Mississippi Perinatal Quality Collaborative

Maternal Hypertension & Heart Toolkit

A Collaborative Quality Improvement Initiative with the Alliance for Innovation in Maternal Health

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INTRODUCTION

Severe maternal hypertension and complications from cardiovascular disease are the leading causes of pregnancy-related death in Mississippi. Mississippi mothers are at increased risk of both intrapartum complications from hypertension as well as short and long-term consequences of preeclampsia, chronic hypertension, cardiomyopathy and heart disease. Several investigators have demonstrated that maternal deaths from severe maternal hypertension are often associated with modifiable provider and systems level factors including gaps in communication, delays in care and ineffective treatment strategies. While many adverse events are neither predictable nor preventable, the application of standardized, evidence-based and team-based care across the hospital setting can effectively reduce maternal injury and death. Due to numerous factors, Mississippi has a disproportionately high pregnancy-related mortality rate with 22.1 pregnancy-related deaths per 100,000 live births compared to 18 for the United States as a whole. Improving maternal outcomes in Mississippi and the US will require focused, system-wide efforts that maximize the use of evidence-based strategies.

Following the call of the National Partnership for Maternal Safety, the Mississippi Perinatal Quality Collaborative (MSPQC) aims to support the use of Patient Safety Bundles which address systematic, optimal management of severe maternal hypertension, venous thromboembolism and obstetric hemorrhage in every birthing facility in Mississippi. Patient Safety Bundles are small, straightforward sets of evidence-based practices that, when performed collectively and reliably, have been proven to improve patient outcomes. The bundles are not prescriptive; each facility is encouraged to select the tools that best suit its own needs and resources. MSPQC will be working with The Alliance for Innovation in Maternal Healthcare (AIM) to implement the Hypertension & Heart Initiative throughout Mississippi. AIM was formed to support statewide perinatal quality efforts to effectively implement improvement strategies that can help reduce maternal morbidity and mortality.

The overall goals of the MSPQC Maternal Hypertension and Heart (H&H) Initiative are:

1. To reduce severe maternal morbidity and mortality related to severe maternal hypertension and cardiovascular disease among women who give birth in Mississippi.
2. To guide and support obstetric care providers and birthing facilities in Mississippi in implementing evidence-based, collaborative, patient-centered practices to prevent and manage severe maternal hypertension and cardiac complications in pregnancy.
3. To improve postpartum evaluation, follow-up and treatment of postpartum women with and at risk for hypertension and cardiovascular disease.

Participation with the MSPQC H&H Initiative is voluntary. Participating hospitals will receive expert guidance, tools and resources all free of charge through a grant from AIM and the CDC with MSPQC.

Participating hospitals will be asked to:
- Establish a team to lead the hypertension and heart bundle implementation.
- Engage in regular monthly calls for education, feedback and collaboration.
- Actively work to implement the hypertension and heart bundle during the project period.
- Submit process and structure measures to the AIM data portal on a monthly basis.
- Attend in-person, regional and annual meetings and Learning Sessions.
HOW TO USE THIS TOOLKIT

This toolkit is organized according to the 4-R’s of the AIM Severe Maternal Hypertension Safety Bundle: Readiness, Recognition & Prevention, Response and Reporting/Systems Learning. There are additional resources for cardiovascular disease outside of the AIM Bundle. The MSPQC Hypertension and Heart Advisory Team has selected key resources from existing toolkits that may be adopted and adapted by each facility. This is not an exhaustive compilation of tools; it does, however, provide the core components needed for a facility to successfully implement the hypertension bundle and meet the goals of the MSPQC H&H Initiative. We fully encourage providers and hospitals to review and utilize the resources from the following organizations in addition to the MSPQC, as they each offer valuable tools and guidance for addressing maternal hypertension and cardiovascular conditions.

- Key references for this toolkit include:
  - **AIM:** https://safehealthcareforeverywoman.org/aim-program/
  - **California Maternal Quality Care Collaborative**
    - Preeclampsia Toolkit: https://www.cmqcc.org/qi-initiatives/preeclampsia
    - Cardiovascular Disease Toolkit: https://www.cmqcc.org/resources-toolkits/toolkits/improving-health-care-response-cardiovascular-disease-pregnancy-and
  - **Illinois Perinatal Quality Collaborative Maternal Hypertension Toolkit:** http://ilpqc.org/?q=Hypertension

**THIS TOOLKIT CONTAINS:**
- PowerPoint slide decks with specific implementation guidance
- Visual aids for the obstetric unit
- Risk assessment guidelines
- Management algorithms & checklists
- Medication guidelines
- Debriefing forms
- Sample hospital policies and protocols
- Sample simulation scenarios
- Support tools for patients, families and staff
**READINESS**

**Every Unit**
- Standards for early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia (include order sets and algorithms)
- Unit education on protocols, unit-based drills (with post-drill debriefs)
- Process for timely triage and evaluation of pregnant and postpartum women with hypertension including ED and outpatient areas
- Rapid access to medications used for severe hypertension/eclampsia: Medications should be stocked and immediately available on L&D and in other areas where patients may be treated. Include brief guide for administration and dosage.
- System plan for escalation, obtaining appropriate consultation, and maternal transport, as needed

