

Postpartum Hemorrhage: Creating an Evidence- Based Safety Bundle

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MATERNAL-FETAL MEDICINE



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A woman dies of PPH every 4
minutes



140,000 deaths each year

Postpartum Hemorrhage: Mortality

- **Leading cause** of pregnancy-related mortality in both the U.S. and worldwide
 - Developed world: 1/100,000
 - Developing world 1/1,000
- **The most preventable cause** of maternal mortality
 - ✓ Timely diagnosis
 - ✓ Appropriate resources
 - ✓ Evidence-based management

Postpartum Hemorrhage: Mortality

- **Rates are increasing** in developed countries
- **Hemorrhage is the #1 cause of severe maternal morbidity**

Postpartum Hemorrhage: U.S.

- Incidence of PPH is **2-3%**
- Most deaths occur within **24-48 hours** of delivery
- **~50% - 95%** of these deaths are preventable
- **~40%** of postpartum hemorrhages occur in women without obvious risk factors
 - Highlights the need for system preparedness

Postpartum Hemorrhage: UTAH

- In Utah, hemorrhage is the **3rd leading cause of maternal mortality**:
 1. Embolism
 2. Overdose/drug toxicity
 - 3. Hemorrhage**
 4. Cardiac
 5. Infection

Postpartum Hemorrhage: UTAH

3.2%

Postpartum Hemorrhage: UTAH

- Marked variation by hospital
 - May reflect patient population
 - May reflect documentation and billing practices
 - May reflect prevention and treatment

Do you know the PPH rate at
your hospital?

Knowledge of your baseline
hospital rate is necessary before
trying to affect change...

