Implementing Quantification of Blood Loss

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Disclosures for Debra Bingham and Sherrie Burkholder, MHA, MSN, RNC-OB, C-EFM

Debra Bingham is the Executive Director of the Institute for Perinatal Quality Improvement and is a consultant for the:

- National Perinatal Information Center
- Association of Women's Health, Obstetric and Neonatal Nurses.

- I will not discuss any off-label use/or investigational use in my presentation.

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17 Year Research to Action Gap

"It now takes an average of 17 years for new knowledge generated by randomized controlled trials to be incorporated into practice, and even then application is highly uneven."

Institute of Medicine (2001). Crossing the quality chasm: A new health system for the 21st Century, pg. 5.

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INSTITUTE FOR PERINATAL QUALITY IMPROVEMENT

The mission of the Institute for Perinatal Quality Improvement (PQI) is to **expand the use of improvement science** in order to eliminate preventable perinatal morbidity and mortality and end perinatal racial and ethnic disparities.

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After participation in this presentation, you should have an increased knowledge and enhanced competence to…

- Describe why the national recommendation is to measure cumulative blood loss.
- Discuss implementations tips for quantifying of blood loss.

Quality Improvement is the Responsibility of All Health Care Providers

"QI is an ongoing process undertaken as a consequence of ***health care providers' responsibility*** *to serve their patients' interests."*

Baily, M.A., Bottrell, M., Lynn, J., & Jennings (2006). Special report: the ethics of using QI methods to improve healthcare quality and safety. The Hastings Center: Garrison New York.

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Trends in Maternal Morbidity and Mortality
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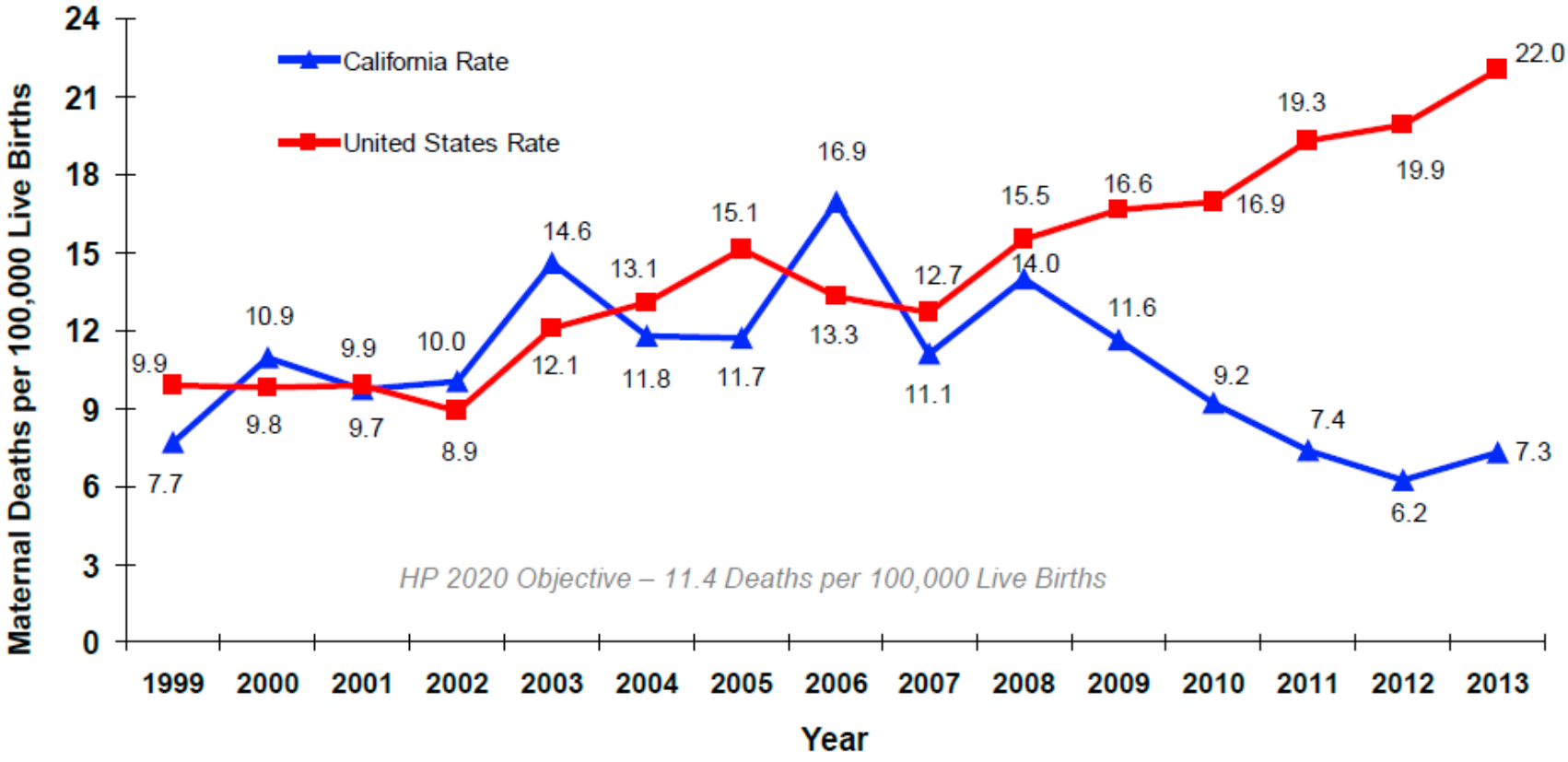
Maternal Mortality Rate, California and United States; 1999-2013



SOURCE: State of California, Department of Public Health, California Birth and Death Statistical Master Files, 1999-2013. Maternal mortality for California (deaths ≤ 42 days postpartum) was calculated using ICD-10 cause of death classification (codes A34, O00-O95,O98-O99). United States data and HP2020 Objective use the same codes. U.S. maternal mortality data is published by the National Center for Health Statistics (NCHS) through 2007 only. U.S. maternal mortality rates from 2008 through 2013 were calculated using CDC Wonder Online Database, accessed at http://wonder.cdc.govon March 11, 2015. Produced by California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Division, May, 2015.

Leading Causes of Maternal Mortality Worldwide

- Hemorrhage
- Hypertension

In the United States the leading causes of preventable pregnancy-related deaths are:

Hemorrhage

Hypertension

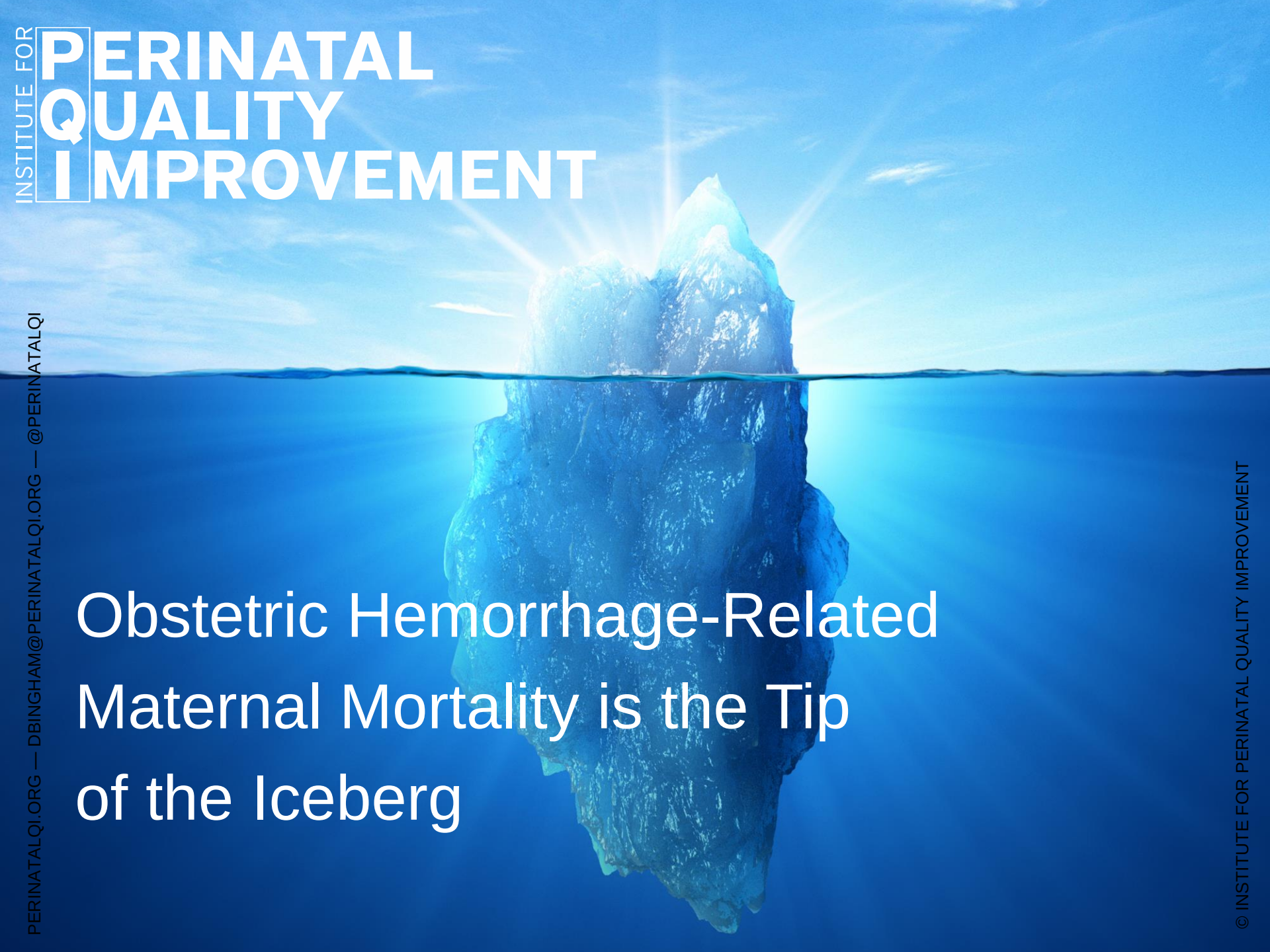
Thromboembolism

Sepsis

- In 2006, obstetric hemorrhage affected 124,708 (2.9%) of all women who gave birth in the United States
- Obstetric hemorrhage is a major cause of preventable maternal mortality

Callaghan, W. M., Kuklina, E. V., & Berg, C. J. (2010). Trends in postpartum hemorrhage: United States, 1994–2006. American Journal of Obstetrics and Gynecology, 202(4), 353.e1–353.e6. https://doi.org/10.1016/j.ajog.2010.01.011

Bateman, B. T., Berman, M. F., Riley, L. E., & Leffert, L. R. (2010). The epidemiology of postpartum hemorrhage in a large, nationwide sample of deliveries. Anesthesia and Analgesia, 110, 1368–1373. https://doi.org/10.1213/ANE.0b013e3181d74898)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Obstetric Hemorrhage-Related Maternal Mortality is the Tip of the Iceberg
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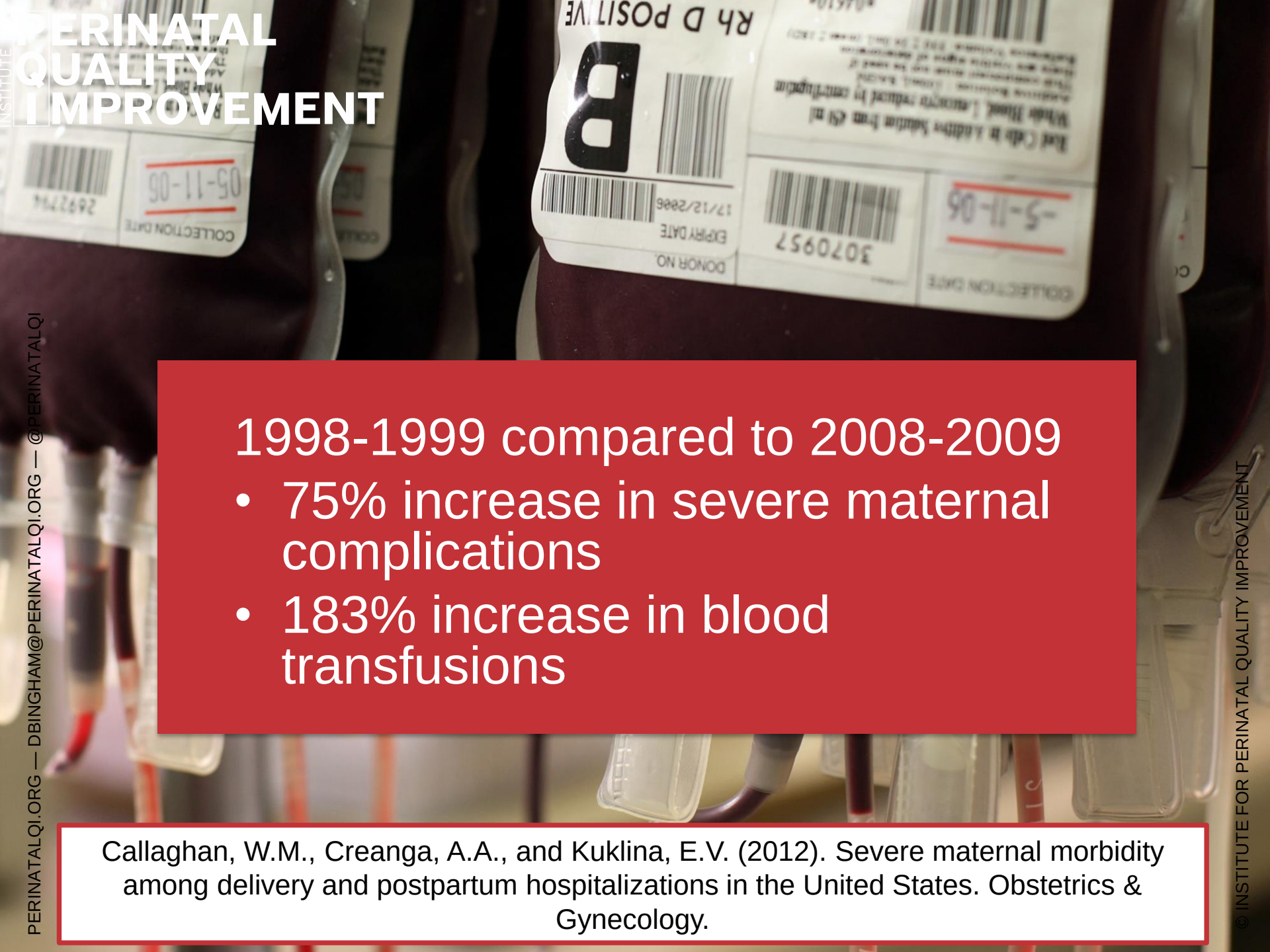

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1998-1999 compared to 2008-2009

- 75% increase in severe maternal complications
- 183% increase in blood transfusions

Callaghan, W.M., Creanga, A.A., and Kuklina, E.V. (2012). Severe maternal morbidity among delivery and postpartum hospitalizations in the United States. Obstetrics & Gynecology.