**RECOGNITION & PREVENTION**

**Every Patient**
- Standard protocol for measurement and assessment of BP and urine protein for all pregnant and postpartum women
- Standard response to maternal early warning signs including listening to and investigating patient symptoms and assessment of labs (e.g. CBC with platelets, AST and ALT)
- Facility-wide standards for educating prenatal and postpartum women on signs and symptoms of hypertension and preeclampsia
Every case of severe hypertension/preeclampsia

- Facility-wide standard protocols with checklists and escalation policies for management and treatment of:
  - Severe hypertension
  - Eclampsia, seizure prophylaxis, and magnesium over-dosage
  - Postpartum presentation of severe hypertension/preeclampsia
- Minimum requirements for protocol:
  - Notification of physician or primary care provider if systolic BP \(=/> 160 \) or diastolic BP \(=/> 110 \) for two measurements within 15 minutes
  - After the second elevated reading, treatment should be initiated ASAP (preferably within 60 minutes of verification)
  - Includes onset and duration of magnesium sulfate therapy
  - Includes escalation measures for those unresponsive to standard treatment
  - Describes manner and verification of follow-up within 7 to 14 days postpartum
  - Describe postpartum patient education for women with preeclampsia
- Support plan for patients, families, and staff for ICU admissions and serious complications of severe hypertension

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 all severe hypertension/eclampsia cases admitted to ICU for systems issues
- Monitor outcomes and process metrics

Note: “Facility-wide” indicates all areas where pregnant or postpartum women receive care. (E.g. L&D, postpartum critical care, emergency department, and others depending on the facility).

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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.safepatientcareforeverywoman.org
The Alliance for Innovation on Maternal Health (AIM) is a national partnership of organizations poised to reduce severe maternal morbidity by 100,000 events and maternal mortality by 1,000 deaths by 2018. The AIM program is funded through a cooperative agreement with the Maternal and Child Health Bureau/Health Resource Services Administration.

- AIM aligns national, state, and hospital level efforts to improve maternal health and safety
- AIM develops maternal safety bundles and promotes their implementation in all birth facilities to ensure consistent maternity care
  - Obstetric Hemorrhage
  - Severe Hypertension/Preeclampsia
  - Maternal Prevention of Venous Thromboembolism
  - Safe Reduction of Primary C/S | Support for Intended Vaginal Birth
  - Reduction of Peripartum Racial Disparities
  - Postpartum Care Basics for Maternal Safety
  - Patient, Family, and Staff Support after a Severe Maternal Event
- AIM facilitates multidisciplinary and interagency collaboration between states and hospitals
- AIM supports harmonized data-driven continuous quality improvement processes
- AIM provides evidence-based implementation resources to streamline bundle implementation

Core AIM Partners Include:

- American College of Nurse Midwives
- The American College of Obstetricians and Gynecologists
- Association of Maternal & Child Health Programs
- American Society for Healthcare Risk Management
- Association of State and Territorial Health Officials
- Association of Women’s Health Obstetric and Neonatal Nurses
- California Maternal Quality Care Collaborative
- HRSA Maternal and Child Health Bureau
- Society for Maternal-Fetal Medicine
Joint Commission Standards for Maternal Safety

“Effective July 1, 2020, 13 new elements of performance (EPs) will be applicable to Joint Commission-accredited hospitals. These new requirements are within the Provision of Care, Treatment, and Services (PC) chapter at PC.06.01.01 and PC.06.01.03 and are designed to improve the quality and safety of care provided to women during all stages of pregnancy and postpartum. The United States ranks 65th among industrialized nations in terms of maternal death. Because of worsening maternal morbidity and mortality, The Joint Commission evaluated expert literature to determine what areas held the most potential impact. The literature review revealed that prevention, early recognition, and timely treatment for maternal hemorrhage and severe hypertension/preeclampsia had the highest impact in states working on decreasing maternal complications. This approach was supported by a technical advisory panel assembled by The Joint Commission, resulting in the development of EPs that focus on these complications.”

MSPQC will work to support hospitals in meeting the requirements of the Joint Commission maternal safety standards. The protocols and procedures referenced within this toolkit can serve as guides for hospital development of acceptable protocols and procedures.

- Link to Joint Commission Standards: [Joint Commission Provision of Care, Treatment and Service Standards for Maternal Safety](#)

The standards are available in the Appendix

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1 Mississippi Maternal Mortality Review Committee Report, 2013-2016, [www.msdh.gov](http://www.msdh.gov); April, 2019
4 Institute for Healthcare Improvement.
CMQCC AIM HTN Bundle 101: Key Steps for Implementation - Nancy Peterson
http://bit.ly/1XMQazE

30-60-90 Day Plans: (Form in Appendix)

30/60/90-day cycles
Adapted from Resource Written by the ACT Academy for their Quality, Service Improvement and Redesign suite of programmes.

What is it?
The 30/60/90-day cycle tool is a way of helping you to identify, prioritize and implement actions to take your improvement program forward.

When to use it
Using 30/60/90-day cycles of change will enable you to break actions down into manageable chunks. It will allow you to maintain flexibility, work on key themes and multiple processes in parallel and help to maintain project momentum and the energy of those involved.

