



**MDPQC Maternal Hypertension Office Hours**  
**9/6/2022**

# AIM Refresher



- National data-driven maternal safety and QI initiative
- Aligns national, state, and hospital-level QI efforts to reduce preventable maternal mortality and severe morbidity
- Core AIM Patient Safety Bundles:
  - Obstetric Hemorrhage
  - **Severe Hypertension in Pregnancy**
  - Safe Reduction in Primary C-Section
  - Cardiac Conditions in OB Care
  - Care for Pregnant and Postpartum with Substance Use Disorder
  - Postpartum Discharge Transition



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# AIM Patient Safety Bundles – 5 Rs

- ✓ **R**eadiness
- ✓ **R**ecognition & Prevention
- ✓ **R**esponse
- ✓ **R**eporting & Systems Learning
- ✓ **R**espectful, Equitable, & Supportive Care



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# Severe Hypertension in Pregnancy Bundle

- Originally released over 7 years ago
- Since 2015, 34 AIM state collaboratives have implemented
- **2022 REVISION**
  - Reviewed and revised concepts from original bundle
  - Added additional aspects as needed
  - Revised metrics and data collection tools
  - Solicited internal and external feedback



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# Full AIM Revised HTN Bundle

Effective Q4 2022!



## Severe Hypertension in Pregnancy Patient Safety Bundle

### Readiness — Every Care Setting

Develop processes for management of pregnant and postpartum patients with severe hypertension, including:

- ▶ A standard protocol for maternal early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia (including order sets and algorithms)
- ▶ A process for the timely triage and evaluation of pregnant and postpartum patients with severe hypertension or related symptoms
- ▶ A system plan for escalation, obtaining appropriate consultation, and maternal transfer as needed

Ensure rapid access to medications used for severe hypertension/eclampsia with a brief guide for administration and dosage in all areas where patients may be treated.

Conduct interprofessional and interdepartmental team-based drills with timely debriefs that include the use of simulated patients.

Develop and maintain a set of referral resources and communication pathways between obstetric providers, community-based organizations, and state and public health agencies to enhance services and supports for pregnant and postpartum families.

Develop trauma-informed protocols and provider education to address health care team member biases to enhance equitable care.

### Recognition & Prevention — Every Patient

Assess and document if a patient presenting is pregnant or has been pregnant within the past year in all care settings.

Ensure accurate measurement and assessment of blood pressure for every pregnant and postpartum patient.

Screen for structural and social drivers of health that might impact clinical recommendations or treatment plans and provide linkage to resources that align with the pregnant or postpartum person's health literacy, cultural needs, and language proficiency.

Provide ongoing education to all patients on the signs and symptoms of hypertension and preeclampsia and empower them to seek care.

Provide ongoing education to all health care team members on the recognition of signs, symptoms, and treatment of hypertension.



## Severe Hypertension in Pregnancy Patient Safety Bundle

### Response — Every Event

Utilize a standardized protocol with checklists and escalation policies including a standard response to maternal early warning signs, listening and investigating patient-reported and observed symptoms, and assessment of standard labs for the management of patients with severe hypertension or related symptoms.

Initiate postpartum follow-up visit to occur within 3 days of birth hospitalization discharge date for individuals whose pregnancy was complicated by hypertensive disorders.

Provide trauma-informed support for patients, identified support network, and staff for serious complications of severe hypertension, including discussions regarding birth events, follow-up care, resources, and appointments.

### Reporting and Systems Learning — Every Unit

Establish a culture of multidisciplinary planning, huddles, and post-event debriefs for every case of severe hypertension, which identifies successes, opportunities for improvement, and action planning for future events.

Perform multidisciplinary reviews of all severe hypertension/eclampsia cases per established facility criteria to identify systems issues.

Monitor outcomes and process data related to severe hypertension, with disaggregation by race and ethnicity due to known disparities in rates of severe hypertension.

### Respectful, Equitable, and Supportive Care — Every Unit/Provider/Team Member

Engage in open, transparent, and empathetic communication with pregnant and postpartum people and their identified support network to understand diagnoses, options, and treatment plans.

Include pregnant and postpartum persons as part of the multidisciplinary care team to establish trust and ensure informed, shared decision-making that incorporates the pregnant and postpartum person's values and goals.

