Safety Action Series

Overview of the National Partnership for Maternal Safety
Debra Bingham, DrPH, RN, is the Vice President of Research, Education, and Publications at the Association of Women's Health, Obstetric & Neonatal Nurses and Vice Chair of the Council on Patient Safety in Women’s Health Care.

Dr. Bingham has a master’s degree from Columbia University and a doctorate in public health from the University of North Carolina-Chapel Hill. She has over 30 years of hospital leadership experience and was the first Executive Director of the California Maternal Quality Care Collaborative. She has expertise in Quality Improvement (QI) and implementation science.

Mary D’Alton, MD, FACOG, is the Willard C. Rappleye Professor and Chair, Department of Obstetrics and Gynecology at Columbia University.

Dr. D’Alton received her medical degree from the National University of Ireland, and completed a residency in OG/GYN at the University of Ottawa. She completed a MFM fellowship at Tufts University School of Medicine and was a Post-doctoral Fellow in Yale University’s Perinatal Unit. In 2013, she was elected as a member of the Institute of Medicine (IOM) and was recently named chair of the Pregnancy Foundation Board.
Disclosures

- Debra Bingham, RN, DrPH has no actual or perceived conflict of interest in relation to this presentation

- Mary D’Alton, MD, FACOG has no actual or perceived conflict of interest in relation to this presentation
Objectives

• Describe why the partnership was formed.

• Discuss the purpose, composition, and goals of the Partnership.

• Identify the future activities and deliverables of the Partnership for:
  - Obstetric Hemorrhage
  - Hypertension in Pregnancy
  - Venous Thromboembolism

• Describe supplemental materials of the Partnership on:
  - Maternal Early Warning Criteria (triggers)
  - Patient, Staff, and Family Support
  - Severe Maternal Morbidity Review and Reporting
Pregnancy-Related Mortality in the U.S.

*Number of pregnancy-related deaths per 100,000 live births per year

Source: http://www.cdc.gov/reproductivehealth/ MaternalInfantHealth/PMSS.html
Pregnancy-Related Mortality in the U.S.

Pregnancy-Related Mortality in the U.S.

The Burden of Maternal Morbidity

- Reviewed Nationwide Inpatient Sample (ICD-9) for 1998-2009
- Severe morbidity 12.9 per 1000 deliveries
  - Increased by 75% and 114% for delivery and postpartum from 1998/99 to 2008/09
  - Increase in shock, ARF, PE, RDS, Acute MI, blood transfusion, aneurysm, cardiac surgery
- Overall mortality in postpartum period increased by 66%
- Impacts >50,000 women each year

Callaghan WM et al. Obstet Gynaecol 2012
US Pregnancy-Related Mortality

Lessons Learned from Reviews

Hemorrhagic death

- 93% of all deaths were potentially preventable
- Lack of appropriate attention to clinical signs of hemorrhage
- Failure to restore blood volume, to act decisively with life saving interventions

Severe Hypertension

- 60% of maternal deaths were potentially preventable
- Failure to control blood pressure, to recognize HELLP syndrome, to diagnosis and treat pulmonary edema

Pulmonary Embolism

- “single cause of death most amenable to reduction by systematic change in practice”
- Failure to use adequate prophylaxis

Clark, SL. Semin Perinatol 2012;36(1):42-7
The Council

Formed in late 2011, the Council on Patient Safety in Women’s Health Care brings partner and subspecialty organizations together with patients under the central goal of improving health care for all women.