How to use it
Instead of working on linear project plans, the main unit of your planning horizon becomes the next 30 (or 60 or 90) days and you focus your decision-making around these. Each cycle you define should include a clear and specific objective and a clear timescale (choose between 30/60/90 days).
You should also think ahead on decisions about what will happen next... so if you are successful you will do X and if you are not successful you will do Y. It is important to spend time purposefully thinking about and anticipating what you will do next so that you don’t lose any of the momentum you have created by adopting a 30/60/90-day cycle approach.
Plan Do Study Act Cycles
Institute for Health Care Improvement

http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Steps in the PDSA Cycle:

Step 1: Plan
Plan the test or observation, including a plan for collecting data.
- State the objective of the test.
- Make predictions about what will happen and why.
- Develop a plan to test the change. (Who? What? When? Where? What data need to be collected?)

Step 2: Do
Try out the test on a small scale. (One patient, One Doctor, One Nurse)
- Carry out the test.
- Document problems and unexpected observations.
- Begin analysis of the data.

Step 3: Study
Set aside time to analyze the data and study the results.
- Complete the analysis of the data.
- Compare the data to your predictions.
- Summarize and reflect on what was learned.

Step 4: Act
Refine the change, based on what was learned from the test.
- Determine what modifications should be made.
- Prepare a plan for the next test.

Blank PDSA Worksheet in Appendix

Example of a Test of Change (Plan-Do-Study-Act Cycle)

Depending on their aim, teams choose promising changes and use Plan-Do-Study-Act (PDSA) cycles to test a change quickly on a small scale, see how it works, and refine the change as necessary before implementing it on a broader scale. The following example shows how a team started with a small-scale test.

Patient Education: Provide Preeclampsia handout at discharge

- Plan: Provide Preeclampsia brochure to patients being discharged today

- Do: Brochures are placed on unit and nurses include in discharge packets

- Study: Verbal feedback of nurses to charge nurse: Some nurses forgot to add brochure to discharge packet. Some confusion if need to discuss or just hand out.

- Act: Unit Secretary will add brochures to all packets. Nurses will discuss key concepts with each patient.
There are 3 key elements of the Hypertension and Heart Maternal Safety Bundle Readiness domain. Education should include unit protocols and drills for recognizing, responding to, and treating hypertensive and cardiac crises. Every unit should have approved medications for the treatment of severe hypertension readily available and an established algorithm to guide dose escalation and monitoring. Simulation training is a critical component of team readiness. Simulations should be performed both as part of team education and as in-situ drills to test both knowledge and system level factors.

**Implementation Focus Areas:**

1. **Education**
   - All staff receive education on severe maternal hypertension and the hypertension protocol at least every 2 years.
   - All staff receive education on maternal heart failure and cardiac arrest.
   - Education should include both Obstetric, Anesthesiology and Emergency Medicine Teams at a minimum. Collaboration with Cardiology is strongly advised.

2. **Medication Access**
   - Rapid access to medications used for severe hypertension/eclampsia:
     - Medications should be stocked and immediately available on L&D and in other areas where patients may be treated including emergency departments. Include brief guide for administration and dosage.

3. **Drills/Simulation**
   - Perform simulation and drills related to severe hypertension, eclampsia and/or maternal cardiac arrest at least twice annually.
Links and Examples of Readiness Resources:

**Education**

**AIM eModule | Severe Hypertension: Readiness**  
https://safehealthcareforeverywoman.org/eModules/eModule-3-Readiness/presentation_html5.html

**AIM eModule | Maternal Early Warning Signs:**  
https://safehealthcareforeverywoman.org/eModules/eModule-MEWS-1/presentation_html5.html

**MSPQC Severe Maternal Hypertension Webinar Series**  
https://mspqc.org/project/obstetrics-severe-maternal-hypertension/

**ACOG District II Safe Motherhood Initiative Slide Deck:**  

**Example Checklists**
- Hypertensive Disorders During Pregnancy Checklist: Hypertensive Emergency (ACOG District II)
- Hypertensive Disorders During Pregnancy Checklist: Eclampsia (ACOG District II)
- Hypertensive Disorders During Pregnancy Checklist: ED Postpartum Preeclampsia

**Medication Access**

CMQCC: Antihypertensive Agents in Preeclampsia  

ILPQC ACOG Sample Order Set Pocket Guide:  
http://ilpqc.org/docs/htn/ACOGsamplesets.pdf

**Simulation/Drills**

**CMQCC Simulation Resources from Preeclampsia Toolkit**

- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: General Information
- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: Learning Objectives
- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: Patient Background Information
- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: Equipment/Materials List
- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: Program Algorithm & GUI Notes
- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: Debriefing Objectives
- Severe Preeclampsia/Eclampsia in LDR v2.0 SimMan 3G: Debriefing Guide/Evaluation
- Simulation Scenario: Hypertension in Pregnancy, HELLP with Seizure
All hospitals should develop a process for the recognition and appropriate response to severe hypertension and any signs or symptoms of a patient’s deteriorating cardiovascular condition. The MEWS Protocol is one example. Written diagnostic criteria describing early warning signs and intervention strategies should be readily available on units. When possible, warning signs should be built into the electronic medical record system.

Implementation Focus

1. **Accurate Blood Pressure Measurement (Joint Commission)**
   - Standard training and protocol for measurement and assessment of BP and urine protein for all pregnant and postpartum women.

