AIM

ALLIANCE FOR INNOVATION
ON MATERNAL HEALTH

Sepsis in Obstetric Care Bundle

Implementation Resources

Section	Resource	Description	Link
Readiness			
Readiness	Top 10 Pearls for the Recognition, Evaluation, and Management of Maternal Sepsis *ACOG, 2021*	Maternal sepsis is an obstetric emergency and a leading cause of maternal morbidity and mortality. Early recognition in a pregnant or postpartum patient can be a challenge as the normal physiologic changes of pregnancy may mask the signs and symptoms of sepsis. Bedside assessment tools may aid in the detection of maternal sepsis. Timely and targeted antibiotic therapy and fluid resuscitation are critical for survival in patients with suspected sepsis. Once diagnosed, a search for etiologies and early application of source control measures will further reduce harms. If the patient is in septic shock or not responding to initial treatment, multidisciplinary consultation and escalation of care is necessary. Health care professionals should be aware of the unique complications of sepsis in critically ill pregnant and postpartum patients, and measures to prevent poor outcomes in this population. Adverse pregnancy outcomes may occur in association with sepsis, and should be anticipated and prevented when possible, or managed appropriately when they occur. Using a standardized approach to the patient with suspected sepsis may reduce maternal morbidity and mortality.	
Readiness	Sepsis and septic shock in pregnancy *Contemporary OB/GYN, 2018*	Recognition and management of sepsis and septic shock in pregnant women remain a challenge, despite several advances made in the non-pregnant patient population. Recent estimates suggest that infection accounts for 12.7% of maternal mortality in the United States and among this group, 6% are characterized as having sepsis. Recent US data indicate that infection is currently the third most common cause of maternal death, and in contrast to maternal deaths from hypertensive disorders and hemorrhage, the number of deaths related to infection are increasing. This article will review how to recognize sepsis and key principles for management of the condition in pregnant patients.	

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Readiness	Current Key Challenges in Managing Maternal Sepsis *The Journal of Perinatal & Neonatal Nursing, 2021*	Sepsis resulting from maternal infection is the second leading cause of pregnancy-related death. Although screening and initial care of a septic nonpregnant patient is standardized in nonpregnant adults, many challenges exist for early recognition and management of sepsis and septic shock in the obstetric population. Because most sepsis research excludes pregnant patients, there are many challenges that contribute to a lack of standardized approach to maternal sepsis. These challenges include inconsistent early warning sign criteria, lack of validated screening tools, adaptation of bundle components for maternal physiology, delivery considerations, and knowing when to transfer the patient to a higher level of care. To overcome these challenges, reduce variation in care, and improve patient outcomes, it is important for clinicians to plan, practice, and implement a maternal sepsis bundle.	
Readiness	Practicing for Patients Core Obstetric In-Situ Drill Program Manual and Supporting Resources *AIM, 2021*	Emergencies in obstetric care occur every day. Postpartum hemorrhage results in 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.	

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Recognition			
Recognition	Improving Diagnosis and Treatment of Maternal Sepsis Toolkit *California Maternal Quality Care Collaborative (CMQCC), 2020*	The Improving Diagnosis and Treatment of Maternal Sepsis toolkit was developed by the Maternal Sepsis Task Force as a resource for obstetricians, rapid response teams, and intensive care units who interact with women during pregnancy and in the postpartum period. The toolkit introduces a new two-step screening and confirmation process to more accurately diagnose and treat maternal sepsis. Key Elements and resources include: • A two-step approach to screening •Algorithm for Maternal Sepsis Evaluation Flow Chart • Assessment and monitoring recommendations • Guidelines for distinguishing chorioamnionitis/intraamniotic infection from sepsis • Guidance on antibiotics and source control by infectious conditions The toolkit is available to download after logging into CMQCC's website. If you do not already have a CMQCC Account, you will need to complete a brief survey to initialize an account.	
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 *ENA,AWHONN, 2020**	Care of a pregnant or postpartum patient necessitates specialized education, training, and competencies that are not routinely acquired by emergency nurses. Physiologic and anatomical changes in pregnancy result in altered norms for assessment of laboratory values, electrocardiogram changes, symptom morphology, radiologic examinations, and early warning signs of compromise. In addition, there are pregnancy related disease processes that can result in critical illness and/or instability for the patient and/or fetus. Awareness of these changes, early collaboration with obstetric clinicians, and rapid use of standardized emergency protocols to stabilize the patient and fetus are essential ****Emergency nurses recognize the possibility that a woman of reproductive age, regardless of presenting symptoms, may be pregnant or may have been pregnant in the past year. Assessment(s) that establish pregnancy and postpartum status be incorporated into triage intake. Ideally, these assessment data point(s) are integrated into the electronic health record.****	

