Dear Colleagues;

On behalf of the Georgia Obstetrical and Gynecological Society (GOGS), we are pleased to provide you with this toolkit on Optimizing Management of Postpartum Hemorrhage. Every day, 2 to 3 women die in the United States of pregnancy-related complications, making the U.S. the 46th country in the world for maternal mortality.

Maternal mortality rates have steadily increased over the past decade (CDC, 2009). While some of the increase is due to improved data collection, these rates still have risen significantly. Georgia ranks among the highest in the United States with 35 maternal deaths per 100,000 live births in 2011, up from 20.5 from 2001 to 2006. Determined to reduce its maternal mortality rate, Dr. Brenda Fitzgerald, commissioner of the Georgia Department of Public Health (DPH) and an Obstetrician/Gynecologist, notes that many obstetric hemorrhage deaths are preventable. In response to rising maternal mortality, DPH, GOGS and a multidisciplinary team of experts from around the state have been diligently working on this very issue. In 2011, they formed the Georgia Maternal Mortality Review Committee (GA MMRC) to improve surveillance and understanding of pregnancy-related deaths in Georgia.

In an effort to improve maternal mortality in this state, the Society continues to identify areas where improving policies, programs and services will impact the lives of all women and end preventable death and injury. Toward this goal, we are providing this postpartum hemorrhage (PPH) toolkit: Optimizing Management of Obstetric Hemorrhage to encourage all birthing hospitals in Georgia to review and implement the best practices and tools for managing obstetric hemorrhage. Enclosed in this toolkit you will find:

- Core elements for the management of obstetric hemorrhage
- Recommendations to optimize the management of obstetric hemorrhage
- ACOG Practice Bulletin #76 – Postpartum Hemorrhage
- California Maternal Quality Care Collaborative (CMQCC) hemorrhage care checklist, flow chart, table chart and training tools for the measurement of blood loss.
- Information on the importance of drills and sample PPH drill scenarios
- Additional information on postpartum hemorrhage

Providers are encouraged to review their hospital's existing hemorrhage protocols and modify them if necessary to optimize the management of obstetrical hemorrhage. Standardization of health care processes and reduced variation in practice has been shown to improve outcomes and quality of care.

Thank you for supporting this important initiative. If you have any questions regarding the enclosed materials, please contact Kaprice Welsh, Clinical Liaison for GOGS, 770-904-5288 or kwelsh@georgiaobgyn.org.

Sincerely,

Dr. Roland Matthews, MD
President, Georgia OBGyn Society
Optimizing Management of Obstetric Hemorrhage

Georgia Obstetrical and Gynecological Society
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Improving Obstetric Hemorrhage in Georgia

Obstetric hemorrhage is the leading cause of maternal deaths in the United States with an estimate that 54-93 percent of these deaths are preventable. Unfortunately, our state’s maternal mortality ratio is 20.5 maternal deaths per 100,000 live births, which ranks 50th among all states in the U.S.

The Georgia Obstetrical and Gynecological Society and the Department of Public Health would like to improve these statistics. To achieve this goal, we ask physicians and hospitals to use this toolkit to review and improve obstetric hemorrhage management in their own facilities. In addition, hospitals may apply to join a postpartum hemorrhage improvement initiative in which hospitals in Georgia, New Jersey and the District of Columbia have been invited to participate.

Georgia’s PPH Multi-Hospital Quality Improvement Initiative

The Georgia OBGyn Society is excited to lend its support to the Georgia Department of Public Health, Georgia Hospital Association, Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN), and Merck for Mothers, on a new Postpartum Hemorrhage Initiative to improve clinical practice and reduce errors related to postpartum hemorrhage. Georgia will be a part of this multi-state hospital quality improvement initiative to improve readiness, recognition, and response to postpartum hemorrhage.

Over the next three years, the collaborative will be working to improve outcomes for women and families in Georgia through participating birthing hospitals. We encourage your hospital to sign up to participate in the baseline survey about PPH practices at your institution. The survey can be accessed at www.pphproject.org. Hospitals that complete the baseline survey may apply to participate in a multi-hospital, multi-state learning collaborative. Hospitals selected to participate in the learning collaborative will work with local leaders and a group of national experts composed of nurses, physicians, and AWHONN staff to identify areas of improvement and work to change clinical practice at their facility.

Utilizing this Toolkit to Optimize Management of Obstetric Hemorrhage

The Society has researched obstetric hemorrhage management resources from many excellent sources and included some of the best information in this toolkit. It is our hope that with this information and resources provided in this toolkit and with your leadership and encouragement, your hospital will review its hemorrhage protocols and implement the best practices for the women in your care.

If you have questions about the initiative, please contact: hemorrhage@awhonn.org.
Purpose of Toolkit

This document 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. While the components of a particular protocol and/or checklist may be adapted to local resources, standardization of protocols and checklists within an institution is strongly encouraged.

