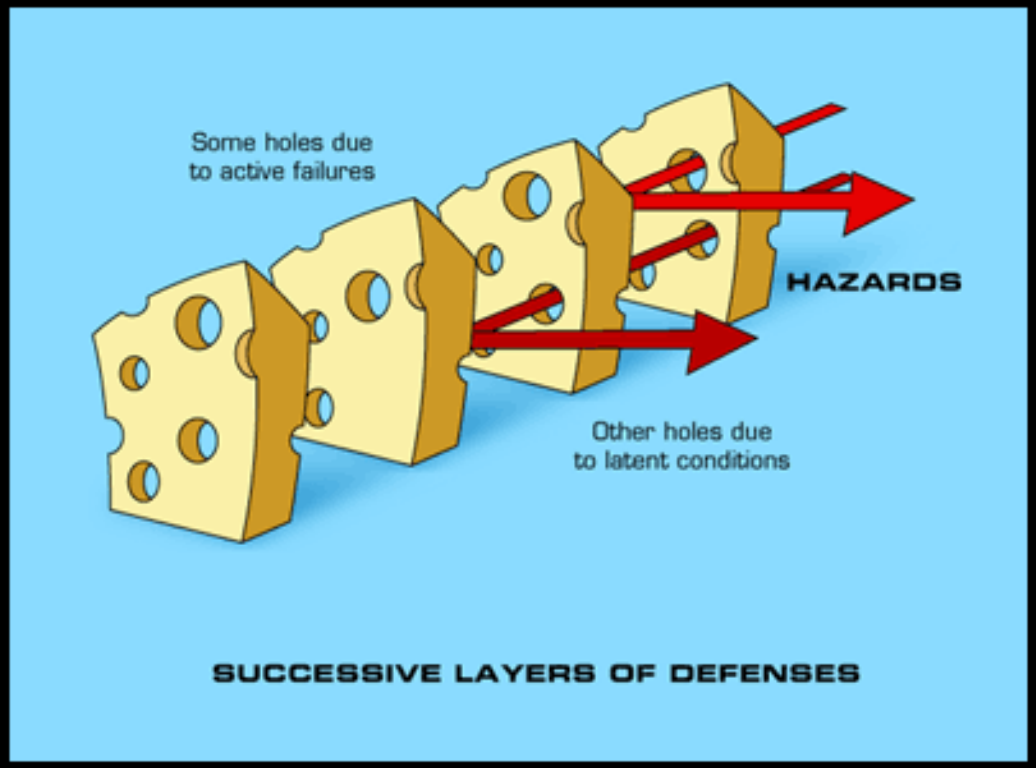
NEAR MISS (ICU ADMIT)

MATERNAL DEATH

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”



OB Hemorrhage

READINESS (systems)

RECOGNITION & PREVENTION

RESPONSE

REPORTING & LEARNING

~~SERIOUS MORBIDITY~~

~~NEAR MISS (ICU ADMIT)~~

~~MATERNAL DEATH~~

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

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RECOGNITION & PREVENTION

- Risk Assessment
- AMTSL

RESPONSE

- Checklist
- Rapid response team

READINESS

- Blood bank
- Hemorrhage cart
- Simulation / Team Drills

REPORTING & LEARNING

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

RECOGNITION & PREVENTION

- Risk Assessment
- AMTSL

Every Patient

Risk Assessment

Prenatal	L&D Admission	Intrapartum (& Postpartum)
Identify extraordinary risk	Identify risk factors	Identify risk “on the fly”
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?

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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?

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Universal AMTSL

Active management of the 3rd 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