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Recognition	Sepsis Six Pathway and Inpatient Sepsis Tool *UK Sepsis Trust, 2018*	To be applied to all women who are pregnant or up to six weeks postpartum (or after the end of pregnancy if pregnancy did not end in a birth) who have a suspected infection or have clinical observations outside normal limits	
Recognition	Sepsis and Pregnancy & Childbirth *Sepsis Alliance, 2022*	Patient Education about Sepsis during pregnancy and the postpartum period - includes warning signs.	
Recognition	Perioperative Care of the Pregnant Woman - 2nd Ed *AWHONN, 2019*	This clinical practice guideline provides recommendations for the care of pregnant women having cesarean births and other surgical procedures in the general operating room (OR) based on scientific principles and empiric evidence. Updated from 2011 this evidence-based guideline provides recommendations for the care of pregnant women having cesarean births and other surgical procedures based on scientific principles and empiric evidence.	

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Response			
Response	SMFM Consult Series #47: Sepsis during pregnancy and the puerperium *SMFM, 2019*	Maternal sepsis is a significant cause of maternal morbidity and mortality and is a preventable cause of maternal death. The purpose of this guideline is to summarize what is known about sepsis and to provide guidance for the management of sepsis in pregnancy and the postpartum period. The following are SMFM recommendations: (1) we recommend that sepsis and septic shock be considered medical emergencies and that treatment and resuscitation begin immediately (GRADE 1B); (2) we recommend that providers consider the diagnosis of sepsis in pregnant patients with otherwise unexplained end-organ damage in the presence of an infectious process, regardless of the presence of fever (GRADE 1B); (3) we recommend that empiric broad-spectrum antibiotics be administered as soon as possible, ideally within 1 hour, in any pregnant woman in whom sepsis is suspected (GRADE 1B); (4) we recommend obtaining cultures (blood, urine, respiratory, and others as indicated) and serum lactate levels in pregnant or postpartum women in whom sepsis is suspected or identified, and early source control should be completed as soon as possible (GRADE 1C); (5) we recommend early administration of 1-2 L of crystalloid solutions in sepsis complicated by hypotension or suspected organ hypoperfusion (GRADE 1C); (6) we recommend the use of norepinephrine as the first-line vasopressor during pregnancy and the postpartum period in sepsis with persistent hypotension and/or hypoperfusion despite fluid resuscitation (GRADE 1C); (7) we recommend against immediate delivery for the sole indication of sepsis and that delivery should be dictated by obstetric indications (GRADE 1B).	
Response	Hear Her Campaign (CDC) *CDC, 2022*	The risk of pregnancy-related complications continues for one year after a pregnancy ends, so it's critical for any healthcare professional to identify patients who are pregnant or were pregnant in the last year and be aware of the urgent maternal warning signs from these complications. Emergency department staff, EMTs/paramedics, urgent care staff, primary care providers, mental health professionals, and many others have an important role to play in identifying pregnancy status and recognizing the signs and symptoms of complications.	