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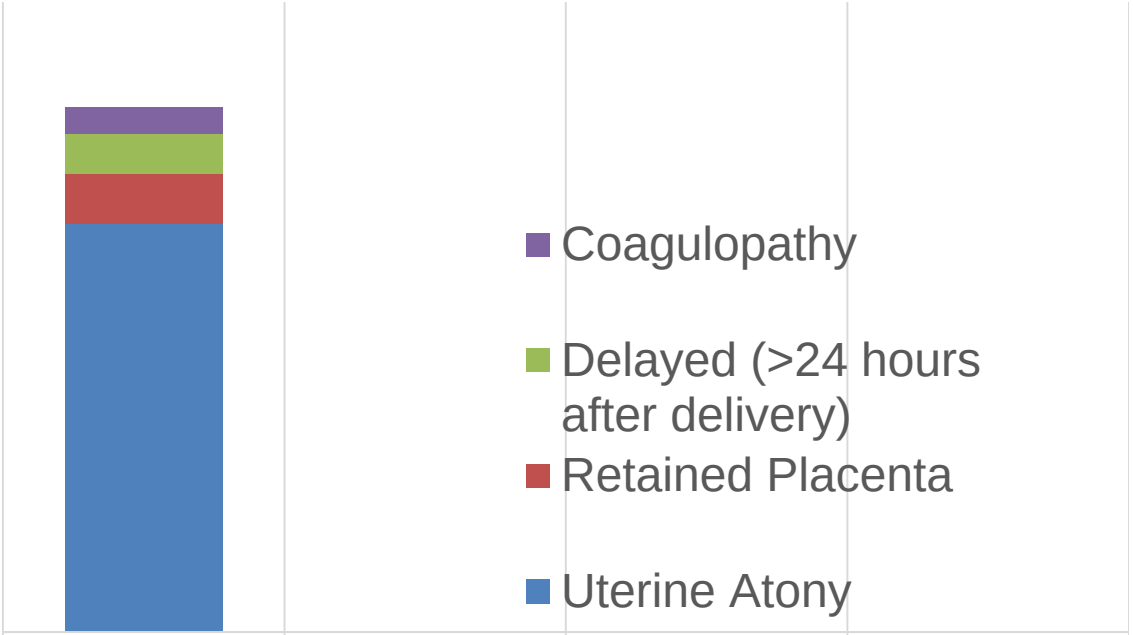
54-93% of hemorrhage-related deaths were preventable!

Della Torre, M., Kilpatrick, S. J., Hibbard, J. U., Simonson, L., Scott, S., Koch, A., … Geller, S. E. (2011). Assessing Preventability for Obstetric Hemorrhage. American Journal of Perinatology. https://doi.org/10.1055/s-0031-1280856

California Department of Health Pregnancy Associated Mortality Review Report (2011). https://www.cmqcc.org/resource/california-pregnancy-associated-mortality-review-ca-pamr-report-2002-and-2003-maternal

Berg, C. J., Harper, M. A., Atkinson, S. M., Bell, E. A., Brown, H. L., Hage, M. L., … Callaghan, W. M. (2005). Preventability of pregnancy-related deaths: results of a state-wide review. Obstetrics and Gynecology, 106, 1228–1234. https://doi.org 10.1097/01.AOG.0000187894.71913.e8

Etiology of Postpartum Hemorrhage (n=26,175)



Coagulopathy	5.1
Delayed (>24 hours after delivery)	7.7
Retained Placenta	9.4
Uterine Atony	77.8

Bateman et al. (2010). Anesthesia Analgesia. 110(5):1368-73.

Baseline Assessment

JOGNN

RESEARCH

CrossMark

Postpartum Hemorrhage Preparedness Elements Vary Among Hospitals in New Jersey and Georgia

Debra Bingham, Benjamin Scheich, Renée Byfield, Barbara Wilson, and Brian T. Bateman

Bingham, D., Sceheich, B., Byfield, R., Wilson, B., and Bateman, B.T. (2016). Postpartum hemorrhage preparedness elements vary among hospitals in New Jersey and Georgia. Journal of Obstetrics, Gynecologic, and Neonatal Nurses, (45) pp. 227-238.

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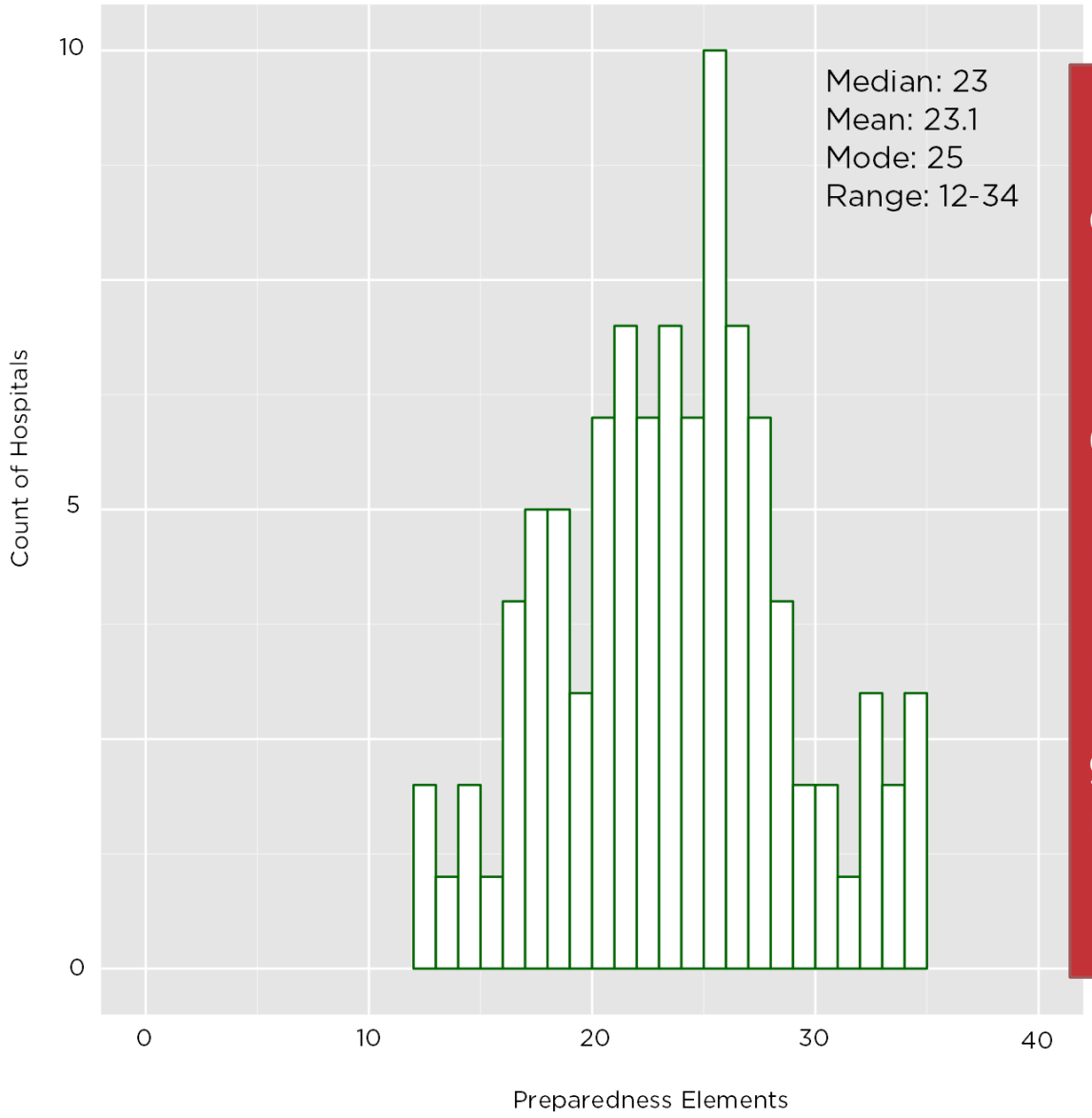
Figure 1: Number of Preparedness Elements



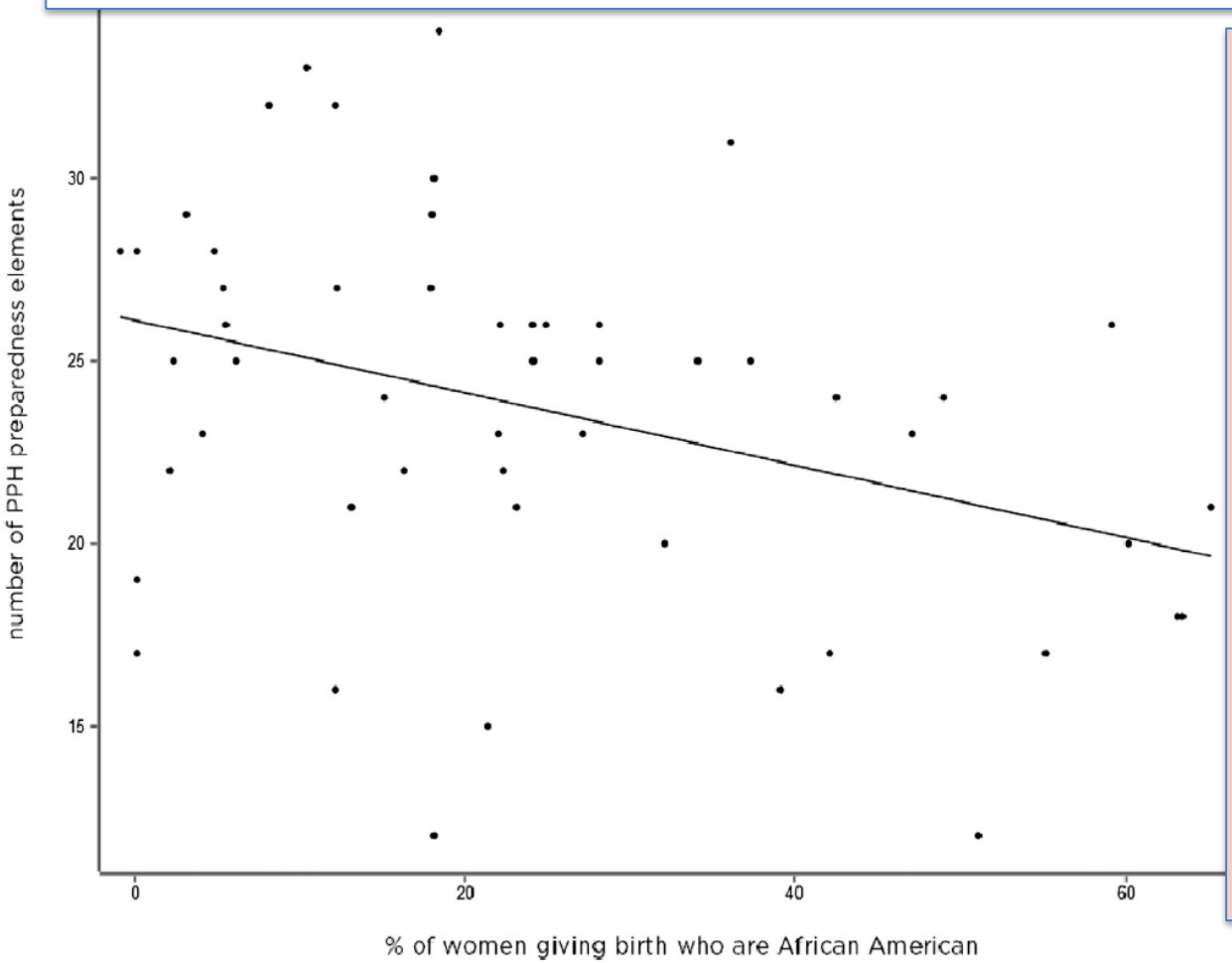
General P&P: 74.4%
Massive Hem P&P: 36.8%
PPH Simulation Drills: 57.9%

QBL 1-2 hours after birth: 11.6%
B-Lynch Sutures: 55.8%

Rapid Infuser: 63.2%
Maternal Warming Device: 90.5%
Uterine Balloon: 92.6%

Bingham, D., Sceheich, B., Byfield, R., Wilson, B., and Bateman, B.T. (2016). Postpartum hemorrhage preparedness elements vary among hospitals in New Jersey and Georgia. Journal of Obstetrics, Gynecologic, and Neonatal Nurses, (45) pp. 227-238.