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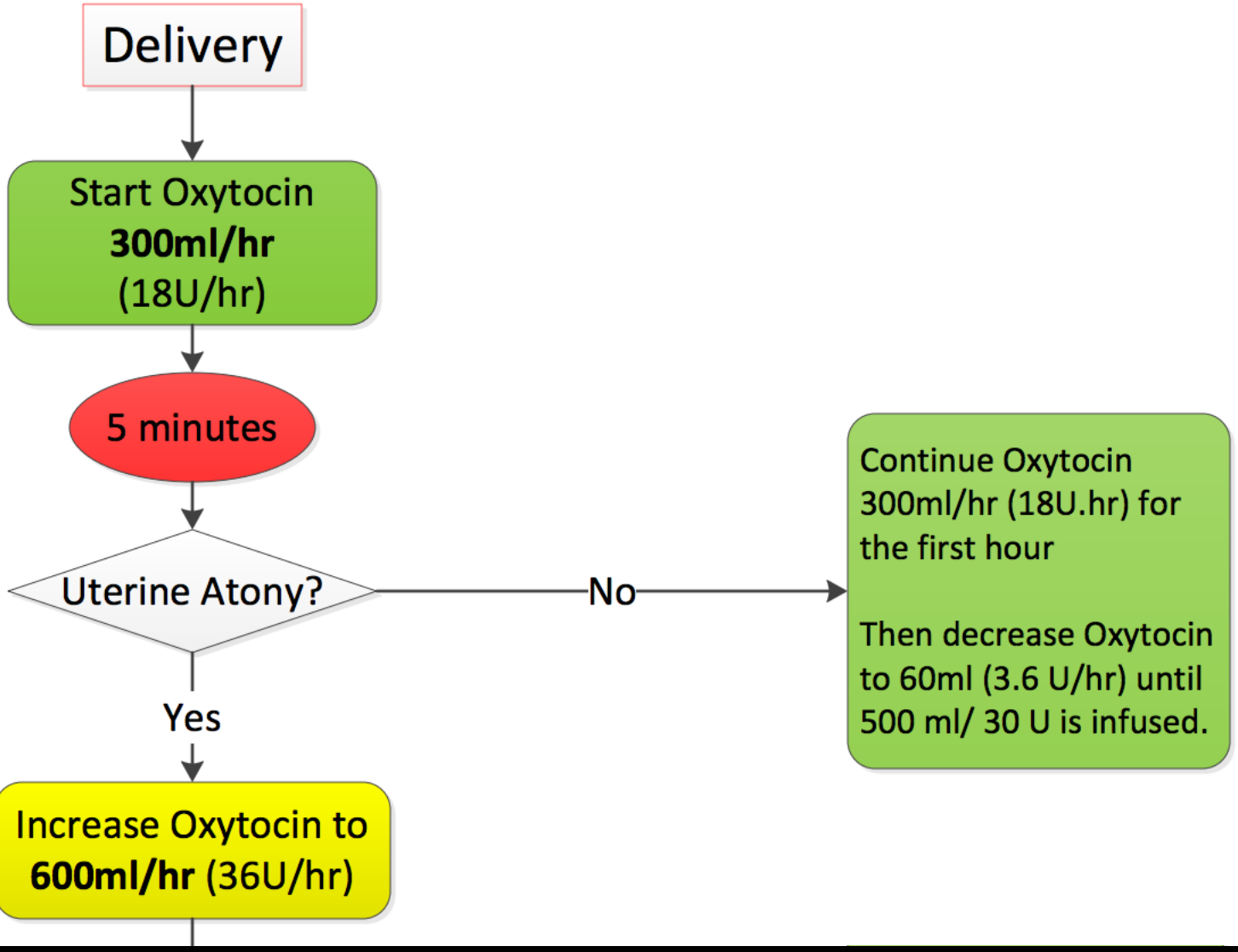
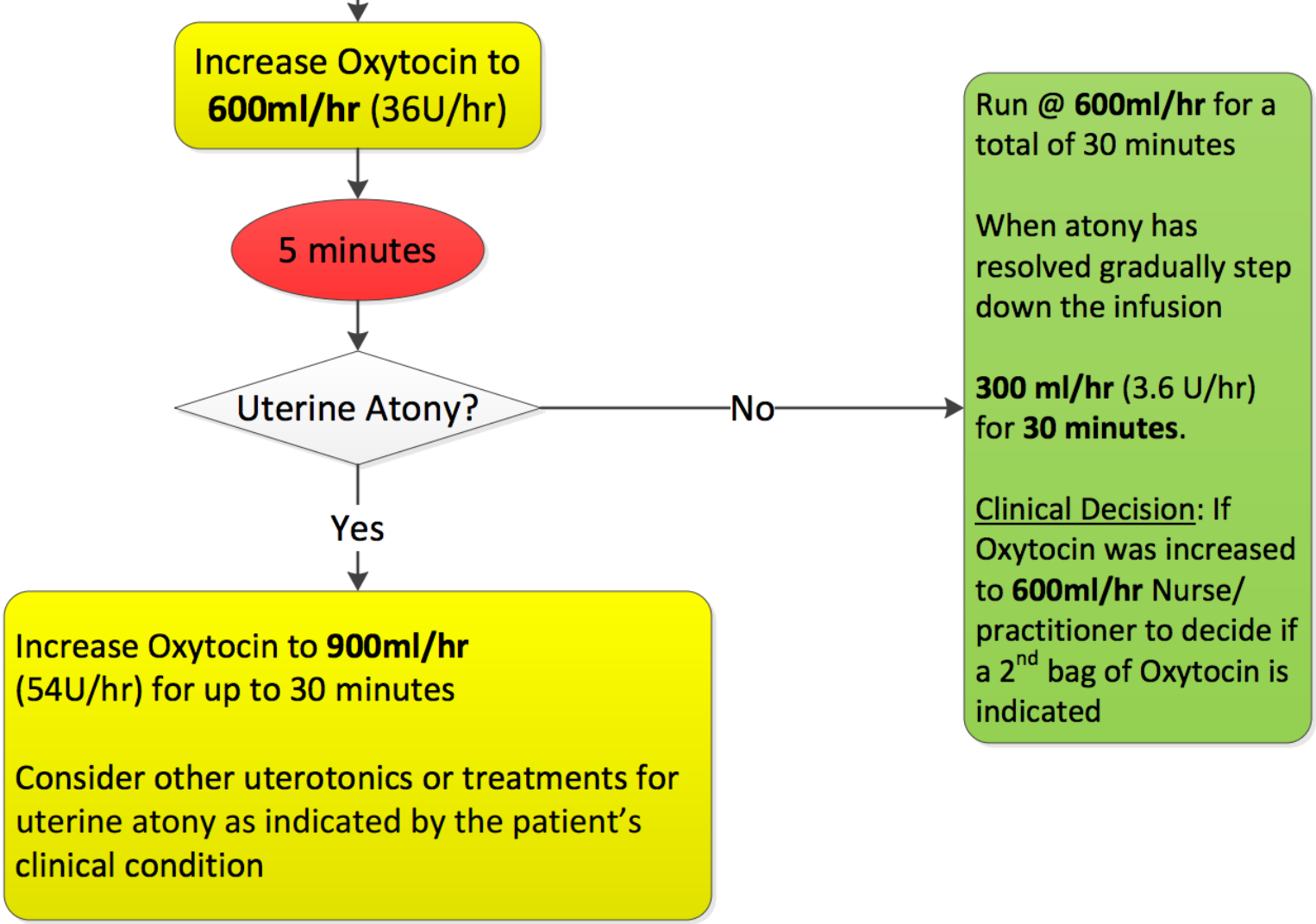
Oxytocin for the Third Stage of Labor