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Response	Teamwork and Communication for Perinatal Safety *AHRQ,2017*	Teamwork and Communication for Perinatal Safety: Built on the foundation of TeamSTEPPS® training, the AHRQ Safety Program for Perinatal Care or SPPC is built around three program pillars: 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	Incidence of Maternal Sepsis and Sepsis-Related Maternal Deaths in the United States *JAMA,2019*	Maternal sepsis is a leading cause of maternal morbidity and mortality. However, population-based estimates of maternal sepsis occurring after delivery hospitalization have been limited because previous studies have focused on select populations or have not followed up patients longitudinally. Thus, the burden of maternal sepsis and sepsis-related deaths may be underestimated. We assessed the nationwide incidence and outcomes of maternal sepsis within 42 days of delivery hospitalization discharge using all-payer data.	

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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	Obstetric Care Consensus #5: Severe Maternal Morbidity: Screening and Review *ACOG,2021*	Severe maternal morbidity is associated with a high rate of preventability, similar to that of maternal mortality. It also can be considered a near miss for maternal mortality because without identification and treatment, in some cases, these conditions would lead to maternal death. Identifying severe morbidity is, therefore, important for preventing such injuries that lead to mortality and for highlighting opportunities to avoid repeat injuries. The two-step screen and review process described in this document is intended to efficiently detect severe maternal morbidity in women and to ensure that each case undergoes a review to determine whether there were opportunities for improvement in care. Like cases of maternal mortality, cases of severe maternal morbidity merit quality review. In the absence of consensus on a comprehensive list of conditions that represent severe maternal morbidity, institutions and systems should either adopt an existing screening criteria or create their own list of outcomes that merit review.	

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Respectful, Equitable and Supportive Care			
Respectful, Equitable & Supportive Care	Importance of Social Determinants of Health and Cultural Awareness in the Delivery of Reproductive Health Care ACOG Committee Opinion *ACOG, 2018*	Awareness of the broader contexts that influence health supports respectful, patient-centered care that incorporates lived experiences, optimizes health outcomes, improves communication, and can help reduce health and health care inequities. Although there is little doubt that genetics and lifestyle play an important role in shaping the overall health of individuals, interdisciplinary researchers have demonstrated how the conditions in the environment in which people are born, live, work, and age, play equally as important a role in shaping health outcomes. These factors, referred to as social determinants of health, are shaped by historical, social, political, and economic forces and help explain the relationship between environmental conditions and individual health. Recognizing the importance of social determinants of health can help obstetrician–gynecologists and other health care providers better understand patients, effectively communicate about health-related conditions and behavior, and improve health outcomes.	
Respectful, Equitable & Supportive Care	Hear Her Campaign (CDC) Patient Resource materials *CDC,2022*	Talk to Your Healthcare Provider When discussing concerns with your healthcare provider, it is important to say you are pregnant or were recently pregnant. Describe any other health conditions like high blood pressure or diabetes, along with any complications you experienced with your pregnancy or delivery. If you can, bring a friend or family member with you for support and to help you ask the questions you need answered. Campaign Resources - Videos, Posters/Handouts, Shareable Graphics, Social Media and CDC Content.	
Respectful, Equitable & Supportive Care	Professional Education: Implicit Bias Training (CNE and CME available) *March of Dimes, 2022*	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.	

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Respectful, Equitable & Supportive Care	Health Equity, Implicit Bias, Stigma and Antiracism *Michigan.gov, 2020*	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.	
Respectful, Equitable & Supportive Care	Be a Partner in your Care *AHRQ, 2017*	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 *ACOG, 2018*	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.	
Respectful, Equitable & Supportive Care	Guide to Patient and Family Engagement in Hospital Quality and Safety *AHRQ, 2017*	Research shows that when patients are engaged in their health care, it can lead to measurable improvements in safety and quality. To promote stronger engagement, the Agency for Healthcare Research and Quality (AHRQ) developed a guide to help patients, families, and health professionals work together as partners to promote improvements in care.	
Respectful, Equitable & Supportive Care	AWHONN Position Statement: Racism and Bias in Maternity Care Settings *AWHONN, 2021*	The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) maintains that maternity care providers should be aware of the effect of possible implicit bias and racism on their language and actions. We commit to reflective practice, self-development, and life-long learning and to identify and mitigate the causes and outcomes of structural racism.	

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