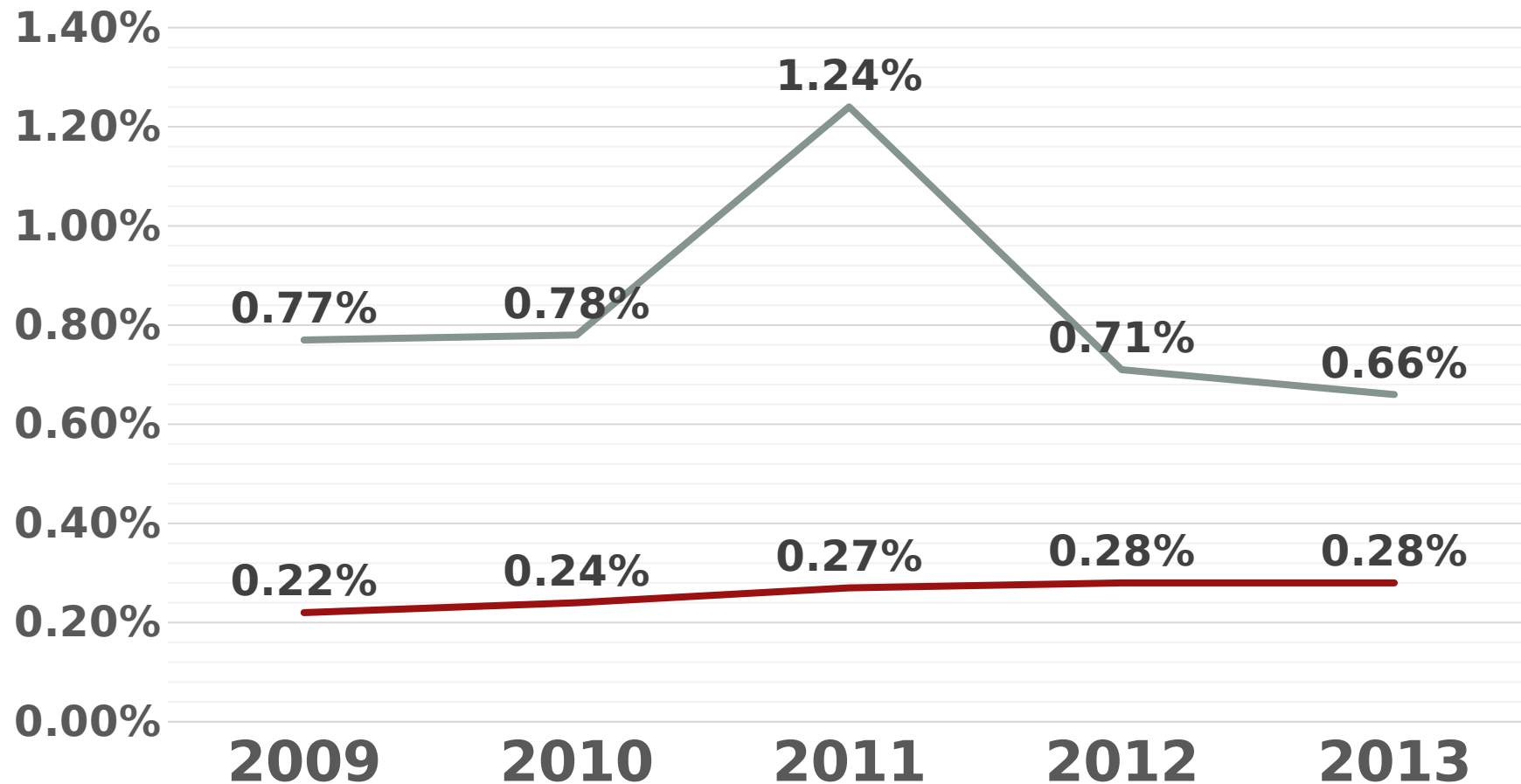
University of Utah Hospital

- In 2013, our PPH rate was 12%
- Top-performing University Hospitals: 3%

National Vital Statistics Report: Data from the Revised U.S. Birth Certificate, 2013

- Utah's maternal transfusion rate is **>2 fold higher** than the national average
- Utah: 0.66% of live births (1/150)
- U.S.: 0.28% of live births (1/350)

Percentage of Women with a Live Birth Who Received a Blood Transfusion, 2009-2013, Utah and U.S.



Utah's Postpartum Transfusion Rate

- Varies by hospital
- Larger hospitals do more transfusions
- Rate of transfusion is higher at smaller facilities

Utah's Postpartum Transfusion Rate

2012-2013 Utah Birth

Certificate Data	Transfusion Rate - Range
Less than 100 deliveries per year	2.2% - 4.3%
100 - 500 deliveries per year	0.3% - 1.2%
500 - 1,000 deliveries per year	0.7% - 1.8%
1,000 + deliveries per year	0.1% - 1.5%

Transfusion is a National Quality Measure

- Transfusion is considered an adverse pregnancy outcome
- Higher rate of maternal blood transfusions may reflect suboptimal prevention, recognition and management
- Knowledge of hospital transfusion rates may give some insight into facility performance

Objectives

- Review the components of an evidence-based OB hemorrhage safety bundle
- Use the University of Utah's experience as a practical example
- Introduce Utah's Every Mother Initiative

Objectives

- Whether you are an “implementer” or a “follower”, you need to know about this bundle and its essential components...

Standardized, comprehensive, multidisciplinary obstetric hemorrhage programs have demonstrated significant reductions in maternal morbidity.

- ✓ Increased use of appropriate interventions
- ✓ Decreased ICU admissions
- ✓ Reduction in blood product use

1. Einerson et al., Does a postpartum hemorrhage patient safety program result in sustained changes in management and outcomes? AJOG 2015
2. Shields et al., Comprehensive maternal hemorrhage protocols reduce the use of blood products and improve patient safety. AJOG 2015.
3. Main et al., National Partnership for Maternal Safety Consensus Bundle on Obstetric Hemorrhage. Obstet & Gynecol 2015



Workgroup of the
Partnership for Maternal
Safety, within the Council
on Patient Safety in
Women's Health Care

o All major women's health care professional organizations, including ACOG, were represented.

