



ALLIANCE FOR INNOVATION
ON MATERNAL HEALTH



Severe Hypertension in Pregnancy Patient Safety Bundle (2022)

Implementation Resources



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Section	Resource	Description	Link
Readiness			
Readiness	Gestational Hypertension and Preeclampsia <i>Practice Bulletin #222, 2020</i>	Hypertensive disorders of pregnancy constitute one of the leading causes of maternal and perinatal mortality worldwide. It has been estimated that preeclampsia complicates 2-8% of pregnancies globally. In Latin America and the Caribbean, hypertensive disorders are responsible for almost 26% of maternal deaths, whereas in Africa and Asia they contribute to 9% of deaths. Although maternal mortality is much lower in high-income countries than in developing countries, 16% of maternal deaths can be attributed to hypertensive disorders. In the United States, the rate of preeclampsia increased by 25% between 1987 and 2004. Moreover, in comparison with women giving birth in 1980, those giving birth in 2003 were at 6.7-fold increased risk of severe preeclampsia. This complication is costly: one study reported that in 2012 in the United States, the estimated cost of preeclampsia within the first 12 months of delivery was \$2.18 billion (\$1.03 billion for women and \$1.15 billion for infants), which was disproportionately borne by premature births. This Practice Bulletin will provide guidelines for the diagnosis and management of gestational hypertension and preeclampsia.	@
Readiness	Indiana Perinatal Quality Improvement Collaborative (IPQIC) Hypertension Tool Kit <i>IPQIC, 2021</i>	Early warning signs establish when a patient will be evaluated by a provider at the bedside. We will provide a standard for Early Warning, diagnostic criteria for severe hypertension, and preeclampsia, and algorithms for monitoring and treatment. Three sample readiness assessment forms for triage and evaluation - covering all care areas.	@¹ @² @³

¹Ambulatory Readiness Assessment

²Emergency Department Readiness Assessment

³Inpatient Readiness Assessment

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Readiness	<p>Practicing for Patients Core Obstetric In-Situ Drill Program Manual and Supporting Resources</p> <p><i>Preeclampsia Foundation, 2021</i></p>	<p>Emergencies in obstetric care occur every day. Postpartum hemorrhage results in 140,000 deaths annually. Hypertensive emergencies, venous thromboembolic events, and maternal cardiac arrest also occur and result in significant maternal and fetal morbidity and mortality. In order to ensure prevention when possible and optimal outcomes when this is not possible, it is critically important that members of the health care team are educated and are readily able to recognize, diagnose, treat, and manage medical emergencies in pregnancy. The Council on Patient Safety in Women's Health Care has released patient safety bundles to help address obstetric emergencies. These emphasize the importance of clear communication and an interprofessional team approach. This Practicing for Patients: In-Situ Simulation Program Manual was developed with these concepts in mind. The Council recognizes that if all members of the labor and delivery team practice and simulate medical emergencies on their actual labor and delivery unit that they could decrease obstetric related morbidity and mortality by improving the team's communication and response in an emergency.</p>	@
Readiness	<p>What is Preeclampsia?</p> <p><i>Preeclampsia Foundation, 2021</i></p>	<p>Preeclampsia (pre-e-CLAMP-si-a) is persistent high blood pressure that develops during pregnancy or the postpartum period. It is often associated with high levels of protein in the urine or the new development of decreased blood platelets, trouble with the kidneys or liver, fluid in the lungs, or signs of brain trouble such as seizures and/or visual disturbances. It is diagnosed by the elevation of the expectant mother's blood pressure usually after the 20th week of pregnancy and is unique to human pregnancy. According to guidelines released by the American College of Obstetricians and Gynecologists, the diagnosis of preeclampsia no longer requires the detection of high levels of protein in the urine (proteinuria). Evidence shows organ problems with the kidneys and liver can occur without signs of protein, and that the amount of protein in the urine does not predict how severely the disease will progress. Prior to these new guidelines, most healthcare providers traditionally adhered to a rigid diagnosis of preeclampsia based on blood pressure and protein in the urine.</p>	@