Number of Preparedness Elements Based on Percent of Women Giving Birth who were African American



For every 10% increase in the total percentage of African American women who gave birth, there was a decrease of one preparedness element.

Figure 3. Number of preparedness elements based on percentage of African American women ($N = 53$). Regression model: $y = 26.3 - 0.10x$; $p < .01$; $r^2 = 0.11$.

Bingham, D., Sceheich, B., Byfield, R., Wilson, B., and Bateman, B.T. (2016). Postpartum hemorrhage preparedness elements vary among hospitals in New Jersey and Georgia. Journal of Obstetrics, Gynecologic, and Neonatal Nurses, (45) pp. 227-238.

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Women die because they do not receive early, effective and aggressive lifesaving treatments.

California Department of Public Health (2011). The California pregnancy associated mortality review: Report from 2002 and 2003 Maternal Death Reviews.

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National Partnership for Patient Safety
Maternal Safety Bundles

"What every birthing facility in the U.S. should have…"

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Council on Patient Safety in Women's Health Care Bundles

www.safehealthcareforeverywoman.org

Dr. Bingham helped form the Council and was the Vice Chair and Chair of the Council

Council on Patient Safety Maternal Bundles

- Maternal Mental Health: Depression and Anxiety
- **Obstetric Hemorrhage**
- Maternal Venous Thromboembolism
- Severe Hypertension in Pregnancy
- Safe Reduction of Primary Cesarean Birth
- Support after a Severe Maternal Event
- Reduction of Peripartum Racial/Ethnic Disparities
- Severe Maternal Morbidity Review
- Postpartum Care Basics for Maternal Safety: From Birth to the Comprehensive Postpartum Visit

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Safety Bundles Recommendations:

- Hold Team Huddles
- Debrief After Events
- Run Simulation Drills

"What every birthing facility in the U.S. should have…"

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COUNCIL ON PATIENT SAFETY IN WOMEN'S HEALTH CARE

safe health care for every woman

PATIENT SAFETY BUNDLE

Obstetric Hemorrhage

READINESS

Every unit

- Hemorrhage cart with supplies, checklist, and instruction cards for intrauterine balloons and compressions stitches
- Immediate access to hemorrhage medications (kit or equivalent)
- Establish a response team - who to call when help is needed (blood bank, advanced gynecologic surgery, other support and tertiary services)
- Establish massive and emergency release transfusion protocols (type-O negative/uncrossmatched)
- Unit education on protocols, unit-based drills (with post-drill debriefs)

RECOGNITION & PREVENTION

Every patient

- Assessment of hemorrhage risk (prenatal, on admission, and at other appropriate times)
- Measurement of cumulative blood loss (formal, as quantitative as possible)
- Active management of the 3rd stage of labor (department-wide protocol)

RESPONSE

Every hemorrhage

- Unit-standard, stage-based, obstetric hemorrhage emergency management plan with checklists
- Support program for patients, families, and staff for all significant hemorrhages

REPORTING/SYSTEMS LEARNING

Every unit

- Establish a culture of huddles for high risk patients and post-event debriefs to identify successes and opportunities
- Multidisciplinary review of serious hemorrhages for systems issues
- Monitor outcomes and process metrics in perinatal quality improvement (QI) committee

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Implementing the Obstetric Hemorrhage Patient Safety Bundle

Quality Improvement Process Models

- Plan-Do-Study-Act

- MAP-IT – My favorite
  - Mobilize
  - Assess
  - Plan
  - Implement
  - Track

Have a Plan – Be Systematic

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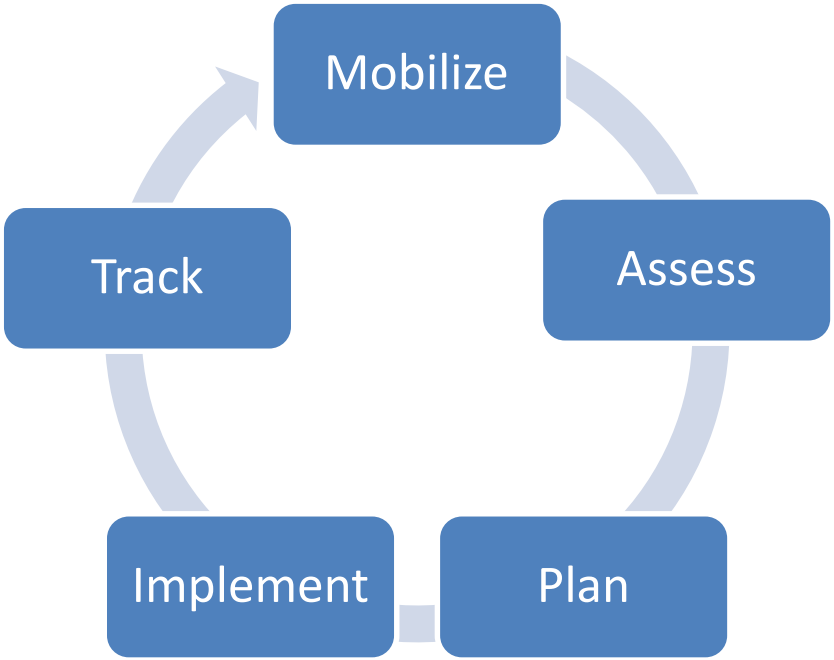
MAP-IT is a QI Process Model

Mobilize – Assess – Plan – Implement – Track (MAP-IT)



Guidry, M., Vischi, T., Han, R., & Passons, O. MAP-IT: a guide to using healthy people 2020 in your community. U.S. Department of Health and Human Services. The Office of Disease Prevention and Health Promotion, Washington, D.C. https://www.healthypeople.gov/2020/tools-and-resources/Program-Planning

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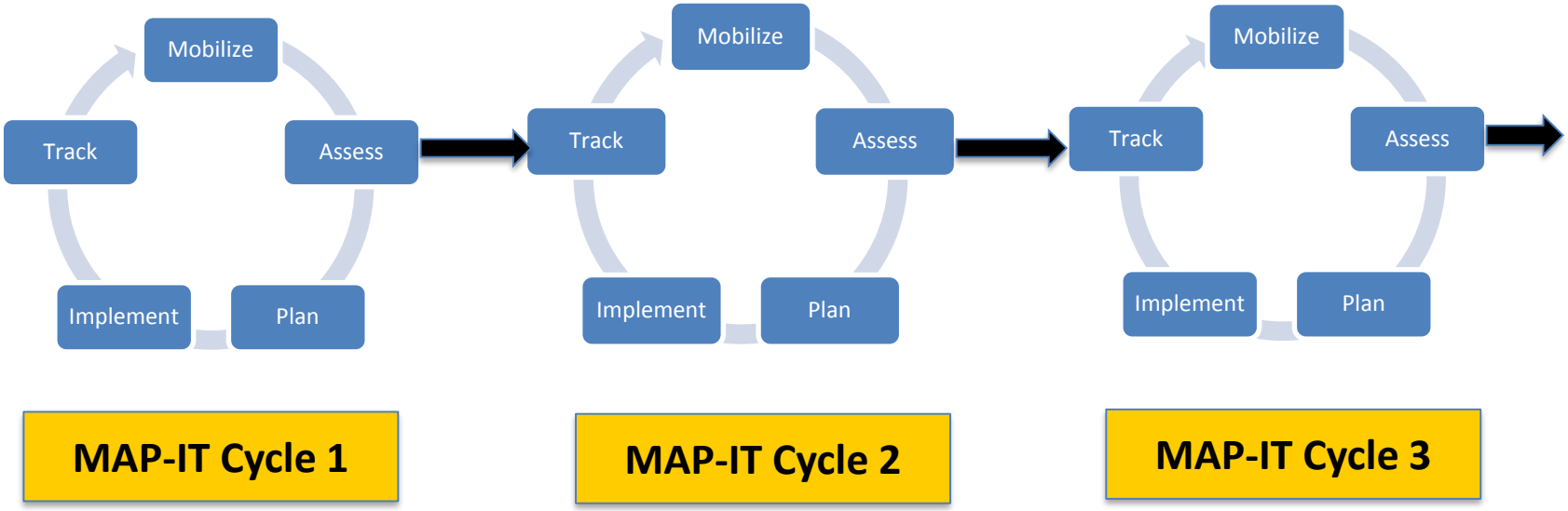
Perform Small Tests of Change
Learn then Adjust (as often as needed)



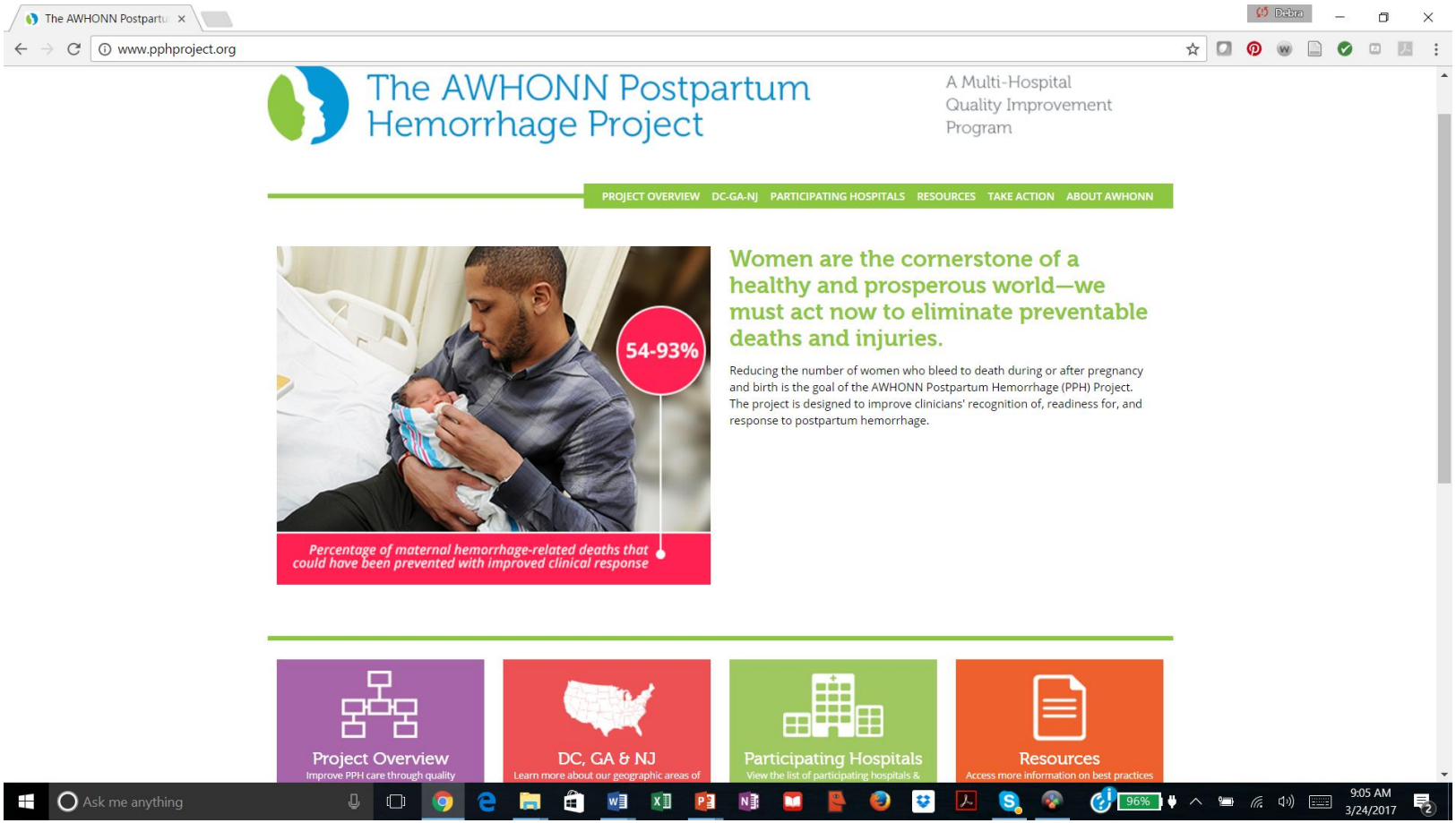
QI Saves Lives!