Mission

Continually improve patient safety in women’s health care through multidisciplinary collaboration that drives culture change

Vision

Safe health care for every woman

Purpose

The Council on Patient Safety in Women’s Health Care’s purpose is to reduce harm to patients by fostering:

- Investigation to better understand the causation of harm
- Programs and tools to implement patient safety initiatives
- Education to promote patient safety
- Dissemination of patient safety information
- A health care culture of respect, transparency, and accountability
Council Membership
The National Partnership for Maternal Safety

- American Academy of Family Physicians (AAFP)
- American Association of Birth Centers (AABC)
- American Association of Blood Banks (AABB)
- American Hospital Association (AHA)
- American College of Nurse-Midwives (ACNM)
- American College of Obstetricians and Gynecologists (ACOG)
- Association of Maternal and Child Health Programs (AMCHP)
- Association of State and Territorial Health Officials (ASTHO)
- Association of Women’s Health Obstetric and Neonatal Nurses (AWHONN)
- California Maternal Quality Care Collaborative (CMQCC)
- Centers for Disease Control and Prevention (CDC)
- Centers for Medicare and Medicaid Services (CMS)
- Cynosure
- Florida Perinatal Collaborative
- Health Resources and Services Administration (HRSA)
- Hospital Corporation of America (HCA)
- National Association of Nurse Practitioners in Women’s Health (NPWH)
- The Preeclampsia Foundation
- PULSE of New York
- Society for Maternal and Fetal Medicine (SMFM)
- Society for Obstetric Anesthesia and Perinatology (SOAP)
- The Joint Commission (TJC)
- Voluntary Hospital Association (VHA)
Comprehensive National Effort in the United Kingdom

- Standard protocols
- *Saving Mothers Lives, U.K.*


National confidential enquiry system into maternal deaths published every 3 years

Goal to identify remediable factors to address in guidelines created by national organizations
Annual Birth Volume in U.S. Hospitals, 2008

NUMBERS OF HOSPITALS

- 1193 hospitals had an annual birth volume of less than 500
- 696 hospitals had an annual birth volume of 500 to 1,000
- 690 hospitals had an annual birth volume of 1,000 to 1,999
- 342 hospitals had an annual birth volume of 2,000 to 2,999
- 177 hospitals had an annual birth volume of 3,000 to 3,999
- 80 hospitals had an annual birth volume of 4,000 to 4,999
- 36 hospitals had an annual birth volume of 5,000 to 5,999
- 23 hospitals had an annual birth volume of 6,000 to 6,999
- 10 hospitals had an annual birth volume of 7,000 to 7,999
- 8 hospitals had an annual birth volume of 8,000 to 8,999
- 3 hospitals had an annual birth volume of 9,000 to 9,999
- 5 hospitals had an annual birth volume of more than 10,000

n = 3,265

Simpson KR, JOGNN 40, 2011
Building Consensus

• ACOG-CDC Maternal Mortality/Severe Morbidity Action Meeting occurred in Atlanta, November 2012
• Participants identified key priorities:

<table>
<thead>
<tr>
<th>Core Patient Safety Bundles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstetric Hemorrhage</td>
</tr>
<tr>
<td>Severe Hypertension in Pregnancy</td>
</tr>
<tr>
<td>Venous Thromboembolism Prevention in Pregnancy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplemental Patient Safety Bundles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Early Warning Criteria</td>
</tr>
<tr>
<td>Facility Review</td>
</tr>
<tr>
<td>Family and Staff Support</td>
</tr>
</tbody>
</table>

• 6 multidisciplinary working groups were formed that include AWHONN and ACNM
IHI Evidence-Based Care Bundles

• Concept of bundles developed by Institute for Healthcare Improvement (IHI)
• Goal: to help health care providers more reliably deliver the best care for patients
• Provides a structured way of improving processes of care
• Includes a straightforward set of evidence-based practices
• When performed correctly and consistently there is a noted improvement in patient outcomes

IHI. Evidence-Based Care Bundles. Available at: http://www.ihi.org/topics/bundles/
National Partnership for Maternal Safety
3 Maternal Safety Bundles

“What every birthing facility in the U.S. should have...”

Obstetric Hemorrhage
Preeclampsia/ Hypertension
Prevention of VTE in Pregnancy

Note: The bundles represent outlines of highly recommended protocols and materials important to safe care **BUT** the specific contents and protocols should be individualized to meet local capabilities.