PATIENT
SAFETY
BUNDLE

Obstetric Hemorrhage

Obstetric Hemorrhage Bundle

- Set of evidence-based recommendations known to improve outcomes
- Selection of existing guidelines and recommendations in a form that aids implementation and consistency of practice

Obstetric Hemorrhage Bundle

Hands you the tools that work



So that you can implement process
change

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

Standardization of health care processes and reduced variation has been shown to improve outcomes and quality of care. The Council on Patient Safety in Women's Health Care disseminates patient safety bundles to help facilitate the standardization process. This bundle reflects emerging clinical, scientific, and patient safety advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Although the components of a particular bundle may be adapted to local resources, standardization within an institution is strongly encouraged.

The Council on Patient Safety in Women's Health Care is a broad consortium of organizations across the spectrum of women's health for the promotion of safe health care for every woman.

May 2015

For more information visit the Council's website at www.safehealthcareforeverywoman.org

4 Action Domains (13 key elements):

- ✓ Readiness
- ✓ Recognition & Prevention
- ✓ Response
- ✓ Reporting/
Systems
Learning

4 Action Domains (13 key elements):

- No hospital will have 100% of these elements at the start of this quality improvement process
- The bundle should serve as a checklist

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Obstetric Hemorrhage

[Click here for Readiness Resources](#)

- [ACOG Practice Bulletin: Postpartum Hemorrhage \(ACOG\) Available until 4/17/16](#)
- [ACOG Committee Opinion 590: Preparing for clinical emergencies in obstetrics and gynecology \(ACOG\)](#)
- [Improving Health Care Response to Obstetric Hemorrhage \(CMQCC\)](#)
- [Massive transfusion protocols: the role of aggressive resuscitation versus product ratio in mortality reduction \(ACS\)](#)
- [Obstetric Hemorrhage Hospital Level Implementation Guide \(CMQCC\)](#)
- [Postpartum Hemorrhage Project \(AWHONN\)](#)
- [Preventing Maternal Death. Sentinel Event Alert Issue 44 \(TJC\)](#)
- [Safe Motherhood Initiative \(ACOG\)](#)
- [TeamSTEPPS: National Implementation \(AHRQ\)](#)

Obstetric Hemorrhage

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Obstetric Hemorrhage

[Click here for Recognition and Prevention Resources](#)

- [AWHONN Practice Brief 2: Oxytocin Administration for Management of Third Stage of Labor \(AWHONN\)](#)
- [Postpartum Hemorrhage Project \(AWHONN\)](#)
- [Postpartum Hemorrhage: Third Stage Pregnancy \(AAFP\)](#)
- [WHO Recommendations for the Prevention and Treatment of Postpartum Haemorrhage \(WHO\)](#)

Obstetric Hemorrhage

RESPONSE

Every hemorrhage

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Obstetric Hemorrhage

[Click here for Response Resources](#)

- [ACOG Committee Opinion 590: Preparing for clinical emergencies in obstetrics and gynecology \(ACOG\)](#)
- [Improving Health Care Response to Obstetric Hemorrhage \(CMQCC\)](#)
- [Medically Induced Trauma Support Services. Tools for Building a Clinician and staff Support Program \(MITSS\)](#)
- [Obstetric Hemorrhage Initiative \(OHI\) Tool Kit for Hospital Implementation \(FPQC\)](#)
- [Postpartum Hemorrhage Project \(AWHONN\)](#)
- [Safe Motherhood Initiative \(ACOG District II\)](#)

Obstetric Hemorrhage

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Obstetric Hemorrhage

[Click here for Reporting & Systems Learning Resources](#)

- [Facility-Based Identification of Women with Severe Maternal Morbidity: It is Time to Start - Available until 4/14/16](#)
- [Preventing Maternal Death. Sentinel Event Alert Issue 44 \(TJC\)](#)
- [Safe Motherhood Initiative \(ACOG District II\)](#)
- [Standardized Severe Maternal Morbidity Review: Rationale and Process - Available until 4/14/16](#)

Obstetric Hemorrhage Bundle

- It's a map, not a guided tour!
- Requires prolonged, sustained effort from multi-disciplinary stakeholders
- Learning from others can be helpful
 - University Hospital Consortium
 - Utah's Every Mother Initiative

University of Utah Hospital

- Located in Salt Lake City
- 680 bed facility (14 L&D rooms)
- ~4,000 deliveries per year



- In 2013, our PPH rate was 12%

- Our working assumption:

