

ABSTRACT

Maternal sepsis is the third most common cause of maternal death, contributing to about 11% of maternal deaths globally (Bonet, et al., 2018). The objective of this project was to align with the goals of the Global Maternal Sepsis Study, the American College of **Obstetricians and Gynecologists** (ACOG), and the Association of Women's Health, Obstetric, and Neonatal Nurses' (AWHONN) recommendations for early identification and management of maternal sepsis to decrease the incidence of maternal morbidity and mortality related to sepsis.

In February 2019, subject matter experts across the Baptist Health System collaborated to develop and validate specific criteria to identify sepsis and severe sepsis in the maternal population. This project resulted in an evidencebased screening tool, treatment criteria and standing orders to support the collaboration of nurses and physicians and eliminate barriers to early intervention.

The Women's and Newborns Service Line quality goal was to attain a median time from a positive sepsis screen to antibiotic administration of less than 60 minutes by June 30, 2019.

CONTACT

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INTRODUCTION

In response to recent National awareness on Obstetrical Morbidity and Mortality in the United States, the Baptist Health organization placed focus on identifying areas of OB care variation and opportunities to improve processes that lead to better outcomes for our mothers and babies.

Upon analysis of current state of Obstetrical care across our system, and taking into account factors such as the leading cause of death in the US as sepsis with incidence on the rise, and the absence of an appropriate screening tool that aligns with the normal physiologic changes occurring in pregnancy, a collaborative decision was made by the Women's and Newborn Service Line and the OB Nursing Resource Council to develop a clinically significant Maternal Sepsis Bundle geared toward early recognition and goal directed therapy for maternal sepsis.

This project focused on developing a maternal specific screening tool, Nurse driven standing orders to initiate upon positive screen, and a consolidated maternal specific treatment order set for Providers categorized by Antenatal and Postnatal infection sources.

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Maternal Sepsis Initiative

Gretchen Webb, MSN, RN, Carla Donnell, MSN, RN, Matt McDanald, MD, FACOG

SIRS CRITERIA COMPARISON

Adult Sepsis **Screening Criteria**

- Temperature > 100.9 F or 96.8 F
- Heart Rate > 90
- Respiratory Rate > 20/min
- WBC > 12,000 or < 4,000 *or* > 10% neutrophils
- SBP <90 or MAP <65
- Blood Glucose > 140 mg/dl in the absence of diabetes
- Acute mental status change
- Known or Suspected Infection

Maternal Sepsis Screening Criteria (differences noted in yellow)

- < 96.8 F
- or < 10/min
- labor & \geq 6 hour
- postpartum); WBC < 4,000 or > 10%
- neutrophils
- Blood Glucose > 140 diabetes
- Acute mental status change
- Known or Suspected Infection
- BPM for 20 mins

NPATIENT MATERNAL SEPSIS SCREENING TOOL IN EPIC					
Creening Tool Show: Last Filed Details All Choices					
Adult Sepsis Screen Maternal Sepsis Screen Maternal Sepsis Screen to be used if patient is currently pregnant and greater than or equal to 20 weeks gestational age, or if delivered during this encounter.					
yes: do not screen no					
temperature > 100.9 F or < 96.8 F HR > 110 or < 50 RR > 24/min or < 10/min WBC > 15,000 (prior to labor & > or equal to 6hrs postpart WBC > 20,000 (in labor & up to 6hrs. postpart WBC < 4,000 OR > 10% immature neutrophils (ban acute mental status change BG > 140 w/o DM SBP < 90 mmHg or MAP < 65 mmHg Fetal HR > 160bpm for 20 mins					
yes no: STOP/negative screen					
Image: sector of the sector					
yes no: STOP/negative screen					
hypotension (SBP < 90 or MAP < 65) urine output, 0.5 ml/kg/hr for 2 hrs hypoxia (O2 Sat < 90% on room air) creatinine > 2.0 mg/dL (if acute) bilirubin > 2 mg/dL (if acute) platelets < 100,000 (if acute)					
yes no					
meets criteria in sections 1 and 2 & initiate positive maternal sepsis screening tool standing orders and notify provi					
meets criteria in all 3 sections & initiate positive maternal sepsis screening tool standing orders and notify provi					

Temperature> 100.9 F or

• Heart Rate > 110 or < 50 Respiratory Rate > 24/min WBC > 15,000 (prior to > 20,000 (in labor and up to 6 hour postpartum) or

• SBP < 90 or MAP < 65

mg/dl in the absence of

Fetal Heart Rate > 160

MATERNAL SEPSIS ALGORITHM



INPATIENT NURSE BPA TO PLACE STANDING ORDERS

()	Positive Maternal Sepsis Screening - Place Standing Orders for Maternal Sepsis						
	Open Order Set	Do Not Open	Positive Maternal Sepsis Screen: Standing Or				
	Acknowledge Reason						
	Orders Already in Place	Other (See Comme	ents)				
0	Enter Comment						

rders Preview

CONCLUSIONS

The normal physiologic changes that occur during pregnancy and in the immediate postpartum stages thereafter delivery may result in a false positive screen for sepsis if the patient is assessed using the original adult sepsis screening tool.

The Pharmacy Review Committee collaborated with Dr. Barton to develop a treatment order set in the electronic health record that is evidence based and aligns with Baptist Health antibiograms and CMS Sepsis Bundle Measures.

As of July30th, the Baptist System obtained a median time of 78 minutes from positive screen to antibiotic start. Barriers to meeting goal such as live time documentation of screening by Nursing were quickly identified as negatively impacting timelines and opportunities to achieve the target median time of > 60min.

The scope of this project included education being provided to all Baptist Health's Nursing staff within Emergency Departments, Inpatient Nursing units, Antepartum units, Mother/Baby, and Labor & Delivery as well as Obstetricians, Hospitalists, and ED Providers

SPECIAL THANKS

- 1. The Women's and Newborns Service Line at Baptist Health
- 2. OB Resource Council
- 3. Dr. John R. Barton, MD, FACOG, & Chair, Kentucky Maternal Mortality Review Committee
- 4. Baptist Health Pharmacy Review Committee