Example materials are available from perinatal collaboratives and other organizations.
Obstetric Hemorrhage Safety Bundle

**READINESS**
- Hemorrhage Cart with Procedural Instructions
- Rapid access to hemorrhage medications
- Established response team
- Establish massive transfusion protocols
- Unit education, regular unit-based drills (with debriefs)

**RECOGNITION**
- Assessment of hemorrhage risk
- Measurement of CUMMULATIVE blood loss
- Active Management of 3rd Stage of labor

**RESPONSE**
- Unit-standard, stage-based OB Hemorrhage Emergency Management Plan with checklists
- Support program for patients, families and staff for all significant hemorrhages

**REPORTING/SYSTEMS LEARNING**
- Establish a culture of Huddle for high risk patients and Post-event Debriefs
- Review all serious hemorrhages for systems issues
- Monitor outcomes and process metrics in Perinatal QI committee

Modified from Elliott Main, M.D.
Etiology of Postpartum Hemorrhage

- Uterine Atony: 77.8%
- Retained placenta (including accreta): 9.4%
- Delayed (more than 24 h after delivery): 7.7%
- Coagulopathy: 5.1%


n=26,175

© 2014 AWHONN
Preeclampsia/ Severe HTN Safety Bundle

**READINESS**
- Make severe hypertensive protocol familiar and easy to implement (i.e. Order sets)
- Rapid access to key medications (eliminate need to go to pharmacy)
- Unit education, regular unit-based drills (with debriefs)

**RECOGNITION**
- Proper blood pressure recording
- Application of the 2013 ACOG hypertension diagnosis categories

**RESPONSE**
- Unit-standard, Severe Hypertension and Eclampsia Management Plans with checklists
- Delivery planning based on ACOG Hypertension category
- Postpartum and Post discharge planning for close supervision
- Support program for patients, families and staff for all ICU admissions

**REPORTING/SYSTEMS LEARNING**
- Establish a culture of Huddle for high risk patients and Post-event Debriefs
- Review all Severe Hypertension/ICU cases for systems issues
- Monitor outcomes and process metrics in Perinatal QI committee

Modified from Lynn Simpson, MD, Burton Rochelson, MD and ACOG District II
Venous Thromboembolism (VTE) Prophylaxis

“single cause of death most amenable to reduction by systematic change in practice” – Steven Clark, M.D., Semin Perinatol 2012;36(1):42-7

Direct Deaths per Million Maternities by Cause
UK 1994-2008

Pregnancy induced hypertension
Haemorrhage
Sepsis
Athletic Femoral Embolism (AFE)
VTE Prophylaxis Safety Bundle

- Risk assessment tools
- Protocols for antepartum and postpartum prophylaxis
- Suggested dosing
- Anesthesia recommendations
- Key references
  - International Guidelines
MEOWS: Maternal Early Obstetric Warning Score

- Response initiated for one red or two yellow triggers

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Red Trigger</th>
<th>Yellow Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>&lt; 35 or &gt;38</td>
<td>35-36</td>
</tr>
<tr>
<td>Systolic BP; mmHg</td>
<td>&lt;90 or &gt;160</td>
<td>150-160</td>
</tr>
<tr>
<td>Diastolic BP; mmHg</td>
<td>&gt;100</td>
<td>90-100</td>
</tr>
<tr>
<td>Heart rate</td>
<td>&lt;40, &gt;120</td>
<td>100-120, 40-50</td>
</tr>
<tr>
<td>Respiratory rate</td>
<td>&lt;10 or &gt;30</td>
<td>21-30</td>
</tr>
<tr>
<td>Oxygen saturation</td>
<td>&lt;95</td>
<td>-</td>
</tr>
<tr>
<td>Pain score</td>
<td>-</td>
<td>2-3</td>
</tr>
<tr>
<td>Neurological response</td>
<td>Unresponsive, pain</td>
<td>Voice</td>
</tr>
</tbody>
</table>

“Contact doctor if one red or two yellow scores at any one time.”