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Readiness	Analysis of a Statewide Maternal Transport System: A Four-Year Review ACOG, 2020	Implementing levels of maternal care (LOMC) dictates that certain maternal conditions be centralized to risk-appropriate care centers. However, the feasibility of a LOMC system is dependent on the ability to transport risk appropriate patients in a timely manner. The objective of this study is to describe maternal transports via a robust, state-sponsored maternal transport system.	
Readiness	Emergency Department Recognition and Treatment: Focus on Delayed Postpartum Preeclampsia and Eclampsia CMQCC, 2013	Hypertensive disorders including preeclampsia and eclampsia are one of the leading causes of maternal morbidity and mortality. While there has been an overall decrease in the frequency of eclampsia, the frequency of postpartum and delayed eclampsia has increased making it more common for patients to present to the Emergency Department (ED) with symptoms. Postpartum or delayed preeclampsia/eclampsia is frequently associated with Posterior Reversible Encephalopathy Syndrome. Although obstetric consultation is warranted in every case of preeclampsia, emergency physicians should be knowledgeable of and comfortable with the initial management.	
Readiness	Pregnant Women's Experiences with the Management of Hypertensive Disorders of Pregnancy: A Qualitative Study BMC Health Services Research, 2021	Hypertensive disorders are a leading cause of mortality and morbidity during pregnancy. Despite multiple national and international clinical guidelines and a plethora of research in the field of optimizing management, there has been limited research describing the perspectives and experiences of pregnant women with the management of hypertensive disorders of pregnancy (HDP). Understanding these perceptions and experiences is imperative to the optimization of HDP management.	
Recognition			
Recognition	The Assessment of Blood Pressure in Pregnant Women: Pitfalls and Novel Approaches <i>American Journal of Obstetrics and Gynecology</i> , 2022	Accurate assessment of blood pressure is fundamental to the provision of safe obstetrical care. It is simple, cost effective, and life-saving. Treatments for preeclampsia, including antihypertensive drugs, magnesium sulfate, and delivery, are available in many settings. However, the instigation of appropriate treatment relies on prompt and accurate recognition of hypertension. There are a number of different techniques for blood pressure assessment, including the auscultatory method, automated oscillometric devices, home blood pressure monitoring, ambulatory monitoring, and invasive monitoring.	

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Recognition	Hypertension Disorders of Pregnancy Toolkit <i>CMQCC, 2021</i>	Preeclampsia Screening Tools	
Recognition	Emergency Care for Patients During Pregnancy and the Postpartum Period: Emergency Nurses Association and Association of Women's Health, Obstetric and Neonatal Nurses Consensus Statement <i>ENA and AWHONN, 2020</i>	During pregnancy and the postpartum period, it is common for patients to present to emergency settings for emergent and non-emergent care (Kilfoyle et al., 2017). The overall number of these patients triaged in any setting exceeds the hospital birth volume by 20% to 50% (Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN], 2011). When pregnant or postpartum patients present to emergency settings, risk assessment, evaluation for early warning signs of maternal and fetal compromise, followed by timely communication and coordination with obstetric clinicians are essential.	
Recognition	Patient Education <i>Preeclampsia Foundation, 2021</i>	Educating patients is the first line of defense when it comes to proper recognition and reporting of symptoms. Preeclampsia can be a rapidly progressing disorder with symptoms becoming more and more critical in a short window of time between regular prenatal appointments. The patient is often the first responder. With greater understanding of the seriousness of preeclampsia, comes greater compliance and reporting. But just telling patients about preeclampsia is not enough.	