Resources for Optimizing Protocols in Obstetric Hemorrhage

We have gathered materials from a number of sources in an effort to select the ideal requirements for a comprehensive approach to obstetrical hemorrhage. These included:

- ACOG Practice Bulletin No. 76, Postpartum Hemorrhage

Each hospital must take into account the resources available within its own institution and community to design a protocol that will assist them in the optimal management of obstetrical hemorrhage. Each institution is encouraged to review its existing policy and protocols, and modify them if necessary to provide safe patient care, or consider the creation of a policy that will optimize the management of obstetrical hemorrhage.

Given the previous excellent work done in this area by the California Maternal Quality Care Collaborative (CMQCC), the American Congress of Obstetricians and Gynecologists (ACOG), and other organizations, we encourage individuals to utilize these extensive resources in the development of a hemorrhage protocol that will fit the needs of their individual institutions.

Core Elements

The following is a list of the components of any protocol that is created for the management of obstetrical hemorrhage. Hospitals should individualize their protocols based on an assessment of their own resources.

- Definitions
- Risk Factors/Etiology
- Initial Interventions
- Medical Treatment
- Surgical Treatment
- Defined Care Team and Escalation Role Clarity
- Checklist Algorithm
- Mass Transfusion Policy
- Simulation Drills
Introduction to Obstetric Hemorrhage Management

Obstetric hemorrhage continues to cause maternal morbidity and mortality in Georgia and across the United States. Most of these cases occur in spite of women delivering in hospitals staffed by physicians, nurses and support personnel who are knowledgeable, highly motivated, and well trained. Often these cases occur in hospitals that have very well written obstetric hemorrhage protocols in place. Obstetric hemorrhage management is a time and team dependent performance that requires precise choreography. Having a “good protocol” that has never been practiced as a drill or dry run is similar to a football team that studies its plays but never works through the timing on the practice field, or a dance troupe that never rehearses before opening night.

We have evaluated and chosen resources that not only can be used to prevent serious harm associated with obstetric hemorrhage, but can be used to design very good hemorrhage protocols. However, to be effective, your protocol must have two things:

1. Each hemorrhage protocol must be designed and/or approved by the people who will execute it (and they must be given time and resources and permission needed to produce or thoroughly study the written protocol that will work specifically in the institution where it is designed).

2. Each hemorrhage protocol must be tested for feasibility within the institution and taught and rehearsed through dry runs or drills to improve its quality and the precision team work necessary to effectively manage obstetric hemorrhage.

California Maternal Quality Care Collaborative

The CMQCC toolkit provides excellent resources and can be viewed in complete form at https://www.cmqcc.org/ob_hemorrhage. The toolkit begins with a section on, “How To Use This Toolkit” (CMQMM pages 1-2) followed by a compendium of evidence-based, best practices related to obstetric hemorrhage. In this document we have included CMQCC Obstetric hemorrhage care guidelines which are presented in three forms starting with the most comprehensive “Checklist,” followed by the most streamlined version of the “Flowchart” and finally by a care summary “Table chart.” (See GOGS Toolkit pages 29–34, CMQCC pages 110–122.) The comprehensive “Checklist” delineates all topics the workgroup thought should be included in a protocol except for simulation/drills topic.

A comprehensive document exists within the CMQCC tool kit related to obstetric hemorrhage drills and simulations. This document includes two detailed, ready to use scenarios which focus on both the technical management of obstetric hemorrhage, team function, communication, and role clarity. The document finishes with a Hospital Level Implementation Guide, which addresses practical planning for implementation of new evidence-based protocols and guidelines for quality improvement (GOGS pages 45-55, CMQCC pages 34-47).
Recommendations to Optimize Management of Obstetric Hemorrhage

Here are PPH Toolkit examples that are either included in this GOGS toolkit or are part of the CMQCC Toolkit, including page numbers where they can be found:

Antepartum assessment is essential to identify women at risk for obstetrical hemorrhage.

- Risk factor identification
- A prewritten order set for admission to L&D includes “risk scoring” for obstetric hemorrhage
- Definition checklist
  - Definitions & Early Recognition (CMQCC pages 3-6)
  - Incidence Risks & Diagnosis (CMQCC pages 22-25)

Each institution should develop an effective written protocol for responding to maternal hemorrhage, including rapid emergency blood transfusion, which requires coordination among physicians, nurses, anesthesiologists and the blood bank.