2. **System for Maternal Early Warning Signs**
   - Standard response to maternal early warning signs including listening to and investigating patient symptoms and assessment of labs (e.g. CBC with platelets, AST and ALT)

3. **Patient Education and Recognition of Symptoms (Joint Commission)**
   - Facility-wide standards for educating prenatal and postpartum women on signs and symptoms of hypertension and preeclampsia.
   - Provide printed education to patients (and their families including the designated support person whenever possible). At a minimum, education includes:
     - Signs and symptoms of severe hypertension/preeclampsia during hospitalization that alert the patient to seek immediate care
     - Signs and symptoms of severe hypertension/preeclampsia after discharge that alert the patient to seek immediate care
Links and Examples of Recognition & Prevention Resources

Blood Pressure Assessment
CMQCC: Accurate Assessment of Blood Pressure
https://www.cmqcc.org/resource/accurate-blood-pressure-measurement-toolkit-pdf

CMQCC Slides: Accurate Blood Pressure Measurement: Strategies for Success - Nancy Peterson

Maternal Early Warning Systems
AIM eModule: Maternal Early Warning Systems
https://safehealthcareforeverywoman.org/eModules/eModule-MEWS-1/presentation_html5.html

Patient Education & Recognition
Association of Women’s Health Obstetric & Neonatal Nurses POST BIRTH Toolkit and Resources
https://www.awhonn.org/page/POSTBIRTH

Preeclampsia Foundation- Mississippi Hospital Teams may request resources directly from MSPQC
https://m123store.com/Store/Site/Layout/Custom.aspx
All hospitals should develop a process to ensure that sustained acute severe hypertension is diagnosed early and promptly treated within 60 minutes with appropriate antihypertensive medications and that women receive seizure prophylaxis. Women demonstrating signs of cardiopulmonary compromise including shortness of breath, hypoxia or chest pain should be thoroughly evaluated for pulmonary edema and heart failure. A process should be in place to respond to cardiorespiratory failure and arrest during pregnancy including emergent bedside cesarean. Standardizing the response to severe hypertension is critical to eliminating disparities in optimal care received by women of different backgrounds.

Implementation Focus Areas:

1. **Severe Hypertension Management Protocol Development (Joint Commission)**

Develop written evidenced-based procedures for managing pregnant and postpartum patients with severe hypertension/preeclampsia that includes the following:
- The use of an evidence-based set of emergency response medications that are stocked and immediately available
- The use of seizure prophylaxis
- Guidance on when to consult additional experts and consider transfer to a higher level of care
- Guidance on when to use continuous fetal monitoring
- Guidance on when to consider emergent delivery
- Criteria for when a team debrief is required

2. **Cardiac Failure and Arrest in Pregnancy Management Protocol**

Develop written evidenced-based procedures for managing pregnant women experiencing cardiac arrest or cardiac failure including:
- Guidance for performing ACLS in pregnant women
- Guidance for performing emergent bedside/perimortem cesarean

3. **Early Postpartum Safety Check**

Schedule and document the date and time of follow-up for women with preeclampsia/severe hypertension including:
- Within 7 days if no medications or severe complications
- Within 72 hours if discharged on medication

4. **Patient, Family & Staff Support**

Create a plan for patient, family and staff support after severe maternal complications, maternal or neonatal deaths and ICU admissions.
Links and Examples of Response Resources

Protocol Development

ACOG DII (New York) Key Elements for the Management of Hypertensive Crisis in Pregnancy

CMQCC Consultation Triggers in Severe Preeclampsia
CMQCC Proteinuria
CMQCC Nursing Assessment Frequency
CMQCC Sample Nursing Management Policy and Procedure

The Joint Commission Standards for Perinatal Safety (Includes Hemorrhage)
https://www.jointcommission.org/new_standards_for_perinatal_safety/

Cardiac Arrest in Pregnancy

Cardiac Arrest in Pregnancy A Scientific Statement from the American Heart Association (Exerpts Below)
https://ahajournals.org/doi/full/10.1161/cir.0000000000000300

Postpartum Safety Check & Follow Up

Postpartum Care Basics for Maternal Safety From Birth to the Comprehensive Postpartum Visit

Florida Perinatal Quality Collaborative Sample Discharge Sheet

Postpartum Discharge Phone Call Script
Experiencing preeclampsia or a cardiac event during pregnancy can be a traumatic event for everyone involved including the patient, her family and members of the care team. Women and their families require emotional support before, during and after severe maternal events. Communication is critical, including providing the opportunity for women and families to know what happened during the event and why and to be listened to and have their experience acknowledge. Similarly, unexpected severe events and outcomes can have a significant emotional impact on clinical staff and require additional support.

**Recommendation:** All healthcare facilities include in their obstetric emergency plans, resources and guidelines for providing support to patients, families and clinical staff.

**Recommended Resources:**
**ACOG District II Safe Motherhood Initiative:** Support for Patients, Families, Staff
[https://www.acog.org/-/media/Districts/District-II/Public/SMI/v2/PST-zs-03-AF-140519-BereavementResources.pdf](https://www.acog.org/-/media/Districts/District-II/Public/SMI/v2/PST-zs-03-AF-140519-BereavementResources.pdf)

**Medically Induced Trauma Support Services.** Tools for Building a Clinician and Staff Support program.
[http://www.mitsstools.org/tool-kit-for-staff-support-for-healthcare-organizations.html](http://www.mitsstools.org/tool-kit-for-staff-support-for-healthcare-organizations.html)

**Council on Patient Safety in Women’s Healthcare:** Patient Safety Bundle- Patient, Family and Staff Support after a Severe maternal Event (see appendix)
There are three key domains of reporting and systems learning that every facility providing obstetric care should establish. These domains are focused upon learning from severe obstetric events in order to generate system-wide improvements.