www.perinatalQI.org

Each cycle gets you closer to your goal

Quality Improvement is like climbing a spiral staircase

AWHONN PPH Project Wrap-Up Video



www.pphproject.org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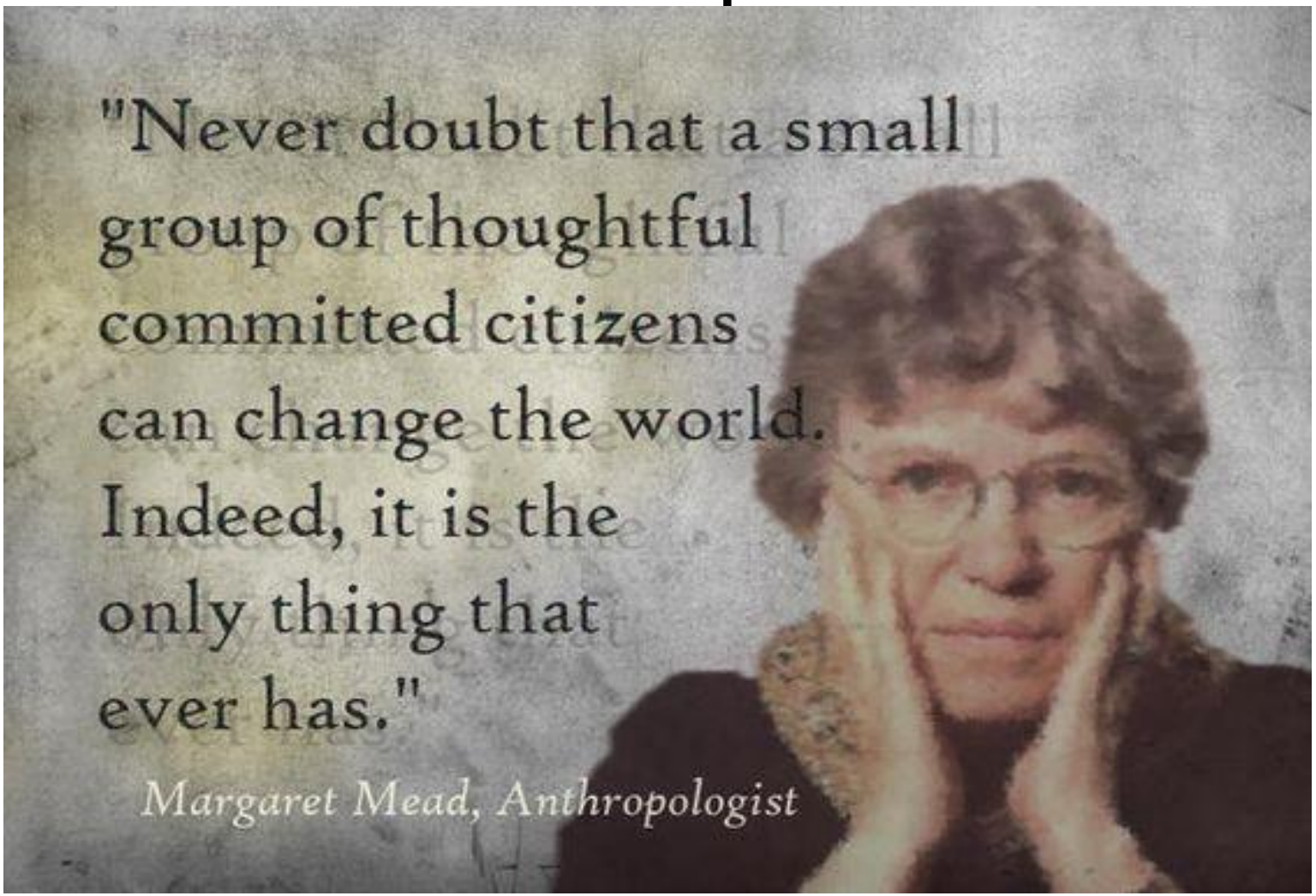
Start with a Small Committed Group of Clinicians



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Mobilize - Change Champions

Explain **WHY** the change is needed

A confident change champion feels they are up to the task and will keep trying

Weiner, B.J. (2009). A theory of organizational readiness for change. Implementation Science. Doi:10.1186/1748-5908-4-67

Composite Case Example: 24yo G2 P1 at 38 weeks gestation induced because she was "tired of being pregnant"

- After 8hr active phase and 2 hour 2nd stage, she gave birth, NSVD, infant weighed 8lb 6oz
- After placental delivery she had an episode of atony that firmed with massage. A second episode responded to IM methergine and the physician went home (now 1am)
- The nurses called the physician 30 min later to report more bleeding and further methergine was ordered
- 60min after the call, the physician performed a D&C with minimal return of tissue. More methergine was given

Bingham, D., Lyndon, A., Lagrew, D., and Main, E. K. (2011). A state-wide obstetric hemorrhage quality improvement initiative. *American Journal of Maternal/Child Nursing, 36*(5), 297–304. doi:10.1097/NMC.0b013e318227c75f

Composite Case Example: 24yo G2 P1 at 38 weeks gestation induced because she was "tired of being pregnant", cont.

- 45 min later a second D&C was performed, again with minimal returns. EBL now >2,000
- Delays in blood transfusion because of inability to find proper tubing
- Anesthesia is delayed, but a second IV started for more crystaloid. VS now markedly abnormal, P=144, BP 80/30
- One further Methergine given and patient taken for a 3rd D&C; received 2u PRBCs
- After completion, she had a cardiac arrest from hypovolemia /hypoxia and was taken to the ICU when she succumbed 3 hours later

Bingham, D., Lyndon, A., Lagrew, D., and Main, E. K. (2011). A state-wide obstetric hemorrhage quality improvement initiative. *American Journal of Maternal/Child Nursing, 36*(5), 297–304. doi:10.1097/NMC.0b013e318227c75f

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What are the Quality Improvement Opportunities Identified for Reducing Maternal Mortality and Morbidity from OB Hemorrhage?

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Prioritize Which Changes are Most Needed at Your Hospital

- Perform Risk Assessments on Prenatal, Admission, Pre-Birth, and Post-Birth
- Implement Quantification of Blood Loss
- Implement an obstetric hemorrhage algorithm based on measurement of cumulative blood loss
- Debrief after all Stage 2 and 3 hemorrhages
- Huddles for high-risk women
- Run Obstetric Simulation Drills

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CMQCC's Risk Assessment Tool

CMQCC **Obstetric Hemorrhage Emergency Management Plan: Checklist Format** Revision 9/10/14

Stage 0: All Births – Prevention & Recognition of OB Hemorrhage
Prenatal Assessment & Planning

☐ **Identify and prepare for patients with special considerations:** Placenta Previa/Accreta, Bleeding Disorder, or those who Decline Blood Products
☐ **Screen and aggressively treat severe anemia:** if oral iron fails, initiate IV Iron Sucrose Protocol to reach desired Hgb/Hct, especially for at risk mothers.

Admission Assessment & Planning

Verify Type & Antibody Screen from prenatal record

If not available,

☐ Order Type & Screen (lab will notify if 2nd specimen needed for confirmation)

If prenatal or current antibody screen positive (if not low level anti-D from Rho-GAM),

☐ Type & Crossmatch 2 units PRBCs

All other patients,

☐ Send specimen to blood bank

☐ Evaluate for ***Risk Factors*** on admission, throughout labor, and postpartum. (At every handoff)

If medium risk:
- ☐ Order Type & Screen
- ☐ Review Hemorrhage Protocol

If high risk:
- ☐ Order Type & Crossmatch 2 units PRBCs
- ☐ Review Hemorrhage Protocol
- ☐ Notify OB Anesthesia

Identify women who may decline transfusion
- ☐ Notify OB provider for plan of care
- ☐ Early consult with OB anesthesia
- ☐ Review Consent Form

Ongoing Risk Assessment

☐ **Evaluate for development of additional risk factors in labor**:
- Prolonged 2nd Stage labor
- Prolonged oxytocin use
- Active bleeding
- Chorioamnionitis
- Magnesium sulfate treatment

☐ **Increase Risk level** (see below) **and convert to Type & Screen or Type & Crossmatch**
☐ **Treat multiple risk factors as High Risk**
☐ **Monitor women postpartum for increased bleeding**

Admission Hemorrhage Risk Factor Evaluation

Low (Clot only)	**Medium** (Type and Screen)	**High** (Type and Crossmatch)
No previous uterine incision	Prior cesarean birth(s) or uterine surgery	Placenta previa, low lying placenta
Singleton pregnancy	Multiple gestation	Suspected Placenta accreta or percreta
≤ 4 previous vaginal births	> 4 previous vaginal births	Hematocrit < 30 AND other risk factors
No known bleeding disorder	Chorioamnionitis	Platelets < 100,000
No history of PPH	History of previous PPH	Active bleeding (greater than show) on admit
	Large uterine fibroids	Known coagulopathy

All Births – Prophylactic Oxytocin, Quantitative Evaluation of Blood Loss, & Close Monitoring

Active Management of Third Stage
☐ Oxytocin infusion: 10-40 units oxytocin/1000 ml solution titrate infusion rate to uterine tone; or 10 units IM; do not give oxytocin as IV push

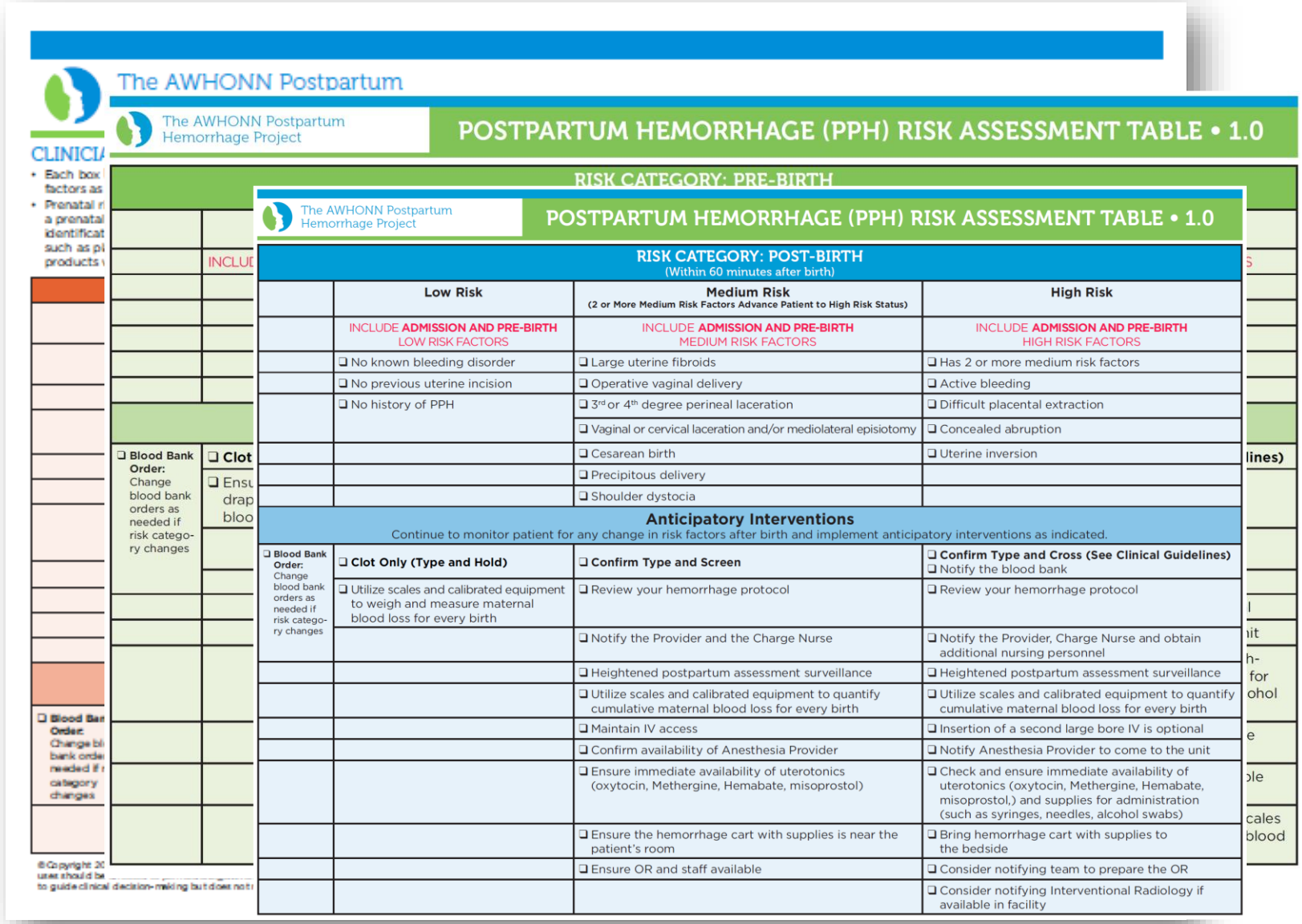
Ongoing Quantitative Evaluation of Blood Loss
☐ Using formal methods, such as graduated containers, visual comparisons and weight of blood soaked materials (**1gm = 1ml**)

Ongoing Evaluation of Vital Signs

If: Cumulative Blood Loss > 500ml vaginal birth or > 1000ml C/S with continued bleeding -OR-
Vital signs > 15% change or HR ≥ 110, BP ≤ 85/45, O2 sat < 95% -OR- Increased bleeding during recovery or postpartum,
proceed to STAGE 1

Lyndon, A., Lagrew, D., Shields, L.E., Main, E., & Cape, V.. (2015). Improving health care response to obstetric hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care under contract #11-10006 with the California Department of Public Health; Maternal, and Adolescent Health Division.