## Original Bundle

- 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

## Revised Bundle

- Develop processes for management of pregnant and postpartum patients with severe hypertension, including:
  - ✓ A standard protocol for maternal early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia (including order sets and algorithms)
  - ✓ A process for the timely triage and evaluation of pregnant and postpartum patients with severe hypertension or related symptoms
  - ✓ A system plan for escalation, obtaining appropriate consultation, and maternal transfer as needed
- Ensure rapid access to medications used for severe hypertension/eclampsia with a brief guide for administration and dosage in all areas where patients may be treated
- Conduct interprofessional and interdepartmental team-based drills with timely debriefs that include the use of simulated patients
- Develop and maintain a set of referral resources and communication pathways between obstetric providers, community-based organizations, and state and public health agencies to enhance services and supports for pregnant and postpartum families
- Develop trauma-informed protocols and provider education to address health care team member biases to enhance equitable care

## Bundle Implementation Guidance available!



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Severe Hypertension in Pregnancy  
Patient Safety Bundle (2022)

*Element Implementation Details*

Readiness Element	Key Points
Care Setting	<p>All care settings potentially including:</p> <ul style="list-style-type: none"> <li>• Labor and Delivery Units</li> <li>• Freestanding Birthing Centers</li> <li>• Emergency Departments</li> <li>• Urgent Care</li> <li>• Critical Care</li> <li>• Primary Care/Ob-Gyn Office</li> <li>• Other Outpatient Settings</li> </ul>
Medications	<p>Medications should be stocked and immediately available in obstetric units (AP, L&amp;D, PP), the Emergency Department, and in other areas where patients may be treated. Recommended medications include:</p> <ul style="list-style-type: none"> <li>• Magnesium sulfate</li> <li>• Oral nifedipine, immediate release (acceptable first-line medication)</li> <li>• Intravenous hydralazine</li> <li>• Labetalol</li> </ul>
Interprofessional and interdepartmental team-based drills	<p>Facilitate drills with simulated patients and timely debriefs that emphasize:</p> <ul style="list-style-type: none"> <li>• All elements of the facility severe hypertension emergency management plan</li> <li>• Patient-centered, empathetic, trauma-informed care</li> </ul>
Referral resources and communication pathways	<p>Ensure that:</p> <ul style="list-style-type: none"> <li>• Maternal and neonatal transfer protocol is in place</li> <li>• Hospitals/prenatal care sites should implement resource mapping to identify local resources and support services so that this information is available to providers and other care team members to optimize referrals.</li> </ul> <p>Consider providing blood pressure cuff, education materials, and information on who to call for concerns for patient to take home</p>
Trauma-informed protocols and bias training	<p>Ensure that:</p> <ul style="list-style-type: none"> <li>• Every clinical setting, health system, and providers are welcoming and inclusive of all people no matter backgrounds, race, ethnicity, gender, social class, language, ability, and other personal or social identities and characteristics.</li> </ul> <p>Recognize that:</p> <ul style="list-style-type: none"> <li>• Some of the identities above may be marginalized and to care for people in an intersectional manner is to treat the patient as a whole person and acknowledge all the identities that might impact equitable, supportive, and quality care.</li> </ul>





# Recognition & Prevention



## Original Bundle

- 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

## Revised Bundle

- Assess and document if a patient presenting is pregnant or has been pregnant within the past year in all care settings
- Ensure accurate measurement and assessment of blood pressure for every pregnant and postpartum patient
- Screen for structural and social drivers of health that might impact clinical recommendations or treatment plans and provide linkage to resources that align with the pregnant or postpartum person's health literacy, cultural needs, and language proficiency
- Provide ongoing education to all patients on the signs and symptoms of hypertension and preeclampsia and empower them to seek care
- Provide ongoing education to all health care team members on the recognition of signs, symptoms, and treatment of hypertension





# Recognition & Prevention

Recognition Element	Key Points
Obtain and assess labs while listening to and investigating patient symptoms	Recommended labs include, at minimum: <ul style="list-style-type: none"><li>• Proteinuria</li><li>• CBC with platelet count</li><li>• Serum creatinine</li><li>• LDH</li><li>• AST</li><li>• ALT</li></ul>
Screening for community support needs and resources provided	Screening should include: <ul style="list-style-type: none"><li>• Medical needs</li><li>• Mental and behavioral health needs</li><li>• Substance use disorder needs</li><li>• Structural and social drivers of health</li></ul>
Patient Education	Should include: <ul style="list-style-type: none"><li>• Who to contact with medical and mental health concerns, ideally stratified by severity of condition or symptoms</li><li>• Review of warning signs/symptoms</li><li>• Reinforcement of the value of outpatient postpartum follow up</li><li>• Summary of delivery events and treatments used</li><li>• Information about future pregnancies and hypertension risk</li></ul> Can include: <ul style="list-style-type: none"><li>• Patient support network in receiving relevant resources and education</li></ul> All provided resources should align with the pregnant or postpartum patient's: <ul style="list-style-type: none"><li>• Health literacy</li><li>• Cultural needs</li><li>• Language proficiency</li><li>• Geographic location and access</li></ul>