**Implementation Focus**

Every Unit:
1. Establish a culture of huddles for high-risk patients and post event debriefs to identify successes and opportunities.
2. Multidisciplinary review of serious hypertension or cardiac events for systems issues
3. Monitor outcomes and process metrics in a facility-based perinatal quality improvement committee

**Links and Examples of Reporting/System Learning Resources**

**AIM eModule: Severe Maternal Hypertension Reporting**
[https://safehealthcareforeverywoman.org/aim-emodules/#1472839740037-c2e8f3f3-4ba9](https://safehealthcareforeverywoman.org/aim-emodules/#1472839740037-c2e8f3f3-4ba9)

**Briefs, Debriefs, and Huddles**


Severe Maternal Hypertension Debrief

PHEW Debrief

**Team Communication**

CMQCC Teamwork and Communication

**Systems Learning Through Drills**

CMQCC Kaiser Evaluation Form for Drills
Example Patient, Family, Staff Support Tool- ACOG District II- Safe Motherhood Initiative

**Maternal Safety Bundle**

**Tool for Staff after Severe Morbidity or Maternal Death**

**STEP 1 CLINICAL CARE:**

- Assure patient stability
- Call for support for care of other patients & provider support (colleagues and leadership)
- Call for patient/family support and comfort (social worker, clergy, other staff member)

**STEP 2a PLAN INITIAL PATIENT/FAMILY MEETING:**

**GATHER THE FACTS AND DEBRIEF:**

- Review all medical records
- Review with other health care providers who were involved
- Clarify and understand the facts
- Avoid speculation and blame
- Assess cultural/religious practices and prep team

**WHO SHOULD ATTEND THE MEETING:**

- Patient and patient approved family members
- Other health care providers directly involved
- Skilled communicators, if needed
- Non-family member translator
- Meet any special needs of your patient
- Decide who will lead the discussion

**LOCATION OF MEETING:**

- Set the time and place for the meeting as soon as possible
- Choose a setting where you can meet face to face, seated
- Find a comfortable environment with confidentiality/privacy
MATERNAL SAFETY BUNDLE

Tool for Staff after Severe Morbidity or Maternal Death

STEP 2b PLANNING WHAT TO SAY:

ORGANIZE YOUR THOUGHTS AND CONSIDER HOW YOU WILL:
☐ Manage your own emotions (but don’t be afraid to show sorrow)
☐ Acknowledge that something unexpected has happened
☐ Express your concern and regret
☐ Respond to your patient’s emotional reactions
☐ Respond to questions your patient is likely to ask
☐ Explain the process for any analysis of the adverse event

STEP 3 INITIAL PATIENT/FAMILY MEETING:

DURING MEETING:
☐ Find out what your patient/family already knows
☐ Acknowledge patient suffering and convey empathy
☐ Set agenda for the meeting
☐ Present the existing facts
☐ Describe clinical condition as it now exists
☐ Describe any future care requirements
☐ Express your concern and regret as appropriate
☐ Try not to overload with too much information
☐ Repeat key aspects, if needed
☐ Communicate in a clear, sensitive, and empathetic manner
☐ welcome note taking, support persons, and questions
☐ Discuss how seriously you are taking the situation

END OF MEETING:
☐ Confirm the clinical next steps
☐ Summarize the discussion
☐ Test for understanding of information with open-ended questions
☐ Define what the next steps will be in process
☐ Answer any questions about how/why the event occurred
☐ Provide contact information
☐ Arrange a follow-up meeting

Safe Motherhood Initiative
MATERNAL SAFETY BUNDLE

Tool for Staff after Severe Morbidity or Maternal Death

STEP 4 FOLLOW UP AND RECOVERY:

PATIENT/FAMILY:
☐ Keep patient and family aware of patient condition
☐ continue to provide clinical and emotional support
☐ Ask what resources patient/family is using
☐ Provide resources for patient/family (religious, social, cultural as needed)
☐ Convey newly uncovered facts to your patient
☐ Discuss what steps have been taken to prevent similar harm
☐ Provide a further expression of regret

PROVIDERS:
☐ Inform Risk Management
☐ Inform primary providers of patient condition
☐ Arrange appropriate emotional support for all those involved
☐ Document the clinical care and discussions in a factual way

Modified from:

Obstetric Communication Response Team (OCRT) Checklist, Montefiore Medical Center, 2014


A culture of briefs, huddles and debriefs will provide obstetric teams with the opportunity to identify successes and opportunities for improvement after significant hemorrhage events. Briefs, huddles and debriefs improve role clarity, situational awareness and utilization of available resources. They should become a part of the routine culture for the unit.

**Briefs** are planning meetings that aim to:
1. Form the team
2. Designate roles and responsibilities
3. Establish goals
4. Engage the entire team in planning, including patients

**Huddles** are brief ad-hoc meetings that aim to:
1. Regain situational awareness and express team concerns
2. Discuss critical issues
3. Anticipate outcomes
4. Assign resources

**Debriefs** are feedback sessions that occur shortly after events including the involved care team. Debriefs aim to:
1. Identify opportunities to improve teamwork, skills and outcomes
Process for Reviewing Severe Maternal Morbidity Event

Source: http://www.safehealthcareforeverywoman.org/secure/smm-forms.php (see appendix for example severe maternal morbidity review form)

What events should be reviewed?