AWHONN's Risk Assessment Tool



The AWHONN Postpartum Hemorrhage Project

POSTPARTUM HEMORRHAGE (PPH) RISK ASSESSMENT TABLE • 1.0

RISK CATEGORY: PRE-BIRTH

The AWHONN Postpartum Hemorrhage Project

POSTPARTUM HEMORRHAGE (PPH) RISK ASSESSMENT TABLE • 1.0

RISK CATEGORY: POST-BIRTH
(Within 60 minutes after birth)

	Low Risk	Medium Risk (2 or More Medium Risk Factors Advance Patient to High Risk Status)	High Risk
	INCLUDE **ADMISSION AND PRE-BIRTH** LOW RISK FACTORS	INCLUDE **ADMISSION AND PRE-BIRTH** MEDIUM RISK FACTORS	INCLUDE **ADMISSION AND PRE-BIRTH** HIGH RISK FACTORS
	❑ No known bleeding disorder	❑ Large uterine fibroids	❑ Has 2 or more medium risk factors
	❑ No previous uterine incision	❑ Operative vaginal delivery	❑ Active bleeding
	❑ No history of PPH	❑ 3rd or 4th degree perineal laceration	❑ Difficult placental extraction
		❑ Vaginal or cervical laceration and/or mediolateral episiotomy	❑ Concealed abruption
		❑ Cesarean birth	❑ Uterine inversion
		❑ Precipitous delivery	
		❑ Shoulder dystocia	
Anticipatory Interventions Continue to monitor patient for any change in risk factors after birth and implement anticipatory interventions as indicated.			
❑ **Blood Bank Order:** Change blood bank orders as needed if risk category changes	❑ **Clot Only (Type and Hold)**	❑ **Confirm Type and Screen**	❑ **Confirm Type and Cross (See Clinical Guidelines)** ❑ Notify the blood bank
	❑ Utilize scales and calibrated equipment to weigh and measure maternal blood loss for every birth	❑ Review your hemorrhage protocol	❑ Review your hemorrhage protocol
		❑ Notify the Provider and the Charge Nurse	❑ Notify the Provider, Charge Nurse and obtain additional nursing personnel
		❑ Heightened postpartum assessment surveillance	❑ Heightened postpartum assessment surveillance
		❑ Utilize scales and calibrated equipment to quantify cumulative maternal blood loss for every birth	❑ Utilize scales and calibrated equipment to quantify cumulative maternal blood loss for every birth
		❑ Maintain IV access	❑ Insertion of a second large bore IV is optional
		❑ Confirm availability of Anesthesia Provider	❑ Notify Anesthesia Provider to come to the unit
		❑ Ensure immediate availability of uterotonics (oxytocin, Methergine, Hemabate, misoprostol)	❑ Check and ensure immediate availability of uterotonics (oxytocin, Methergine, Hemabate, misoprostol,) and supplies for administration (such as syringes, needles, alcohol swabs)
		❑ Ensure the hemorrhage cart with supplies is near the patient's room	❑ Bring hemorrhage cart with supplies to the bedside
		❑ Ensure OR and staff available	❑ Consider notifying team to prepare the OR
			❑ Consider notifying Interventional Radiology if available in facility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Use SMART Objectives

- **S**pecific
- **M**easurable
- **A**chievable
- **R**ealistic
- **T**ime Specific

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Set A Goal or Quality Improvement Aim Statement

- By April 2018 the nurses and physicians at Fabulous Hospital will perform hemorrhage risk assessments on admission, pre-birth, and post-birth, quantify blood loss at every birth, use actual blood loss to determine actions, participate in drills, and debrief after all stage 2 and 3 hemorrhages
- We will track our progress by….

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Persuasion

- Focus on the WHY before telling people WHAT, WHO, and HOW
- Let others help work out the HOW
- Plan vicarious experiences of self-discovery
- Try small tests of change

Run a simulation drill to demonstrate how inaccurate estimating blood loss is

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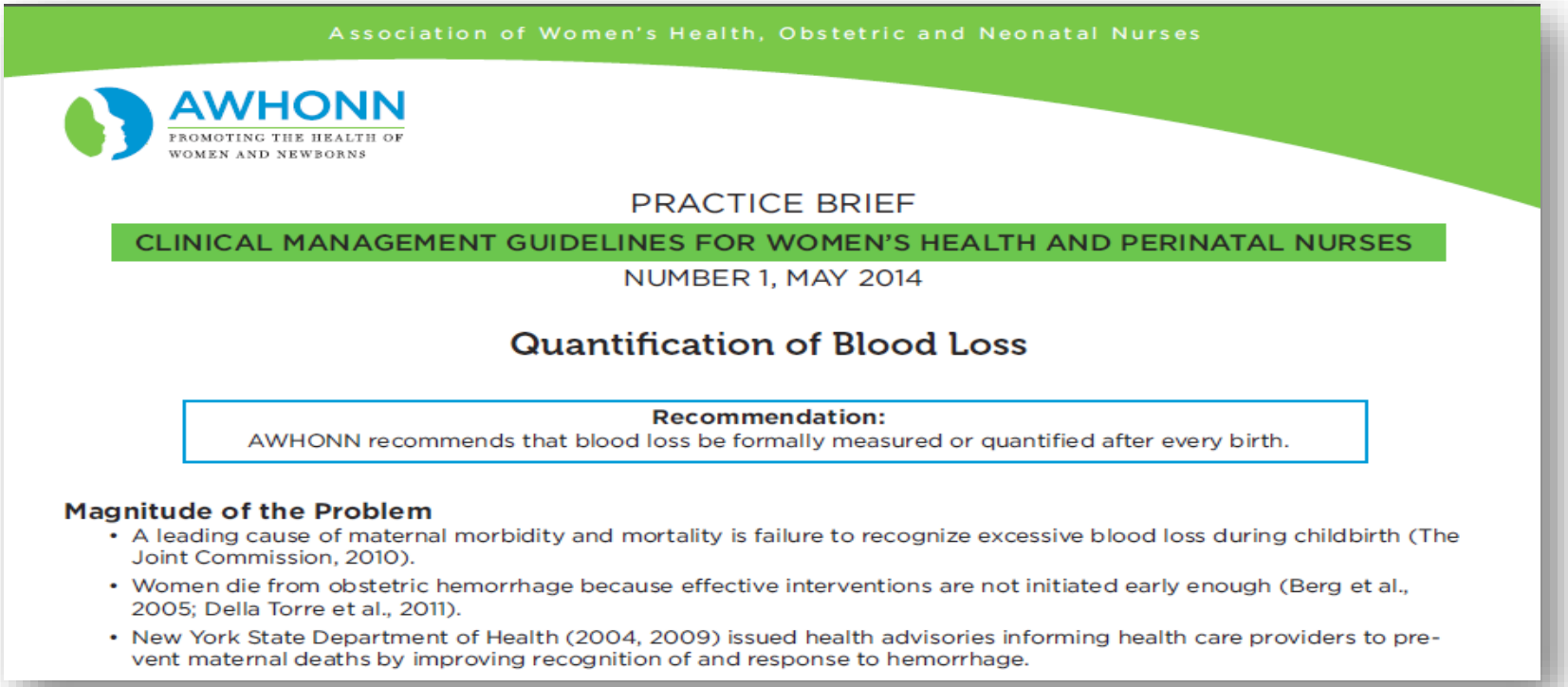
Quantification of Blood Loss Methods

- Quantification of blood loss is a formal measurement using weighing and blood collection devices to determine the actual amount of blood loss
- Methods to quantify blood loss, such as weighing, are significantly more accurate than EBL (Al Kadri et al., 2011).
- The use of a calibrated drape had an error rate of less than 15% (Toledo et al., 2007).

AWHONN (2015). Quantification of blood loss: AWHONN Practice Brief Number 1. Journal of Obstetric, Gynecologic & Neonatal Nursing.44, pp 158-160.

AWHONN Practice Brief



Association of Women's Health, Obstetric and Neonatal Nurses

AWHONN
PROMOTING THE HEALTH OF WOMEN AND NEWBORNS

PRACTICE BRIEF

CLINICAL MANAGEMENT GUIDELINES FOR WOMEN'S HEALTH AND PERINATAL NURSES

NUMBER 1, MAY 2014

Quantification of Blood Loss

Recommendation:
AWHONN recommends that blood loss be formally measured or quantified after every birth.

Magnitude of the Problem

- A leading cause of maternal morbidity and mortality is failure to recognize excessive blood loss during childbirth (The Joint Commission, 2010).
- Women die from obstetric hemorrhage because effective interventions are not initiated early enough (Berg et al., 2005; Della Torre et al., 2011).
- New York State Department of Health (2004, 2009) issued health advisories informing health care providers to prevent maternal deaths by improving recognition of and response to hemorrhage.

AWHONN (2015). Quantification of blood loss: AWHONN Practice Brief Number 1. Journal of Obstetric, Gynecologic & Neonatal Nursing.44, pp 158-160.

Inaccuracy of Visual Estimation of Blood Loss

EBL is common practice in obstetrics, however its inaccuracy has been well established:

- Research from the 1960s have shown errors of both underestimation and overestimation (Brant, 1967; Pritchard, 1965).
- Visual estimation can underestimate actual blood loss by 33 – 50% (Patel et al., 2006).
- With training, clinicians initially improved accuracy with visual estimation but experienced skill decay (Dildy et al., 2004) within 9 months of training completion (Toledo et al., 2012).
- Provider specialty, age, or years of experience are all unrelated to accuracy of visual EBL (Al Kadri et al., 2011; Toledo et al., 2007).

AWHONN (2015). Quantification of blood loss: AWHONN Practice Brief Number 1. Journal of Obstetric, Gynecologic & Neonatal Nursing.44, pp 158-160.

Visual Estimation: Overestimation and Underestimation

- Visual EBL consistently resulted in underestimation of large volumes (Brant, 1967; Duthie et al., 1990; Stafford et al., 2008) of greater than 1000 ml (Stafford et al., 2008)
- With smaller volumes, EBL resulted in overestimation compared to direct measurement (Dildy et al., 2004)
- Inaccurate postpartum blood loss volume measurement has the following consequences
  - Overestimation can lead to costly, unnecessary treatments like transfusions
  - Underestimation can lead to the delay of life saving hemorrhage interventions

AWHONN (2015). Quantification of blood loss: AWHONN Practice Brief Number 1. Journal of Obstetric, Gynecologic & Neonatal Nursing.44, pp 158-160.

AHRQ Management of Postpartum Hemorrhage Systematic Review: Research Gaps

- "Clearly identifying the trajectory of care, including which interventions were used and the order and timing of interventions." pg. ES-22

- "Using and clearly reporting objective methods to diagnoses PPH and evaluate management, including accurate measurement of blood loss. Visual estimation of blood loss is too imprecise to be used in research." pg. ES-23

Agency for Healthcare Research and Quality (2015) Comparative Effectiveness Review: Number 151. No. 15-#HC013-EF

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Quantification of Blood Loss (QBL) Simulation

Make Weighing Easy to Do
Develop a QBL Calculator or Worksheet

	Wet Weight	Minus Dry Weight	Total mls Blood Loss
Blue Chux		5 grams	
Vaginal Count Bag+5 laps+2 sponge		1 grams	
1 lap		2 grams	
1 sponge		0.05 grams	
Birth Total			
Large sheet		53 grams	
Immediate PP Total			
Total Blood Labor and Delivery Blood Loss			

AWHONN Quantification of Blood Loss YouTube Video

https://www.youtube.com/watch?v=F_ac-aCbEn0&list=UUPrOhL3Od7ZeFDq27ycS00g

Standardized Obstetric Hemorrhage Management: Use an Algorithm

- Everyone use the same definitions
- Stages are based upon the amount of “cumulative measured” blood loss
- Stages outline specific actions
- Teams practice what to do and how to work together