- PPH is under recognized

- PPH is under treated

**Twin evils of
“denial and
delay”**

Objective

- **Reduce the overall PPH rate by 25% in one year** through development and implementation of the OB Hemorrhage Safety Bundle

Multidisciplinary Team of Stakeholders

- Labor and Delivery staff (medical assistants, unit coordinators)
- Labor and Delivery nurses
- Labor and Delivery Nurse Educator
- Nurse midwives and nurse practitioners
- Resident physicians (Ob/Gyn, Family Practice, ED, Anesthesia)
- Attending physicians (Ob/Gyn, Family Practice, Anesthesia)
- Women and Newborns Service Line hospital administrators
- Blood bank

Tools

- Obstetric Hemorrhage Patient Safety Bundle from the Council on Patient Safety in Women's Healthcare
- California Maternal Quality Care Collaborative
- AWONN PPH Project



Project Timeline

Action Items:

Implement ***‘OB Hemorrhage Guideline’***

Develop & implement ***‘Pitocin Algorithm’***

Join UHC OB Adverse Events Collaboration

Action Items:

**Active
management of
the 3rd stage
PPH debriefing
form**

**Documentation
workshop for
providers**

Project Timeline

2013-2014



Simultaneous efforts:

Continued chart audits for data collection and distribution of quarterly results

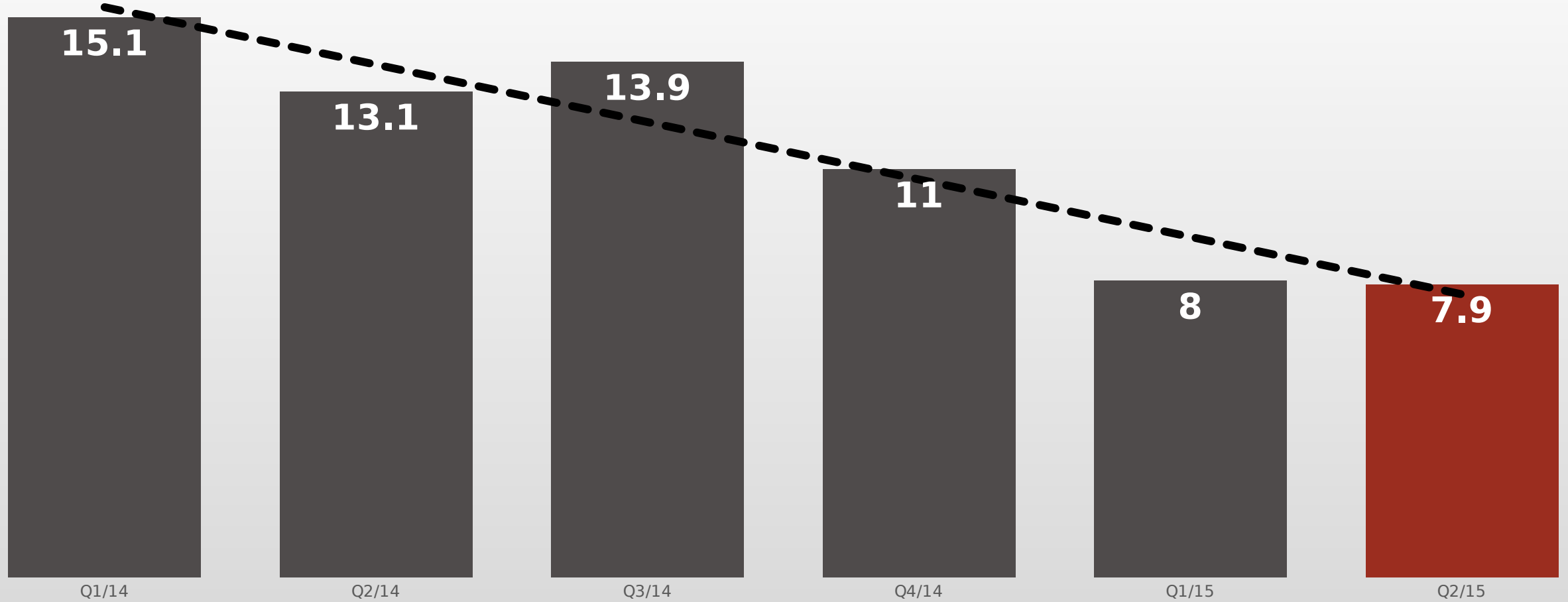
Extensive electronic medical record build