- Pregnant, peripartal or postpartum women receiving 4 or more units of blood products
- 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

Who should review the event?

Multidisciplinary standing committee at facility representing:

- Obstetrical providers (obstetricians, family physicians and/or advanced practice nurses)
- Anesthesia providers
- Obstetric care nurses
- Facility quality improvement team
- Facility administration
- Patient advocate (should be considered)
- Scribe
- If small center, consider partnering with regional perinatal center or outsourcing the review.

When to review?

- As close as possible to the time of the event
- The more severe the event, the closer the timing to review
- If large birthing facility with a number of events, consider scheduling regular meeting to do reviews.

How to review?

- Reviews should be sanction by the facility and protected from discovery. Confidentiality statements should be gathered from each committee member.
- Gather all past and current patient medical records and facility records regarding this patient and event.
- Engage a trained reviewer/abstractor to complete Part A, the Abstraction Form, including a pertinent synopsis of the event and objective information found in the records.
- Primary review is then presented to the review committee.
- Reviews follow a standard format, such as Part B – The assessment form
- Review concludes with recommendations.

Available at safehealthcareforeverywoman.org. This form was originally developed by the California Pregnancy-Associated Mortality Review (CAPAMR) using Title V MCH funding and is adapted with permission from the California Department of Public Health, Maternal, Child and Adolescent health Division. Sacramento, CA.
All data will be entered into the AIM Database which can be found at: [https://www.maternalsafety.org/users/sign_in](https://www.maternalsafety.org/users/sign_in). AIM will collect process and structure measures from hospitals. MSPQC will calculate and submit outcome measures. See the full AIM data collection plan here: [https://safehealthcareforeverywoman.org/wp-content/uploads/2019/02/AIM-Data-Collection-Plan_Latest-v2-4-19-1.xlsx](https://safehealthcareforeverywoman.org/wp-content/uploads/2019/02/AIM-Data-Collection-Plan_Latest-v2-4-19-1.xlsx)

**Process Measures**: Measurement of specific steps that are implemented in order to achieve a desired outcome. Process measures typically document the frequency a new approach is used.

**Process measures for the MSPQC/AIM Hypertension & Heart include:**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
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| **P1: Unit Drills** | Report # of Drills and the drill topics  
  P1a: In this month, how many OB drills (In Situ and/or Sim Lab) were performed on your unit for any maternal safety topic?  
  P1b: In this month, what topics were covered in the OB drills?  
  (At least 1 drill per year on cardiac arrest and 1 on severe hypertension/preeclampsia) |
| **P2: Provider Education** | Report estimate in 10% increments (round up)  
  P2a: At the end of this month, what cumulative proportion of OB physicians and midwives has completed (within the last 2 years) an education program on Severe Hypertension?  
  P2b: At the end of this month, what cumulative proportion of OB physicians and midwives has completed (within the last 2 years) an education program on the Maternal Hypertension bundle elements and the unit-standard protocol? |
| **P3: Nursing Education** | Report estimate in 10% increments (round up)  
  P3a: At the end of this month, what cumulative proportion of OB nurses has completed (within the last 2 years) an education program on Hypertension?  
  P3b: At the end of this month, what cumulative proportion of OB nurses has completed (within the last 2 years) an education program on the Hypertension bundle elements and the unit-standard protocol? |
| **P4: Time To Treatment** | Report Numerator/Denominator  
  Denominator: Women with persistent (twice within 15minutes) new-onset Severe HTN (Systolic: ≥ 160 or Diastolic: ≥ 110)  
  Numerator: Among the denominator, patients who were treated within 1 hour with IV Labetalol, IV Hydralazine, or PO Nifedipine |
| **P5a): Scheduled Postpartum Follow-Up** | Report Numerator/Denominator  
  Denominator: Women with persistent (twice within 15minutes) new-onset Severe HTN (Systolic: ≥ 160 or Diastolic: ≥ 110)  
  Numerator: Among the denominator, patients who had a follow visit scheduled in the record prior to discharge within 7 days  
  b) Numerator: Among denominator, patients who were given printed education materials on preeclampsia/severe hypertension |
MSPQC Severe Maternal Hypertension Baseline Data Collection

Use the following guidelines to assist in your baseline data collection for P4 and P5 (Time to Treatment and Scheduled Follow Up). Please note that if you are a small hospital with low delivery volume, you may have very few to no patients between Oct-Dec 2019. If this is the case, please add additional months from 2019 working back from October until >5 patients are identified.

Patients to include in baseline data collection:

- Pregnant or postpartum women (6 weeks) that present to L&D, Triage, ED, Antepartum, or Postpartum unit at your hospital that have a sustained (>15 minutes) elevated BP of ≥160 systolic and/or ≥110(105) diastolic.
- Retrospectively pull any pregnant or postpartum patient (6 weeks) with a single elevated BP of ≥160 systolic and/or ≥110(105) diastolic in a hospitalization.
- Review these records to identify if the elevated BP was sustained for >15 minutes if they received appropriate treatment within 1 hour and if they had a scheduled follow up within 7 days.
- How to handle maternal transfers:
  - Transferred out: Transferring hospital should collect data on any patients that meet criteria before they were transferred. You may have to follow-up with the receiving hospital to which the patient was transferred in order to obtain patient outcomes (diagnosis at discharge, patient education, follow-up appointments).
  - Transferred in: Receiving hospital should collect data ONLY on patients that meet the above requirements while at their facility. If a patient has already been started on medications for elevated BP prior to arriving at your facility, do not complete a data form.