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Recognition	<p>Implementing Obstetric Early Warning Systems <i>AJP Reports, 2018</i></p>	<p>Severe maternal morbidity and mortality are often preventable and obstetric early warning systems that alert care providers of potential impending critical illness may improve maternal safety. While literature on outcomes and test characteristics of maternal early warning systems is evolving, there is limited guidance on implementation. Given current interest in early warning systems and their potential role in care, the 2017 Society for Maternal-Fetal Medicine (SMFM) Annual Meeting dedicated a session to exploring early warning implementation across a wide range of hospital settings. This manuscript reports on key points from this session. While implementation experiences varied based on factors specific to individual sites, common themes relevant to all hospitals presenting were identified. Successful implementation of early warnings systems requires administrative and leadership support, dedication of resources, improved coordination between nurses, providers, and ancillary staff, optimization of information technology, effective education, evaluation of and change in hospital culture and practices, and support in provider decision-making.</p>	@
Recognition	<p>Maternity Watch Program: Early Warning Triggers <i>Washington State Hospital Association, 2017</i></p>	<p>The Maternity Watch program goal is to provide hospital teams with evidence-based education, tools and resources to optimize early recognition and response to maternal warning signs for severe hypertension/preeclampsia, maternal hemorrhage, sepsis and cardiopulmonary events, reducing the incidence of severe maternal morbidity and mortality.</p>	@

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Recognition	Triggers, bundles, protocols, and checklists-what every maternal care provider needs to know <i>American Journal of Obstetrics and Gynecology, 2016</i>	The rise in maternal morbidity and mortality has resulted in national and international attention at optimally organizing systems and teams for pregnancy care. Given that maternal morbidity and mortality can occur unpredictably in any obstetric setting, specialists in general obstetrics and gynecology along with other primary maternal care providers should be integrally involved in efforts to improve the safety of obstetric care delivery. Quality improvement initiatives remain vital to meeting this goal. The evidence-based utilization of triggers, bundles, protocols, and checklists can aid in timely diagnosis and treatment to prevent or limit the severity of morbidity as well as facilitate interdisciplinary, patient-centered care. The purpose of this document is to summarize the pertinent elements from this forum to assist primary maternal care providers in their utilization and implementation of these safety tools.	
Response			
Response	Hypertension Disorders of Pregnancy Toolkit <i>CMQCC, 2021</i>	<p>The Improving Health Care Response to Hypertensive Disorders of Pregnancy (HDP) toolkit was developed by the HDP Task Force to support timely recognition and response to maternal hypertension and preeclampsia. This version updates the 2014 California Department of Public Health and CMQCC Preeclampsia Toolkit and contains expanded content to cover all HDP.</p> <p>In addition to the expanded scope, other key changes include:</p> <p>Updated terminology and diagnostic criteria for hypertensive disorders of pregnancy</p> <p>Management guidelines in alignment with recent changes in the American College of Obstetricians and Gynecologists' definition of severe hypertension with treatment guidelines for lower "borderline" blood pressure values</p> <p>Guidance on low-dose aspirin for prevention of preeclampsia and long-term follow up after hypertensive disorders of pregnancy</p> <p>Best practices including accurate blood pressure measurement, a Preeclampsia Early Recognition Tool (PERT) and nursing assessment protocols</p>	