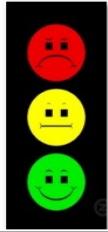
- Admission and ongoing PPH risk assessment**
- Standardized documentation of PPH prophylaxis, diagnosis and treatment**
- Inclusion of PPH algorithms for easy reference**

Measurements

- Postpartum hemorrhage rates
- Compliance with “Perfect Care”
 - Admission and ongoing PPH risk stratification
 - Active management of the 3rd stage of labor
 - Standardized PPH documentation
 - Activation of the PPH order set
 - Activation of ‘OB Rapid Response’
 - Quantification of postpartum blood loss
 - Completion of PPH debriefing form

University of Utah PPH Rates





PPH Perfect Care Audit

0-79% = Red

80-89% = Yellow 90-

Perfect Care Measures	1 st Qtr 2014	2 nd Qtr 2014	3 rd Qtr 2014	4 th Qtr 2014	1 st Qtr 2015	2 nd Qtr 2015
Risk Stratification	54%	68%	91%	93%	90%	88%
Active Management 3 rd Stage			85%	92%	90%	92%
PPH Documentation	49%	62%	67%	78%	88%	71%
Activation PPH Order Set	19%	19%	20%	46%	48%	44%
OB Rapid Response	20%	20%	20%	45%	56%	32%
Quantify Blood Loss	95%	87%	86%	97%	97%	100%
PPH Debriefing Done			19%	18%	29%	23%

Summary

- The University of Utah developed an OB Hemorrhage Safety Bundle based on the framework provided by the Council on Patient Safety in Women's Healthcare
 - Exceeded goal of 25% reduction in overall PPH rate
 - Improvement sustained through the 2nd quarter of 2015
 - Improved compliance with "Perfect Care" measures

Given the challenges, how do we
move forward with State-wide
implementation and optimization?

Utah's Every Mother Initiative

- Funded by AMCHP to Utah Department of Health
- Assists delivering hospitals in implementing and/or optimizing the Patient Safety Bundle on Obstetric Hemorrhage
- Ultimate goal of reducing the rate of DDH and associated morbidity and mortality



Utah's Every Mother Initiative

2015: All delivering Utah Hospitals were invited to participate

- Voluntary
- Opportunity to implement or optimize the Hemorrhage Bundle (and to do it on someone else's dime...)

Utah's Every Mother Initiative

Format

- October 2015: 1 ½ day on site orientation and introduction
- Ongoing twice monthly teleconferences for discussion of key concepts and trouble-shooting (6 months)
- Goal of creating change and then sustaining improvement through ongoing collaborative work and mentorship

Utah's Every Mother Initiative

Alta View Women's Center
Ashley Regional Medical Center
Beaver Valley Hospital
Blue Mountain Hospital
Cache Valley Hospital
Castleview Hospital
Central Valley Medical Center
Davis Hospital and Medical Center
Fillmore Community
Garfield Memorial Hospital
Gunnison Valley Hospital
Intermountain Medical Center

Jordan Valley Medical Center
Jordan Valley Medical Center West Valley
Campus
Kane County Hospital
Lakeview Hospital
LDS Hospital
Lone Peak Hospital
Mountain West McKay-Dee Hospital
Riverton Hospital
Salt Lake Regional Medical Center
Sanpete Valley Hospital
St. Mark's Hospital
University of Utah

Utah's Every Mother Initiative: Outcomes

- Pre- and post-questionnaire to assess process change
- Assessment of hospital / healthcare system / State hemorrhage preparedness and compliance with the bundle
- Prospective tracking of hospital / healthcare system / State hemorrhage and transfusion rates



**[http://
www.safehealthcareforeverywoman.o
rg](http://www.safehealthcareforeverywoman.org)**