# Response



## Original Bundle

- 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  $\geq 160$  or diastolic BP  $\geq 110$  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

## Revised Bundle

- Utilize a standardized protocol with checklists and escalation policies including a standard response to maternal early warning signs, listening and investigating patient-reported and observed symptoms, and assessment of standard labs for the management of patients with severe hypertension or related symptoms
- Initiate postpartum follow-up visit to occur within 3 days of birth hospitalization discharge date for individuals whose pregnancy was complicated by hypertensive disorders
- Provide trauma-informed support for patients, identified support network, and staff for serious complications of severe hypertension, including discussions regarding birth events, follow-up care, resources, and appointments

Response Element	Key Points
Standardized, facility-wide protocols	<p>Should include:</p> <ul style="list-style-type: none"> <li>• Onset and duration of magnesium sulfate therapy</li> <li>• Advance preparation for seizure prophylaxis and magnesium toxicity</li> <li>• Notification of physician or primary care provider if systolic pressure is 160 mm Hg or more or diastolic pressure is 110 mm Hg or more for two measurements within 15 minutes</li> <li>• Monitoring cases of borderline severe hypertension (150 to 159 mm Hg systolic and/or 105-109 mm Hg diastolic) closely for progression to severe hypertension.</li> <li>• Initiating treatment within 60 minutes of verification after first severe range blood pressure reading, assuming confirmation of persistent elevation through a second reading.</li> <li>• Escalation measures for ongoing observation and management</li> </ul>
Postpartum follow-up visit	<p>Discharging facility or obstetric provider should schedule postpartum follow-up (either in-person appointment or phone call) within 3 days of discharge date. This visit should include:</p> <ul style="list-style-type: none"> <li>• Blood pressure check</li> <li>• Discussion of signs and symptoms of worsening hypertension</li> <li>• Who to contact if signs and symptoms continue</li> <li>• Information about where to go, such as urgent care facility or Emergency Department, if signs and symptoms worsen</li> </ul>
Trauma-informed support for patients and identified support network	<p>Discussions regarding birth events, follow-up care, resources, and appointments should be provided verbally and, ideally, in a written clinical summary that aligns with the person's health literacy, culture, language, and accessibility needs.</p>



# Reporting & Systems Learning



## Original Bundle

- 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

## Revised Bundle

- Establish a culture of multidisciplinary planning, huddles, and post-event debriefs for every case of severe hypertension, which identifies successes, opportunities for improvement, and action planning for future events
- Perform multidisciplinary reviews of all severe hypertension/eclampsia cases per established facility criteria to identify systems issues
- Monitor outcomes and process data related to severe hypertension, with disaggregation by race and ethnicity due to known disparities in rates of severe hypertension

Reporting Element	Key Points
Multidisciplinary Case Review	<p>Reviews may assess and/or identify:</p> <ul style="list-style-type: none"><li>• Alignment with standard policies and procedures</li><li>• Appropriate updates to standard policies and procedures for future events</li><li>• Other opportunities for improvement, including identification of discriminatory practices and opportunities to improve respectful, equitable and supportive care.</li></ul> <p>Consistent issues should be reported via established pathways</p>



# Respectful, Equitable, & Supportive Care



## Original Bundle

- N/A

## Revised Bundle

- Engage in open, transparent, and empathetic communication with pregnant and postpartum people and their identified support network to understand diagnoses, options, and treatment plans
- Include pregnant and postpartum persons as part of the multidisciplinary care team to establish trust and ensure informed, shared decision-making that incorporates the pregnant and postpartum person's values and goals



# Respectful, Equitable, & Supportive Care

Respectful Care Element	Key Points
Open, transparent, and empathetic communication with pregnant and postpartum people and their identified support network	<ul style="list-style-type: none"><li>• Establish and/or maintain a mechanism for patients, support network, and staff to identify inequitable care and episodes of miscommunication or disrespect.</li><li>• Develop plan to address reported cases of inequitable care, miscommunication, or disrespect</li></ul>
Inclusion of the patient as part of the multidisciplinary care team	<ul style="list-style-type: none"><li>• Establishment of trust</li><li>• Informed, bidirectional shared decision-making</li><li>• Patient values and goals as the primary driver of this process</li></ul>
As Black, Indigenous, and Hispanic people experience maternal mortality and severe maternal morbidity at disproportionately higher rates because of systemic racism, but not race itself, it is necessary to mitigate bias by having a high index of suspicion for a contributing clinical condition, such as severe hypertension, in these populations.	
Patient support networks may include nonfamilial supports, such as doulas and home visitors, who, with the postpartum person's permission, should be welcomed when any teaching or planning is provided.	