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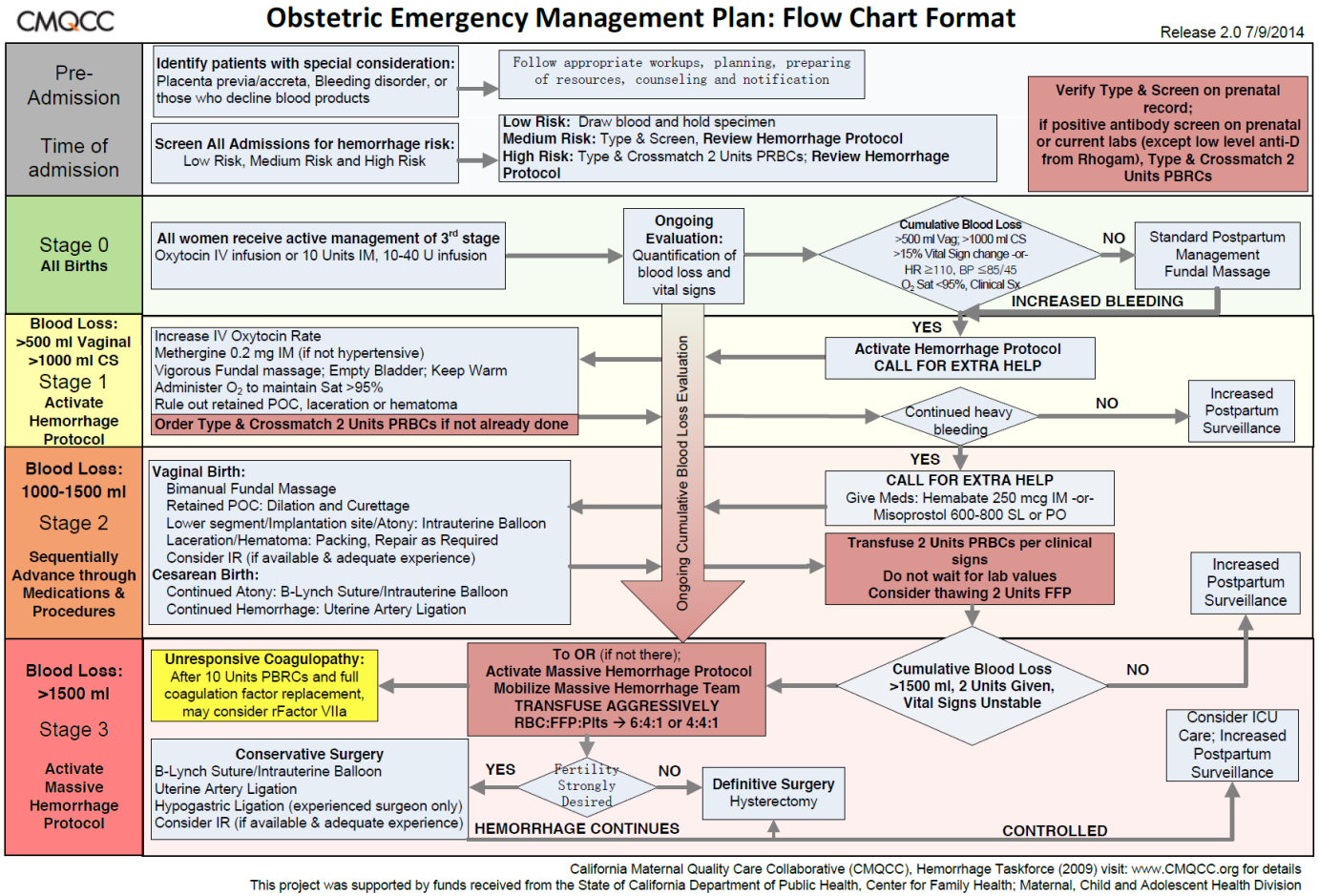
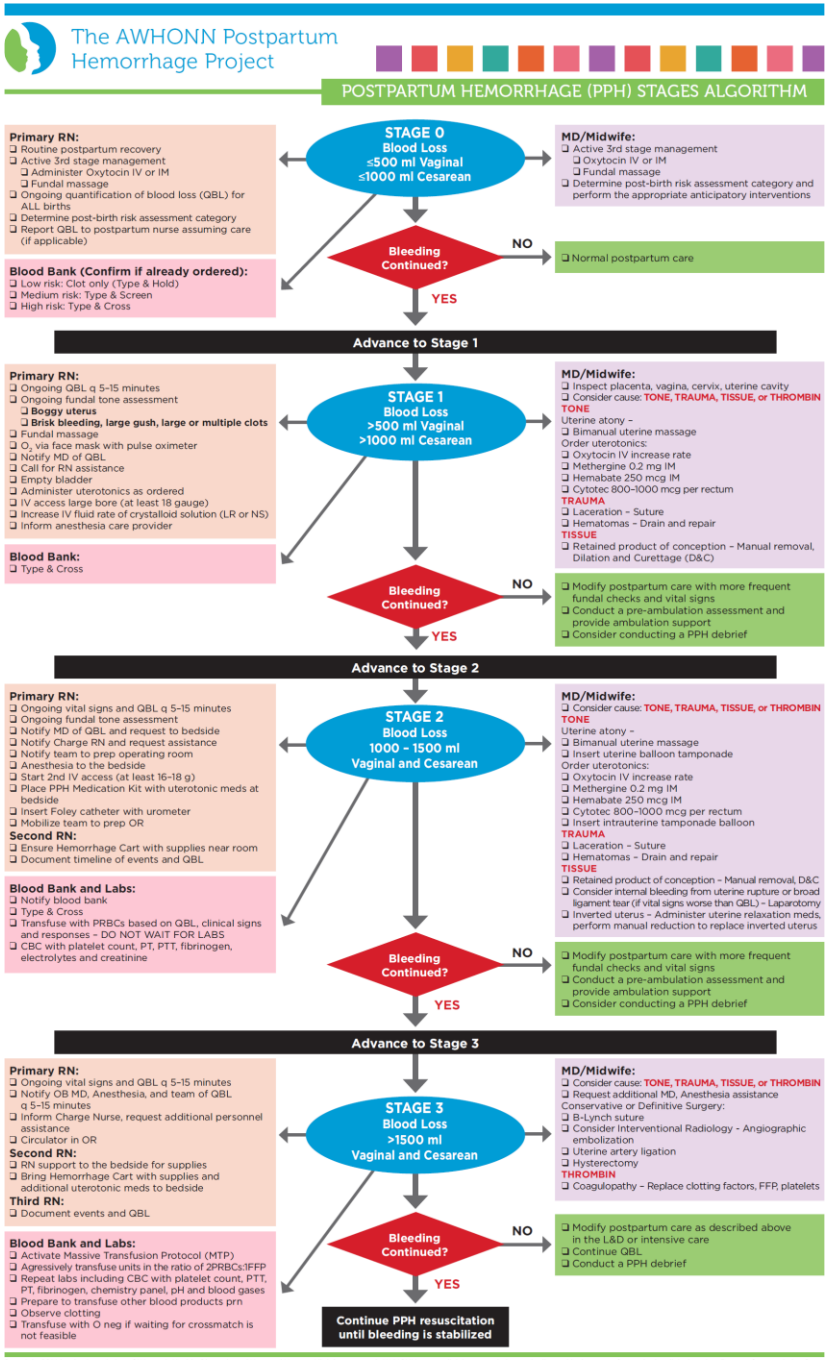
CMQCC Algorithm



Lyndon, A., Lagrew, D., Shields, L.E., Main, E., & Cape, V.. (2015). Improving health care response to obstetric hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care.



AWHONN's Algorithm

Get AWHONN's algorithm through their online education http://learning.awhonn.org/

Stage 0 Hemorrhage

Definition:

≤500ml vaginal

≤1000ml cesarean

Key Actions:
Active management of the 3rd stage of labor

Stage 1 Hemorrhage

Definition:

>500ml vaginal

>1000ml cesarean

Continued Bleeding?

Key Actions:

Tone

Uterine massage

- Uterine Tonics – IV Oxytocin, Methergine 0.2mg IM, Hemabate 250 mcg IM, Cytotec 800-1000mcg per rectum

Trauma

Tissue or Thrombin

Modify PP care

Anticipatory plan

Stage 2 Hemorrhage

Definition:

1000-1500ml

vaginal and cesarean

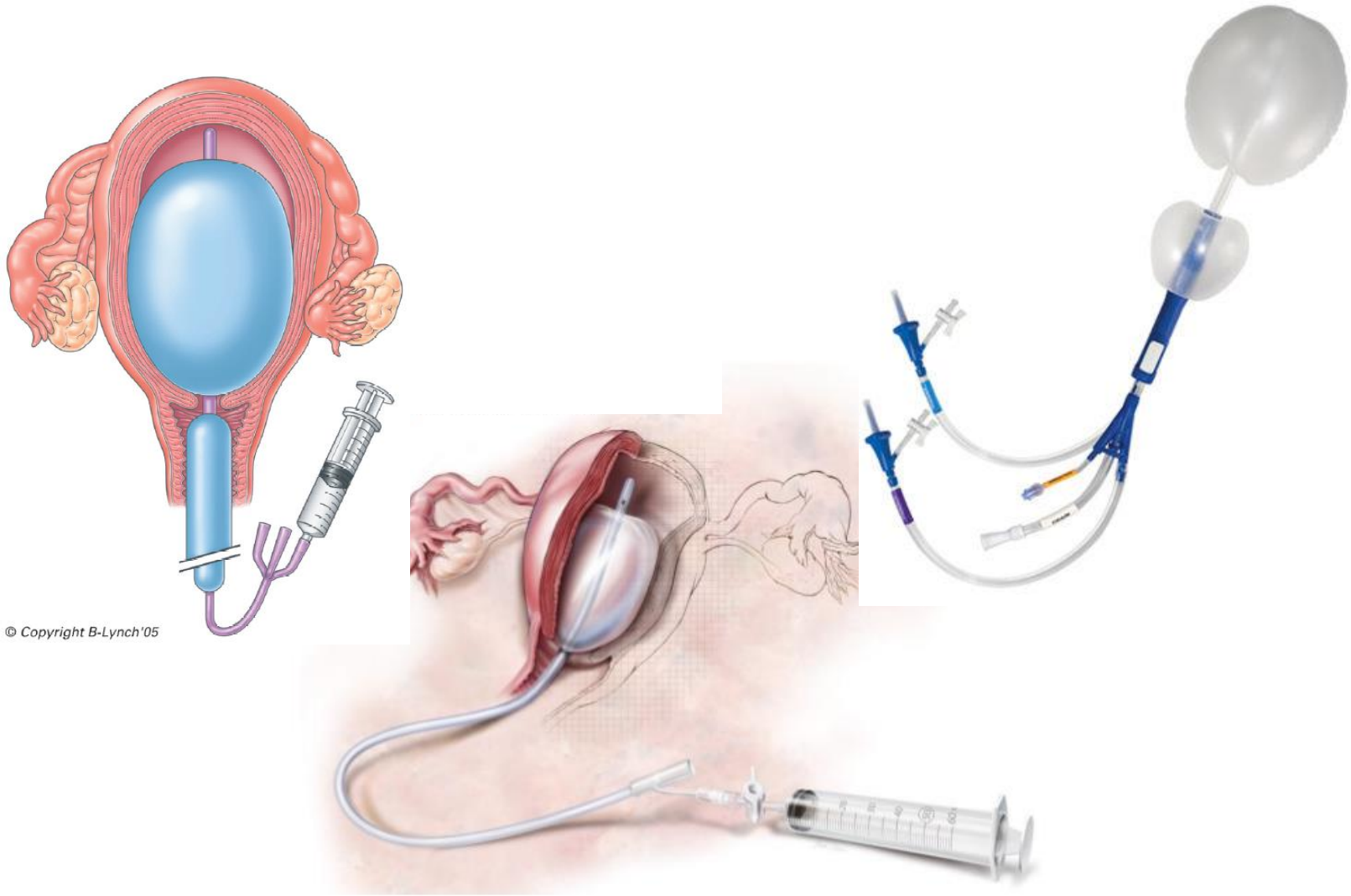
Continued Bleeding?

Key Actions:
Tone
Uterine massage
Uterine Tonics – IV Oxytocin, Methergine 0.2mg IM, Hemabate 250 mcg IM, Cytotect 800-1000mcg per rectumTamponade Balloon
Begin Blood Transfusion
Trauma
Tissue or Thrombin
Modify PP care
PPH Debrief

Tranexamic Acid
Non-pneumatic Anti-Shock Garment (NASG)

These need to be added to the Algorithms

Uterine Balloons



3 Blood Transfusion Processes Every Nurse Needs to Know

- Routine Blood Transfusions
- Uncrossed Matched Blood
- Massive Transfusion Protocol

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Blood Transfusion

- Prevent hypothermia
- Transfuse quickly – start 2 IVs
- Sample Massive Transfusion Protocol:
  - 4 units PRBCs
  - 2 units FFP (thawed)
  - 1 platelet dose (either with every or every other cooler of 4 PRBCs/2FFP)
- Use type-specific blood whenever possible

Tranexamic Acid (TXA)

- An inhibitor of fibrinolysis
- Reduces bleeding in the setting of coagulation abnormalities
- WOMAN trial showed a 30% reduction in the most severe hemorrhages when 1 gram of TXA was administered IV within 3 hours of the diagnosis of an OB Hemorrhage
  - In US we won't see such a large decrease in maternal mortality

WOMAN Trial Contributors. (April 2017). Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum hemorrhage (WMAN): an international, randomized, double-blind, placebo-controlled trial. *Lancet.Http://dx.doi.org/10.1016/S0140-6736(17)30638-4*

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Tranexamic Acid (TXA)

- National Guidance is Pending

- Add around Stage 2 Hemorrhage
  - When considering additional interventions, e.g., Hemabate or compression balloons
- Include in the OB hemorrhage medication kit
- Be cautious of medication confusion because this drug is neurotoxic

Non-pneumatic Anti-Shock Garment

Vital Signs

Warning Signs:

- Systolic BP less than 90 mmHg
- Heart Rate greater than 120 bpm

CAUTION!

- **Changes in Vital Signs are a late sign of deterioration**
- Do not wait for vital signs to deteriorate before treating
- The absence of abnormal vital signs does not rule out the possibility that significant hemorrhage has occurred.

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Stage 3 Hemorrhage

Definition:
>1500ml
vaginal and cesarean

Continued Bleeding?

Repeat resuscitation until bleeding is stabilized

Actions:
Tone, Trauma, Tissue
Additional MDs/RNs
B-Lynch suture
Angiographic embolization
Uterine artery ligation
Hysterectomy
Thrombin –Massive Transfusion Protocol
Replace clotting factors
Coagulopathy FFP & Platelets
Modify PP care
PPH Debrief