A Validation System of MEOWS

673 patients scored

- 200 (30%) triggered an evaluation
- 86 (13%) met criteria for morbidity

Sensitivity 89% (95% CI 81-95%)
Specificity 79% (95% CI 76-82%)
PPV 39% (95% CI 32-46%)
NPV 98% (95% CI 96-99%)

Maternal Early Warning Signs (MEWS)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP; mmHg</td>
<td>&lt;90 or &gt;160</td>
</tr>
<tr>
<td>Diastolic BP; mmHg</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Heart rate; beats per min</td>
<td>&lt;50 or &gt;120</td>
</tr>
<tr>
<td>Respiratory rate; breaths per min</td>
<td>&lt;10 or &gt;30</td>
</tr>
<tr>
<td>Oxygen saturation; %</td>
<td>&lt;95</td>
</tr>
<tr>
<td>Oliguria; mL/hr for 2 hours</td>
<td>&lt;30</td>
</tr>
<tr>
<td>Neurologic: Maternal agitation, confusion, or unresponsiveness</td>
<td></td>
</tr>
<tr>
<td>Patient with hypertension reporting a non-remitting headache or shortness of breath</td>
<td></td>
</tr>
</tbody>
</table>
Severe Maternal Morbidity

• Define significant maternal morbidity and “near misses”

• All hospitals should identify women who:
  • Are admitted to an ICU during pregnancy (3-4 per 1000 deliveries)
  • Have been transfused with ≥4 units of blood (2 per 1000 deliveries)

• Not meant to discourage an individual site to use additional clinical criteria to define morbidity

• Cases of SMM should be reviewed for ongoing quality improvement

• ‘We believe they will serve as a good starting point’

Severe Maternal Morbidity (SMM) Reporting Forms

What events should be reviewed?

– Pregnant, peripartal or postpartum women receiving 4 or more units of PRBCs
– Pregnant, peripartal or postpartum women who are admitted to an ICU as defined by the center.
– Other pregnant, peripartal or postpartum women who have an unexpected and severe medical event – at the discretion of the facility

Facility-Based Identification of Women With Severe Maternal Morbidity: It Is Time to Start
Callaghan, William M. MD, et al.
Family and Staff Support Bundle

“a sentinel event is similar to tossing a pebble into a pond of still water.” - Jeffrey King, Semin Perinatol 2012;36:14–8

- Affects patient’s partner, other children, extended family, colleagues and her community
- Affects physicians, nurses and other members of care team
- Communication, teamwork, debriefing, and grief counseling are important
- Every birthing facility should establish a system of support for patients, family and staff
- A Mother’s Memory, Bereavement and Advanced Care Planning Services: www.bereavementservices.org/maternaldeath
Implementation

• The National Partnership for Maternal Safety
• The Council on Patient Safety in Women’s Health Care will:
  • Provide oversight for the implementation of the 3 safety bundles within 3 years
  • Track implementation throughout the US using lessons learned from IHI 5 Million Lives Campaign
  • Provide a platform for facilities to share best practices
  • Systematically review the impact of these initiatives

www.safehealthcareforeverywoman.org

IHI. 5 Million Lives Campaign. Available at: http://www.ihi.org
Council Website

www.safehealthcareforeverywoman.org
Summary of Deliverables

Evidence Based Care Bundles

– Obstetric Hemorrhage
– Severe Hypertension
– VTE Prophylaxis

Supplemental

– Maternal Early Warning Criteria
– Severe Maternal Morbidity Data Abstraction and Assessment Tool
– Patient, Staff, and Family Support
Next Safety Action Series

Defining Severe Maternal Morbidity
Thursday, June 19, 2014
Noon Eastern

Bill Callaghan, MD, MPH, FACOG
Chief, Maternal and Infant Health Branch
Division of Reproductive Health
National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention

Sarah Kilpatrick, MD, PhD, FACOG
Chair of the Department of Obstetrics and Gynecology
Associate Dean of Faculty Development at Cedars-Sinai

Click Here to Register
Q&A Session

Press *1 to ask a question

You will enter the question queue
Your line will be unmuted by the operator for your turn

A recording of this presentation will be made available on our website:
www.safehealthcareforeverywoman.org