- Blood bank protocols should ensure that the institution has appropriate blood products for obstetric emergencies, and they should eliminate barriers to rapid blood access when needed.
  - Sample Hemorrhage Policy (GOGS pages 23-28, CMQCC pages 110-115)
  - Methods for developing training and tools for quantitative measurement of blood loss (GOGS page 42, CMQCC page 126)

Other suggestions include:

- On initiation of the obstetric hemorrhage protocol, a complete set of prewritten orders should instantly be authorized and executed. The attending physician only will sign this order set after the emergency is completed.
- Debriefings should occur after every drill and after every actual OB hemorrhage emergency. This allows for continuous quality improvement.
- Flow charts, checklists, and other documentary materials needed for managing the OB hemorrhage emergency should be available to assist in the management.
  - Toolkit examples
    - Surgical Treatment (CMQCC pages 72-73)
      - I. Literature Review (CMQCC pages 70-71)
      - II. Carts, Kits and Trays (GOGS pages 37-41, CMQCC pages 26-31)
    - Medical Treatment (CMQCC pages 74-75)
    - Checklist/Algorithms (GOGS pages 29-34, CMQCC pages 86-92)

Be vigilant regarding blood loss during pregnancy, labor, and delivery, and in the early postpartum period.

- Nursing staff and physicians in the Labor, Delivery, Recovery and Postpartum areas must be trained in accurately assessing the degree of maternal hemorrhage.
- When problems are identified, the nurse assigned must notify the physician immediately.
  - See CMQCC toolkit for checklist example
  - Toolkit examples
    - Definitions & Early Recognition (CMQCC pages 3-6)
    - Simulation & Drills (GOGS pages 45-53, CMQCC pages 32-47)
Use fluid resuscitation and transfusion based on the estimation of current blood loss and the expectation of continued bleeding, regardless of apparent maternal hemodynamic stability.

- Accurately estimate blood loss
  - Developing Training & Tools for Quantitative Measurement of Blood Loss (GOGS page 42, CMQCC page 126)
  - Toolkit examples
    - Simulation & Drills (GOGS pages 45-53, CMQCC pages 32-47)
    - Transfusion Policy (CMQCC pages 60-69)

Work with hospital staff to conduct drills or simulation to ensure the most efficient management of obstetric hemorrhage.

- Hospitals should run drills at different times of the day to ensure that appropriate hemorrhage team members are available at all times.
- All members of the health care team should participate, including nurses, physicians and ancillary staff, as appropriate
  - Simulation & Drills (GOGS pages 45-53, CMQCC pages 32-47)

The maternal hemorrhage team should include, in addition to a team leader:

- A surgeon with experience and expertise in controlling massive hemorrhage as well as operating room staff in case surgery is needed.
- A critical care physician or anesthesiologist who is familiar with severe hemorrhage to help with assessment of organ perfusion and cardiovascular function.
- A hematologist or clinical pathologist available on site to advise on appropriate blood products, and to coordinate and mobilize appropriate personnel to provide these products immediately.

Provide continuing medical education on hemorrhage for your entire medical team.

- Ensure all hospital staff, including physicians, nurses, laboratory personnel and others are aware of the protocol related to dealing with maternal hemorrhage. Incorporate this protocol into your hospital’s mandatory annual educational programs and ensure all new staff is oriented to its content.
- Findings from obstetrical quality improvement initiatives should be incorporated on an on-going basis into improvements of the hemorrhage protocol.
HEMORRHAGE

Remains the major cause of obstetric morbidity and mortality

- Hemorrhage >500ml (vaginal birth)= ~5-8%
- Transfusion (vaginal birth)= ~0.5%
- Transfusion (cesarean birth)= ~2%
- Severe (massive) hemorrhage (>4 units, >1500ml)= ~2/1,000 births
- 50-60% of severe morbidity in obstetrics
- >60% of all postpartum maternal ICU admissions
- The rate of severe hemorrhage is increasing, nearly doubling over the last decade
- The greatest cause of maternal mortality by far, world-wide

MISSED IMPROVEMENT OPPORTUNITIES IN MANAGEMENT OF POSTPARTUM HEMORRHAGE

DENIAL: Amount of blood loss underestimated/ ignored until patient very unstable

DENIAL: Expecting the bleeding “to stop soon”

DENIAL: Hard to get the obstetrician back to the bedside for evaluation

DELAY: Repetitive use of the same procedure or medication (e.g. D&C, methergine) rather than moving up the protocol (“scratched record”)

DELAY: Not using non-invasive procedures such as intrauterine balloons or B-Lynch sutures

Elliott Main, MD, Chair, California Pregnancy Associated Mortality Review Committee: personal communication (January 2009)
ISSUES WITH HEMORRHAGE RESPONSE IN OBSTETRICS

(from case review)

DENIAL, DELAY...
- Poor quantification of blood loss
- Lack of step-wise progression
- Underutilization of non-pharmacologic approaches
- Poor utilization of blood products:
  - “Too little, too late”
    -- Resuscitation v. Treatment
  - “Old wine in new bottles” — “Whole blood” v. PRBCs

Step 1: Communication!