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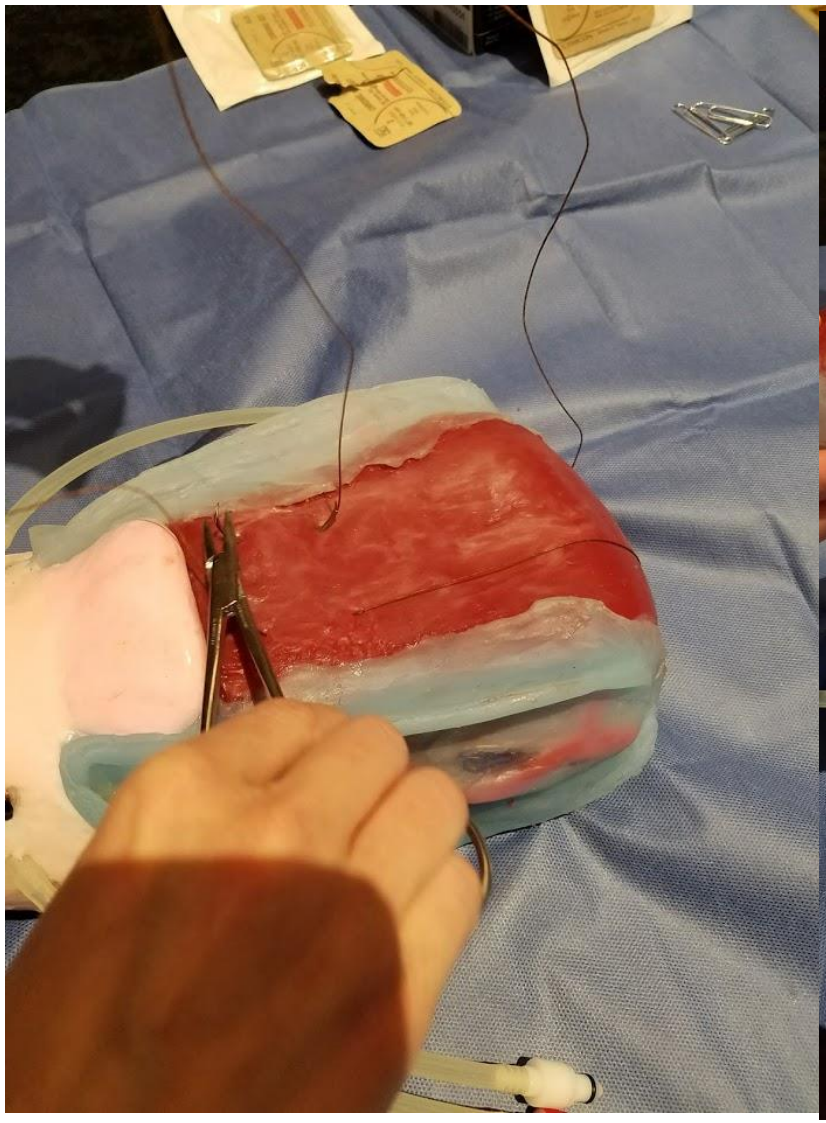
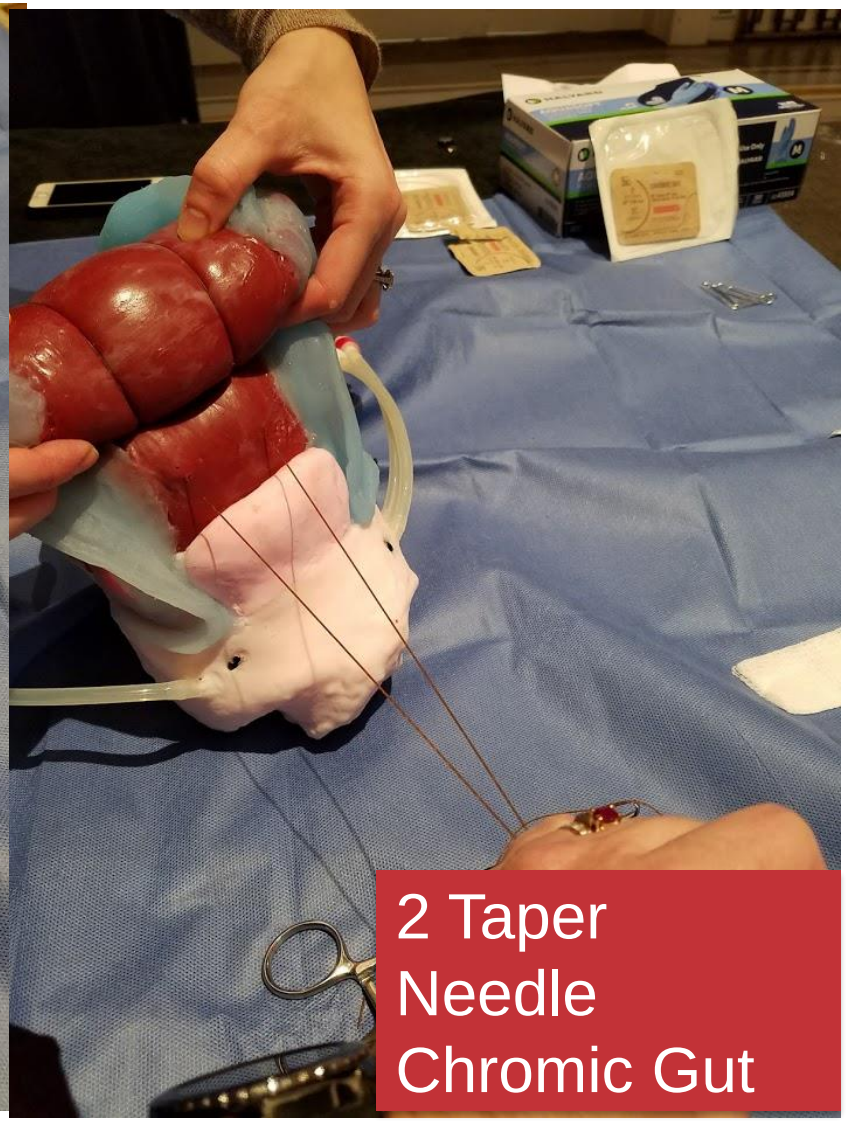
B-Lynch Suture





2 Taper Needle Chromic Gut

Reporting/Systems Learning (Every Unit)

Establish a culture of huddles and post-event debriefs to identify successes and opportunities.

Main, E.K., Goffman, D., Scavone, B.M., Low, L.K., Bingham, D., Gorlin, J.B., Lagrew, D.C., & Levy, B.S. (2015). National partnership for maternal safety: consensus bundle on hemorrhage. Journal of Obstetric, Gynecologic, and Neonatal Nursing. pp. 1-10.
www.safehealthcareforeverywoman.org

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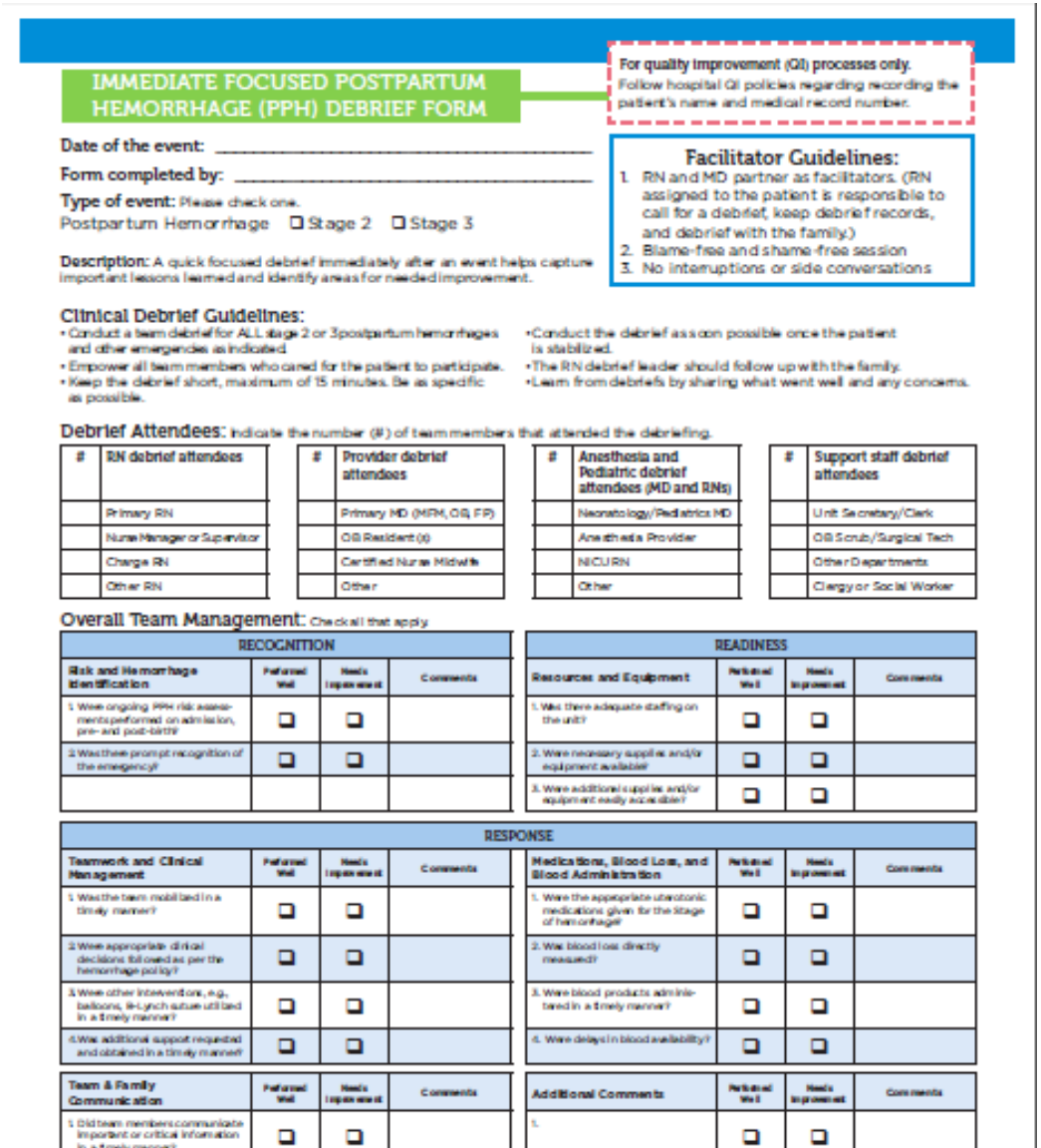
Example of a Debrief Tool



IMMEDIATE FOCUSED POSTPARTUM HEMORRHAGE (PPH) DEBRIEF FORM

For quality improvement (QI) processes only.
Follow hospital QI policies regarding recording the patient's name and medical record number.

Date of the event: _____

Form completed by: _____

Type of event: Please check one.
Postpartum Hemorrhage ❑ Stage 2 ❑ Stage 3

Description: A quick focused debrief immediately after an event helps capture important lessons learned and identify areas for needed improvement.

Facilitator Guidelines:
1. RN and MD partner as facilitators. (RN assigned to the patient is responsible to call for a debrief, keep debrief records, and debrief with the family.)
2. Blame-free and shame-free session
3. No interruptions or side conversations

Clinical Debrief Guidelines:
- Conduct a team debrief for ALL stage 2 or 3 postpartum hemorrhages and other emergencies as indicated
- Empower all team members who cared for the patient to participate.
- Keep the debrief short, maximum of 15 minutes. Be as specific as possible.
- Conduct the debrief as soon possible once the patient is stabilized.
- The RN debrief leader should follow up with the family.
- Learn from debriefs by sharing what went well and any concerns.

Debrief Attendees: Indicate the number (#) of team members that attended the debriefing.

#	RN debrief attendees
	Primary RN
	Nurse Manager or Supervisor
	Charge RN
	Other RN

#	Provider debrief attendees
	Primary MD (MFM, OB, FP)
	OB Resident (s)
	Certified Nurse Midwife
	Other

#	Anesthesia and Pediatric debrief attendees (MD and RNs)
	Neonatology/Pediatrics MD
	Anesthesia Provider
	NICU RN
	Other

#	Support staff debrief attendees
	Unit Secretary/Clerk
	OB Scrub/Surgical Tech
	Other Departments
	Clergy or Social Worker

Overall Team Management: Check all that apply

RECOGNITION			
Risk and Hemorrhage Identification	Performed Well	Needs Improvement	Comments
1. Were ongoing PPH risk assessments performed on admission, pre- and post-birth?	❑	❑	
2. Was there prompt recognition of the emergency?	❑	❑	

READINESS			
Resources and Equipment	Performed Well	Needs Improvement	Comments
1. Was there adequate staffing on the unit?	❑	❑	
2. Were necessary supplies and/or equipment available?	❑	❑	
3. Were additional supplies and/or equipment easily accessible?	❑	❑	

RESPONSE			
Teamwork and Clinical Management	Performed Well	Needs Improvement	Comments
1. Was the team mobilized in a timely manner?	❑	❑	
2. Were appropriate clinical decisions followed as per the hemorrhage policy?	❑	❑	
3. Were other interventions, e.g., balloons, B-Lynch suture utilized in a timely manner?	❑	❑	
4. Was additional support requested and obtained in a timely manner?	❑	❑	

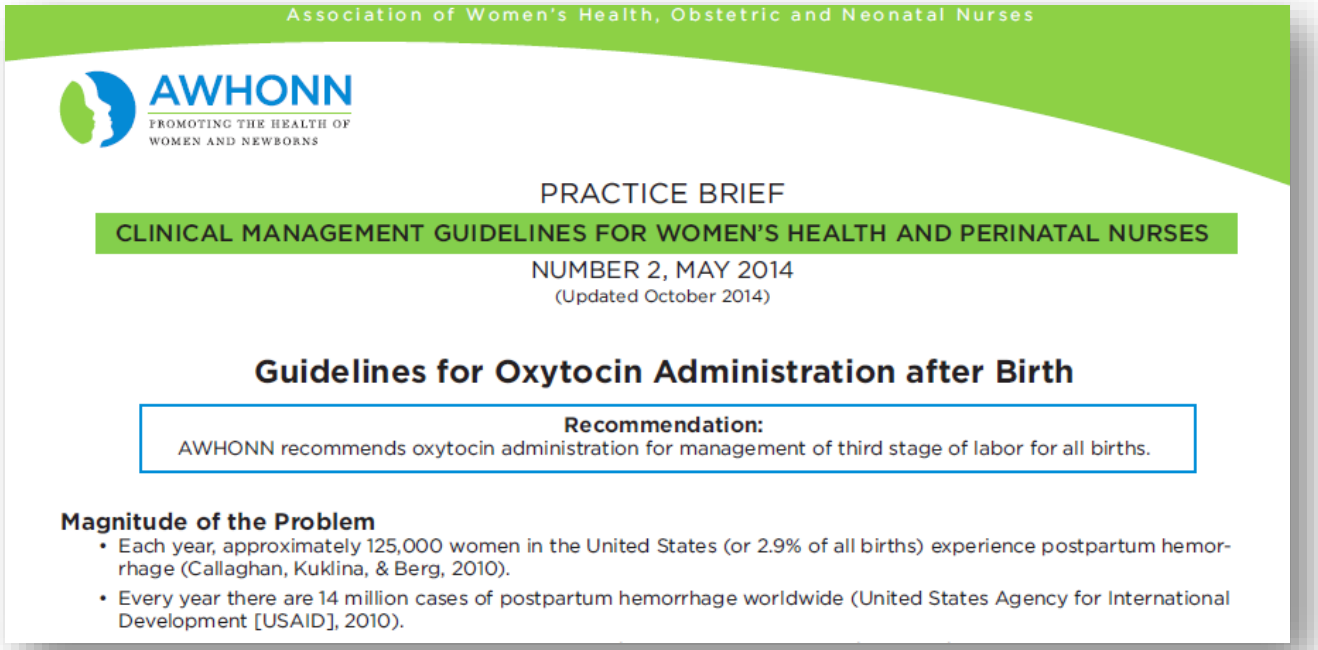
RESPONSE			
Medications, Blood Loss, and Blood Administration	Performed Well	Needs Improvement	Comments
1. Were the appropriate uterotonic medications given for the stage of hemorrhage?	❑	❑	
2. Was blood loss directly measured?	❑	❑	
3. Were blood products administered in a timely manner?	❑	❑	
4. Were delays in blood availability?	❑	❑	

Team & Family Communication	Performed Well	Needs Improvement	Comments
1. Did team members communicate important or critical information in a timely manner?	❑	❑	

Additional Comments	Performed Well	Needs Improvement	Comments
1.	❑	❑	

3rd Stage of Labor

AWHONN and the Council on Patient Safety in Women's Health Care recommend oxytocin administration for management of the third stage of labor.