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Response	Teamwork and Communication for Perinatal Safety AHRQ, 2017	Built on the foundation of TeamSTEPPS® training, the AHRQ Safety Program for Perinatal Care or SPPC is built around three program pillars: <ol style="list-style-type: none"> 1. Foster a culture of teamwork and communication 2. Implement perinatal safety bundles 3. Establish a program of in situ simulations 	
Reporting & Systems Learning			
Reporting & Systems Learning	Standardized Severe Maternal Morbidity Review ACOG, 2014	Severe maternal morbidity and mortality have been rising in the United States. To begin a national effort to reduce morbidity, a specific call to identify all pregnant and postpartum women experiencing admission to an intensive care unit or receipt of four or more units of blood for routine review has been made. While advocating for review of these cases, no specific guidance for the review process was provided. Therefore, the aim of this expert opinion is to present guidelines for a standardized severe maternal morbidity interdisciplinary review process to identify systems, professional, and facility factors that can be ameliorated, with the overall goal of improving institutional obstetric safety and reducing severe morbidity and mortality among pregnant and recently pregnant women. This opinion was developed by a multidisciplinary working group that included general obstetrician–gynecologists, maternal–fetal medicine subspecialists, certified nurse–midwives, and registered nurses all with experience in maternal mortality reviews. A process for standardized review of severe maternal morbidity addressing committee organization, review process, medical record abstraction and assessment, review culture, data management, review timing, and review confidentiality is presented. Reference is made to a sample severe maternal morbidity abstraction and assessment form.	
Reporting & Systems Learning	Society for Maternal-Fetal Medicine Special Statement: A Quality Metric for Evaluating Timely Treatment of Severe Hypertension <i>American Journal of Obstetrics and Gynecology</i> , 2022	Severe hypertension in pregnancy is a medical emergency. Although expeditious treatment within 30 to 60 minutes is recommended to reduce the risk of maternal death or severe morbidity, treatment is often delayed by >1 hour. In this statement, we propose a quality metric that facilities can use to track their rates of timely treatment of severe hypertension. We encourage facilities to adopt this metric so that future reports from different facilities will be based on a uniform definition of timely treatment.	

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Reporting & Systems Learning	ILPQC DATA FORM Adapted from CMQCC's Preeclampsia: Debrief and Chart Review Tool <i>ILPQC, 2016</i>	Sample Debrief Form for Clinical Teams (Treatment of Persistent SHTN - one page and two page version)	 ¹  ²
Reporting & Systems Learning	Inventory Of Resources For Standardized Demographic and Language Data Collection <i>CMS, 2022</i>	Collecting standardized patient demographic and language data across health care systems is an important first step toward improving population health. Comprehensive patient data on race, ethnicity, language, and disability status are key to identifying disparities in quality of care and targeting quality improvement interventions to achieve equity. Here you will find an overview of: <ul style="list-style-type: none"> • Minimum standards for data collection as outlined by the U.S. Department of Health and Human Services; • Best practices and guidelines for health care organizations in implementing standardized data collection, including information to address key challenges in collecting these data; • Training tools and webinars to help health care organizations educate their staff on the importance of standardized data collection and best practices for data collection; and • Sentinel articles and books that provide in-depth discussion of issues, challenges, recommendations, and best practices in standardized data collection. 	
Respectful, Equitable and Supportive Care			
Respectful, Equitable & Supportive Care	Implicit Bias Training (CNE and CME available) <i>March of Dimes, 2022</i>	Awareness to Action: Dismantling Bias in Maternal and Infant Healthcare™ training provides health care professionals and nursing and medical students with important insights to recognize and remedy implicit bias in maternal and infant health care settings. These actions can result in improved patient-provider communication, overall patient experience and quality of care, and a culture shift across committed organizations towards the broader goal of achieving equity.	
Respectful, Equitable & Supportive Care	Health Equity, Implicit Bias, Stigma and Antiracism <i>MDHHS</i>	The Michigan Mother Infant Health & Equity Improvement Plan (2020-2023) set a strategic vision to achieve zero preventable deaths and zero health disparities through collective action, community driven partnerships and collaboration. Set a strategic vision to achieve zero preventable deaths and zero health disparities through collective action, community driven partnerships and collaboration.	

¹One-page version

²Two-page version

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Respectful, Equitable & Supportive Care	Be a Partner in Your Care <i>AHRQ, 2017</i>	Customizable handout that educates and invites patients and their support people to be part of the care team.	@
Respectful, Equitable & Supportive Care	Reduction of Peripartum Racial and Ethnic Disparities: A Conceptual Framework and Maternal Safety Consensus Bundle <i>JOGNN, 2018</i>	The following list of available trainings and resources is not exhaustive. For in-depth, comprehensive trainings, an in-person training is the first recommended choice. The intention of this list is to provide Maternal & Infant Health programs and partners across Michigan a starting place to address and incorporate health equity into their work.	@

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