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 increase to 900 must have a 2nd bag of Pitocin/follow algotrithm

READINESS

- Blood bank
- Hemorrhage cart
- Simulation / Team Drills

Every Unit

(yes, that means postpartum too)

Blood Bank

*****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

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[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?

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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"

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RESPONSE

- Checklist
- Rapid response team

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, **L**abs, **B**lood bank, **O**ther help, **W**hat's Next

Practice (simulation, team training)

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Checklist

Key: update, define roles, mobilize, act, think

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

<table>
<tr><th>MOBILIZE</th><th>ACT</th><th colspan="2">THINK (differential diagnosis)</th></tr>
<tr><td rowspan="3">L & D
Send out the OB Rapid Response Stage 2 PPH (come now) page
This alerts the whole team to respond

Recommend that the patient is moved to the OR at this time.

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

If this is a CHC, UUHN, UFP, BCHC or private provider patient please notify</td><td rowspan="3">Primary nurse/L&D Rapid Response Team

• Call the Blood Bank and notify them of the need for emergency blood products as directed
• Tasks/responsibilities as designated on the OB Rapid Response grid</td><td colspan="2">Sequentially advance through procedures and other interventions based on etiology</td></tr>
<tr><td>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</td><td>Cesarean Section:
• Continue with uteronics
• B-Lynch
• O'Leary
• Uterine tamponade balloon</td></tr>
<tr><td colspan="2">If Amniotic Fluid Embolism (AFE):
Maximally aggressive respiratory, vasopressor and blood product support</td></tr>
<tr><td colspan="4">Once Stabilized: modified postpartum management with increased surveillance</td></tr>
<tr><td colspan="4">If cumulative blood loss > 1500 mL, >2 units of PRBC's given, hemodynamically unstable or suspicion for DIC: Proceed to Stage 3</td></tr>
</table>

Checklist

Don’t forget…

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

…and to document

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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

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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

CMQCC

https://www.cmqcc.org/resources-tool-kits/toolkits/ob-hemorrhage-toolkit

Resources for your bundle

Utah Department of Health:
Every Mother Initiative

Erin A.S. Clark, MD

Amy Sullivan, MD

Janet A. Fisher, MS, RNC

Laurie Baksh, MPH

Brett D. Einerson, MD