Identifying baseline data may require collaboration with IT/EMR, ED, Pharmacy, Billing/coding department

All Levels:

- Retrospective chart review for Oct-December 2019 using:
  - ICD-10 codes for Preeclampsia Diagnosis codes in L&D, ED, Triage, Antepartum, Postpartum (last tab of AIM SMM excel file - download here)
  - EMR searches/reports using keywords for pregnant/postpartum patients such as: chronic HTN, preeclampsia, eclampsia, superimposed preeclampsia, preeclampsia with severe features, systolic BP ≥ 160, diastolic BP ≥ 110(105), etc.
  - Delivery logs
  - Pharmacy records for Labetalol, Hyrdalazine, Nifedipine, and Magnesium Sulfate
**Structure Measures:** Measurement of a feature of a healthcare organization related to the capacity to provide high quality health care. Structure measures include measures of the human and material resources available to the healthcare system and organizational factors such as staff deployment and protocols. (Agency for Healthcare Research and Quality)

**Structure measures for the MSPQC/AIM Hypertension/Heart Initiative include:**

| S1: Patient, Family & Staff Support | **Report Completion Date**
Has your hospital developed OB specific resources and protocols to support patients, family and staff through major OB complications? |
| S2: Debriefs | **Report Start Date**
Has your hospital established a system in your hospital to perform regular formal debriefs after cases with major complications? |
| S3: Multidisciplinary Case Reviews | **Report Start Date**
Has your hospital established a process to perform multidisciplinary systems-level reviews on all cases of severe maternal morbidity (including women admitted to the ICU, receiving ≥4 units RBC transfusions, or diagnosed with a VTE)? |
| S4: Unit Policy and Procedure | **Report Completion Date**
Does your hospital have a Severe Hypertension/Preeclampsia policy and procedure (reviewed and updated in the last 2-3 years) that provides a unit-standard approach using a stage-based management plan with checklists? |
| S5: EHR Integration | **Report Completion Date**
Were some of the recommended Severe Hypertension/Preeclampsia bundle processes (i.e. order sets, tracking tools) integrated into your hospital’s Electronic Health Record system? |
CARDIOVASCULAR DISEASE

Cardiovascular disease was the leading cause of pregnancy-related death in Mississippi between 2013 and 2016. Women who have known heart disease or who have significant risk factors including chronic hypertension and preeclampsia are at an increased risk of cardiac related death for years following the end of a pregnancy.

The following resources are included to enhance awareness and education for MS hospital teams about the optimal care of women with and at risk of cardiac complications.

Implementation Focus: Each facility develop a response process/protocol for cardiac arrest/ cardiopulmonary collapse in pregnant women and perform at least 1 drill per year on cardiac arrest.

Links and Resources

ACOG Practice Bulletin No. 212: Pregnancy and Heart Disease

https://journals.lww.com/greenjournal/Fulltext/2019/05000/ACOG_Practice_Bulletin_No__212__Pregnancy_and.40.aspx#pdf-link

CMQCC Toolkit: Improving Health Care Response to Cardiovascular Disease in Pregnancy and Postpartum

CMQCC Signs and Symptoms Infographic English PDF
Cardiovascular Addendum to Hypertension Bundle

James N Martin Jr., MD

BASIS-Foundation

- Heart disease is the No.1 killer of women—the population-adjusted risk of cardiovascular mortality is 20.9% for women versus 14.9% for men.
- 90% of women have at least one risk factor for developing heart disease; optimal prevention strategy begins decades before clinical heart disease is apparent.
- The OBGYN specialist can be a critical element in improving women’s health by early identification and modification of risk factors for heart disease and stroke.
- Obese women have a 64% risk for coronary artery disease, higher than the 46% risk observed in obese men.
- Maternal heart and vascular disease—cardiovascular disease—is now the leading cause of death in pregnant women and women in the postpartum period, contributing to 26.5% of all pregnancy-related deaths in the United States.
- The great majority of maternal cardiovascular disease which contributes most to maternal morbidity and mortality is acquired and becomes evident over the course of pregnancy and the postpartum period. The most common presentations of acquired maternal heart disease are heart failure, myocardial infarction, arrhythmia, or aortic dissection.
- It is estimated that at least a quarter of maternal deaths could be prevented if cardiovascular disease were considered in the differential diagnosis by treating health care providers—there is overlap between pathology and the normal symptomatology of pregnancy which can challenge accurate and timely diagnosis of cardiovascular threats to maternal well-being.
- Preeclampsia and gestational hypertension impart a 3 to 6-fold increased risk of subsequent hypertension and a 2-fold risk for ischemic heart disease and stroke.
- Patient characteristics and pregnancy complications facilitate identification of the patient at risk for maternal cardiovascular disease during or following gestation. The following are risk factors for maternal cardiovascular disease (adapted from Box 3 in ACOG Practice Bulletin 212):
  - Non-Hispanic black race
  - Older age (more than 40 years)
  - Obesity
  - Hypertensive disorders of pregnancy including gestational hypertension, preeclampsia, eclampsia, and HELLP syndrome (hemolysis, elevated liver enzymes, and low platelet count)
  - Chronic vascular disease presenting as chronic hypertension, pregestational diabetes mellitus, and autoimmune inflammatory disease
  - Complications of pregnancy including preterm delivery, gestational diabetes mellitus and low birth weight for gestational age
  - Obstructive sleep apnea (moderate to severe)
  - Strong family history of heart disease
  - Exposure to cardiotoxic drugs
  - Cigarette smoker
  - Hypercholesterolemia