Association of Women's Health, Obstetric and Neonatal Nurses

AWHONN
PROMOTING THE HEALTH OF WOMEN AND NEWBORNS

PRACTICE BRIEF

CLINICAL MANAGEMENT GUIDELINES FOR WOMEN'S HEALTH AND PERINATAL NURSES

NUMBER 2, MAY 2014
(Updated October 2014)

Guidelines for Oxytocin Administration after Birth

Recommendation:
AWHONN recommends oxytocin administration for management of third stage of labor for all births.

Magnitude of the Problem

- Each year, approximately 125,000 women in the United States (or 2.9% of all births) experience postpartum hemorrhage (Callaghan, Kuklina, & Berg, 2010).
- Every year there are 14 million cases of postpartum hemorrhage worldwide (United States Agency for International Development [USAID], 2010).

AWHONN (2015). Guidelines for oxytocin administration after birth. *Journal of Obstetric, Gynecologic, and Neonatal Nursing.* 44, 161-163.

Postpartum Oxytocin Administration Recommendations

- Administer IV oxytocin bolus followed by a total minimum infusion time of 4 hours after birth.
- High risk women will need longer
- Option 1:
  - Oxytocin 20 units in 1 liter normal saline or Lactated Ringer's solution
  - Initial **bolus** rate 1000 ml/hour for **30 minutes** (10units)
  - **Maintenance** rate of 125 ml/hour over **3.5 hours** (remaining 10 units)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Track Progress

- Structure
  - Update policies and procedures
  - Simulation drills
  - Educate clinical team
- Process
  - Quantification of Blood loss
  - Risk Assessments
- Outcomes – with Balancing Measures
  - ICU admission
  - Blood transfusions

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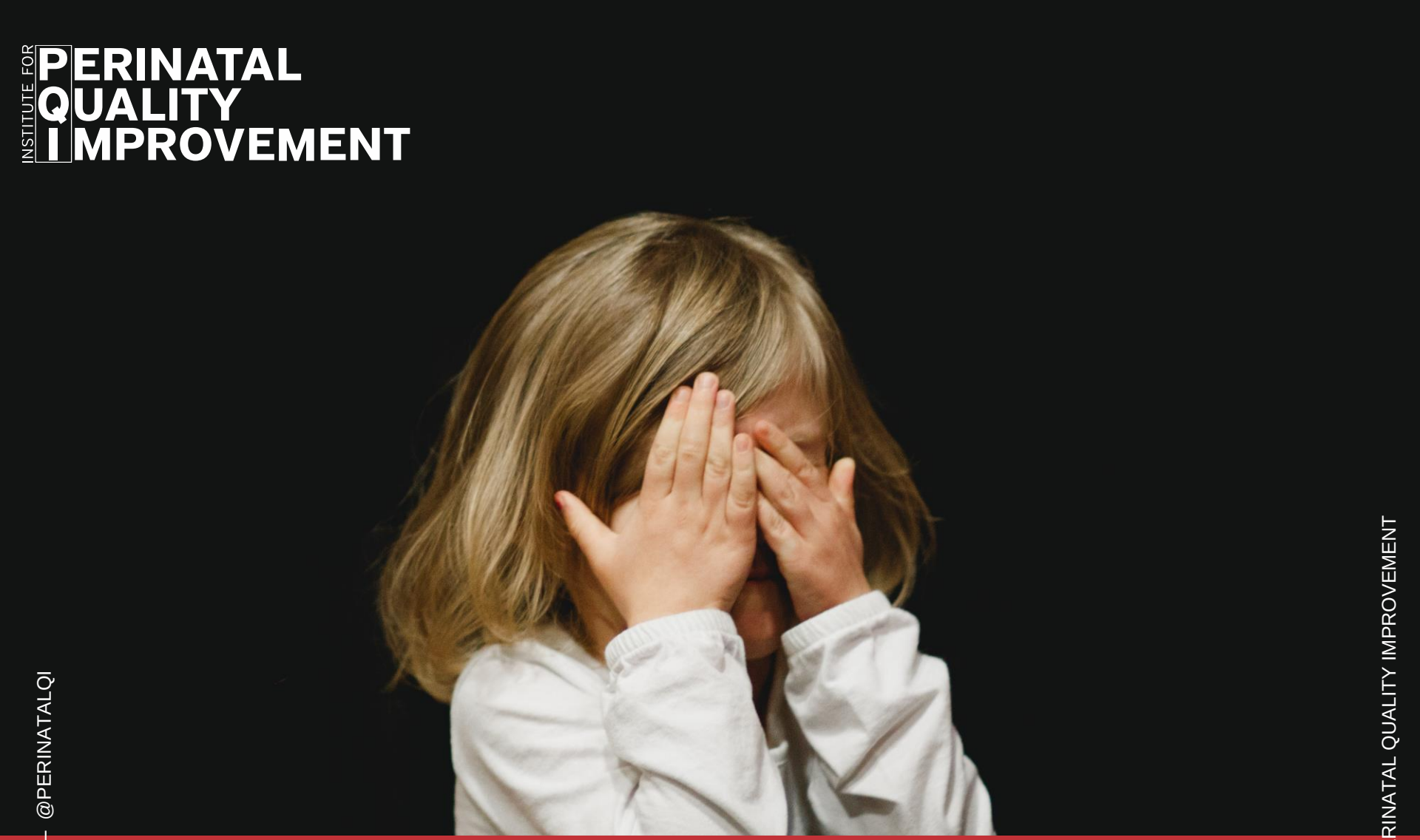

Don’t be afraid to look at your QI data.

Data helps us know what improvements are needed.

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OVER
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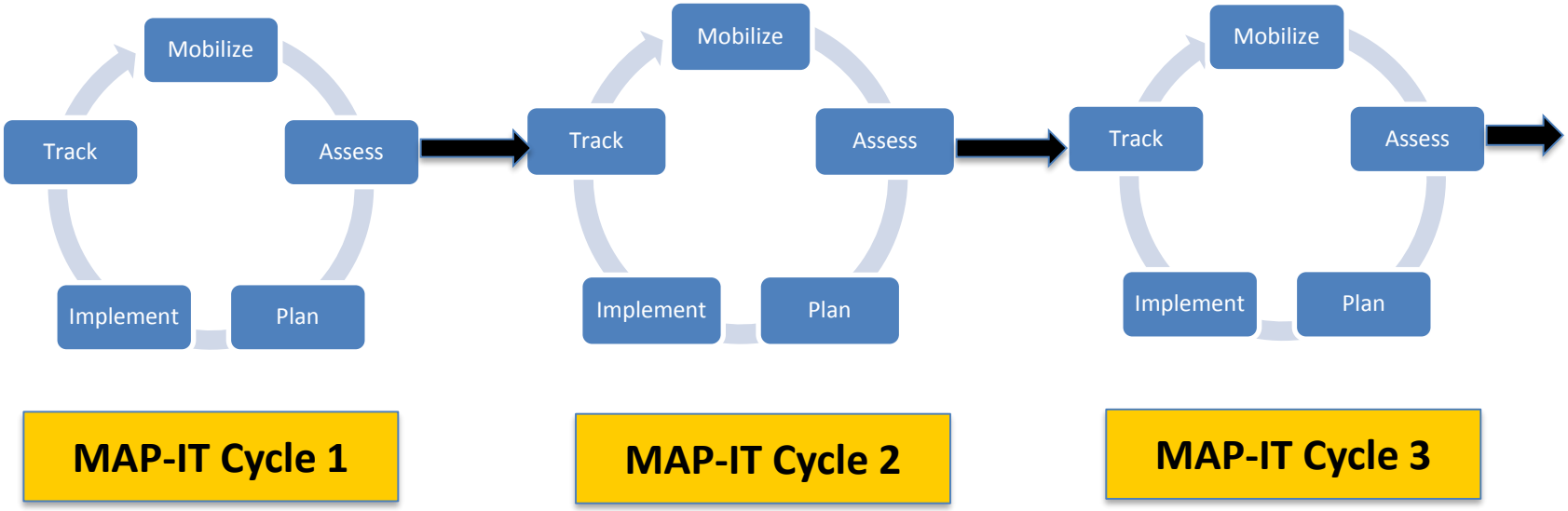
Perform Small Tests of Change
Learn then Adjust (as often as needed)



QI Saves Lives!

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Each cycle gets you closer to your goal

Quality Improvement is like climbing a spiral staircase

Without data QI leaders can go around & around in a circle like a cat chasing her tail

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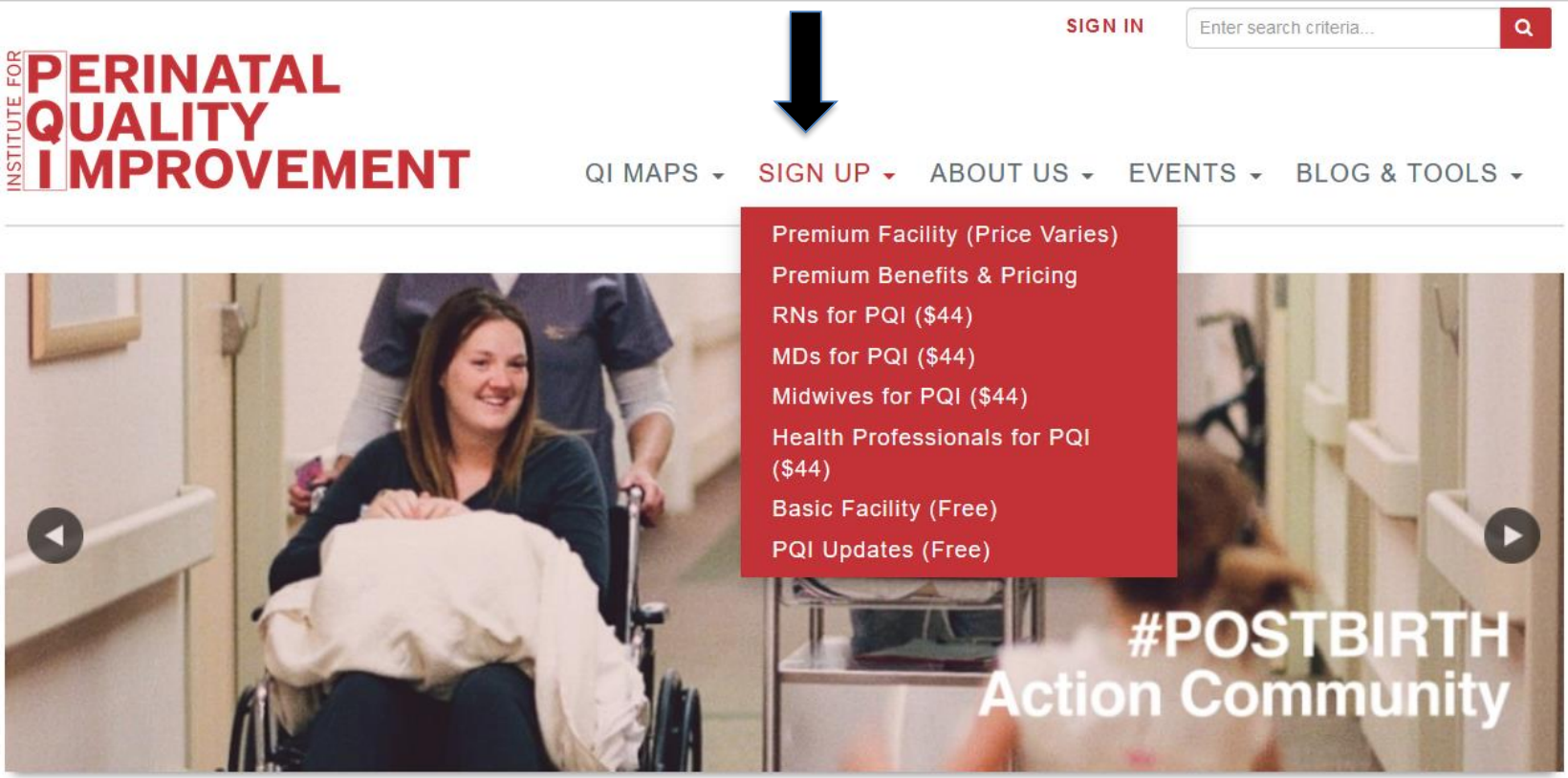

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Dig a ditch and that is where water will flow
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