# Data Measure Updates

- Measure development and revisions focus on inpatient obstetric settings and emergency departments
- Reviewed measures to ensure alignment with the revised patient safety bundles and evidence-based best practices
- Added measures that focus on transitions in care and ED readiness to recognize and respond to hypertensive emergencies in pregnant and postpartum people
- Incorporated respectful, equitable, and supportive care into the project measurement strategy



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# AIM Revised HTN Bundle – Outcome Measures

Effective Q4 2022!

## Outcome Measures

- SAME: SMM (excluding transfusion codes) among all delivering women
- SAME: SMM (excluding transfusion codes) among women with preeclampsia
- REMOVE: SMM among all delivering women
- REMOVE: SMM among women with preeclampsia

\*\*Remember: Outcome measures reported by MDH\*\*

### Rationale:

- Medical coding quality for transfusions using ICD-10 codes is poor and inconsistent
- National SMM definition no longer includes transfusions alone in SMM for reporting

# AIM Revised HTN Bundle – Process Measures

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## Process Measures

- SAME: Timely Treatment after severe HTN
- SAME: OB provider and nurse education on severe HTN and preeclampsia (split by providers & nurses)
- SAME: # drills + drill topics
- ADD: Proportion of ED providers & nurses receiving education on severe HTN and preeclampsia in the last 2 years (combined into 1 measure)
- ADD: Proportion of providers and nurses receiving education on respectful and equitable care in the past 2 years (split by providers & nurses) *\*\*MD Implicit Bias training qualifies for this*
- ADD, OPTIONAL: Number of patients with HTN with a postpartum blood pressure and symptoms check scheduled within 3-7 days after birth hospitalization discharge date
- ADD, OPTIONAL: Number of patients with HTN who received a verbal debriefing on their HTN by their care team before discharge



# NEW, OPTIONAL: Postpartum BP & Systems Checks: **SEVERE HTN**

- Denominator: Pregnant and postpartum people during their birth admission **with acute-onset severe hypertension that persists for 15 minutes or more**, including those with preeclampsia, gestational or chronic hypertension
- Numerator: Among the denominator, those who had a postpartum blood pressure and systems check scheduled to occur **within 3 days** after their birth hospitalization discharge date
- *Disaggregated by race/ethnicity, payor*



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# NEW, OPTIONAL: Postpartum BP and Systems Checks, **ALL OTHER HTN**

- Denominator: Pregnant and postpartum people during their birth admission with **a documented diagnosis of preeclampsia, gestational or chronic hypertension**, excluding those who experienced persistent severe hypertension during their birth admission
- Numerator: Among the denominator, those who had a postpartum blood pressure and systems check scheduled to occur within **7 days** after their birth hospitalization discharge date
- *Disaggregated by race/ethnicity, payor*



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# NEW, OPTIONAL: Patient Support After Persistent Severe Hypertension

- Denominator: Pregnant and postpartum people with acute-onset severe hypertension that persists for 15 minutes or more, including those with preeclampsia, gestational or chronic hypertension
- Numerator: Among the denominator, those who received a verbal briefing on their persistent severe hypertension by their care team before discharge
- *Disaggregated by race/ethnicity, payor*



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# AIM Revised HTN Bundle – Structure Measures

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## Structure Measures

- SAME: Has your hospital established multidisciplinary case reviews
- SAME: Does your hospital have a HTN policy, reviewed in the last 2 years
- REVISED: Have you developed a system to perform Debriefs after a severe event, split into:
  - ADD: 1. Debriefs with patients, SAME: 2. Debriefs with clinical team
- ADD: Have you developed/curated patient education materials on urgent postpartum warning signs that align with culturally and linguistically appropriate standards?
- ADD: Has your ED established screening for pregnancy/pregnancy in the past year?
- REMOVE: Do you have OB resources to support patients, families and staff following a major OB complication?
- REMOVE: Have you integrated part of the HTN bundle into your EHR?





# Next Steps

- AIM Data Center will transition to revised data collection plan starting with Q4 2022 reporting (due January 31, 2023)
- **Begin to explore your internal processes for collecting new measures!**
- **Review AIM Revised HTN Bundle materials, found here:**  
<https://saferbirth.org/psbs/severe-hypertension-in-pregnancy/>
  - ✓ **Revised Bundle**
  - ✓ **Bundle Implementation Details**
  - ✓ **Revised Data Collection Plan**
  - ✓ **Implementation Resources**



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# Open Discussion

- **Questions/Comments/Concerns?**
- **Next Office Hours: Tue 10/4 @ 12pm**



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# Stay Connected



## For more information

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