EXECUTION of Practice Hypertension/Cardiovascular Disease Bundle:

1. **Global cardiovascular risk assessment.** Global cardiovascular risk assessment (GCRA) should be undertaken in all pregnant women in order to detect silent cardiovascular disease, with or without symptoms (AHA 2010). The algorithm in Figure 1 of the Pregnancy & Heart Disease Practice Bulletin No. 
212 should be utilized. The GCRA should be performed within 24-48 hours of delivery and before discharge postpartum from the hospital/birthing center checking 1-SYMPTOMS, 2-VITAL SIGNS, 3-RISK FACTORS and 4-PHYSICAL EXAM (loud murmur or lung changes suggestive of fluid). The GCRA Score should be recorded in the patient’s chart. If screening results are abnormal/CVD is highly suspected, cardiac consultation is indicated before delivery discharge.

2. **Heart/Cardiovascular disease known prior to pregnancy—Early postpartum follow-up.** Pregnant and postpartum patients with known cardiovascular disease should continue under the care of a cardiologist/internist during and following pregnancy, in addition to obstetrics-indicated postpartum care. An early postpartum follow-up visit 7-14 days after delivery is recommended for women with known heart disease/cardiovascular disorders with either the primary care provider or cardiologist.

3. **Contraception.** Contraceptive needs for any mother found to have and/or to be at risk for cardiovascular disease should be addressed before labor and delivery and resolved during the delivery hospitalization. Intrauterine devices are the recommended nonpermanent option for women with high-risk cardiovascular conditions because they are highly effective, reliable and reversible. Contraceptive choices should be tailored to the type of CVD present.

4. **Early postpartum evaluation of hypertensive mothers.** Mothers exhibiting any evidence of hypertension during pregnancy (gestational hypertension, preeclampsia, chronic hypertension with/without superimposed preeclampsia, HELLP syndrome, eclampsia) should be re-evaluated within 7-10 days of delivery for signs/symptoms of hypertension requiring additional or different drug therapy to sustain blood pressures <150 mmHg systolic and <100 mmHg diastolic.
5. **Routine post-delivery obstetric check-up.** An early postpartum visit within 10-14 days of delivery for hypertension or heart disease reasons does not supplant the routine postpartum check-up following vaginal or cesarean delivery which is scheduled usually to occur 2-6 weeks postpartum. If contraceptive decisions have not been decided or executed, they can be done at this visit.

6. **Attention to possibly developing postpartum cardiomyopathy.** Evidence of underlying cardiovascular disease can present initially either during pregnancy or in the first days, weeks and months postpartum. Postpartum women who develop shortness of breath, chest discomfort, palpitations, arrhythmias, or fluid retention should be evaluated for peripartum cardiomyopathy—an echocardiogram is generally the most important diagnostic test. Persistent respiratory symptoms and “new-onset asthma” may be a presentation of heart failure.

7. **Acute coronary syndrome.** A pregnant or postpartum patient with chest pain or cardiac symptoms should be considered to possibly have acute coronary syndrome and quickly evaluated.

8. **Breastfeeding.** Because breastfeeding has important short and long-term health benefits for women, lactation is encouraged in patients with heart/cardiovascular disease.

9. **The 10-12 Week Postpartum Maternal Cardiovascular Assessment Visit.** Mothers with any of the risk factors for maternal cardiovascular disease listed above (see bullets) should be re-evaluated at 10-12 weeks postpartum as outlined in ACOG Practice Bulletin No. 212 Box 4.

   - Medical history
     - Smoking (# of cigarettes/day, # of years smoked)
     - Physical activity (times per week, duration)
     - Breast feeding (how long)
     - History of hypertension, diabetes, or cardiovascular disease
     - First degree family history of CVD, hypertension, diabetes
   - Physical examination
     - Resting blood pressure and heart rate
     - Body mass index and waist circumference
   - Biochemical testing
     - Cholesterol/lipid profile
     - Fasting glucose (or diabetes screening if patient had GDM)
     - Urine protein:creatinine ratio
   - Nutrition assessment

10. **Subsequent Care.** In addition, at the 10-12 week postpartum cardiovascular risk assessment visit, the patient should be counseled with regard to her cardiovascular risk factors and how she should address them using checkups, medication, exercise and diet.

11. **Postpartum Depression.** Because cardiovascular disease during pregnancy and the postpartum period has mental health implications, patients should be screened for depressive symptoms and referred to social/psychologic services as indicated.

**References**


AHA/ACOG Presidential Advisory: Promoting Risk Identification and Reduction of Cardiovascular Disease in Women Through Collaboration with Obstetricians & Gynecologists. Circulation 2018;137:e1-e10 DOI:
### Appendix/Additional Resources

I. Joint Commission Perinatal Safety Standards  
II. 30-60-90 Day Worksheet  
III. Plan-Do-Study-Act Worksheet  
IV. Unit Awareness Days Since Event Sign  
V. ED Pregnancy Awareness Sign  
VI. Sample Policies/Protocols