



Maternal Sepsis: Take a Swing & Hit a Home Run

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OBJECTIVES

Recognition

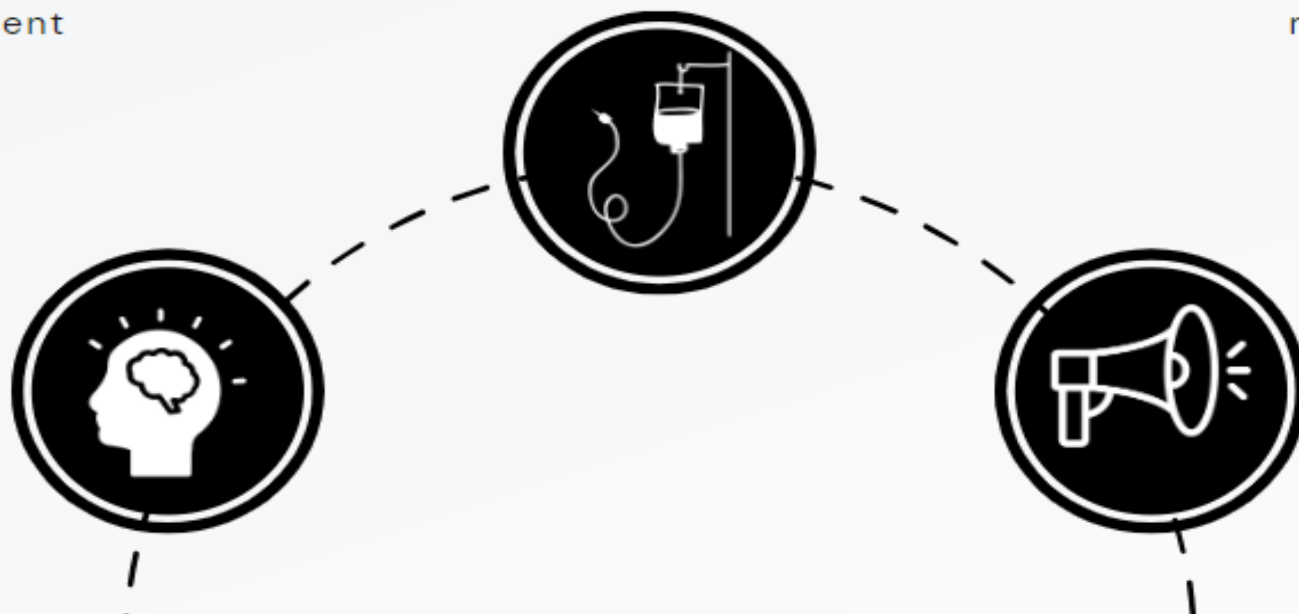
Recognize why sepsis is a serious medical complication in the pregnant and postpartum patient

Management

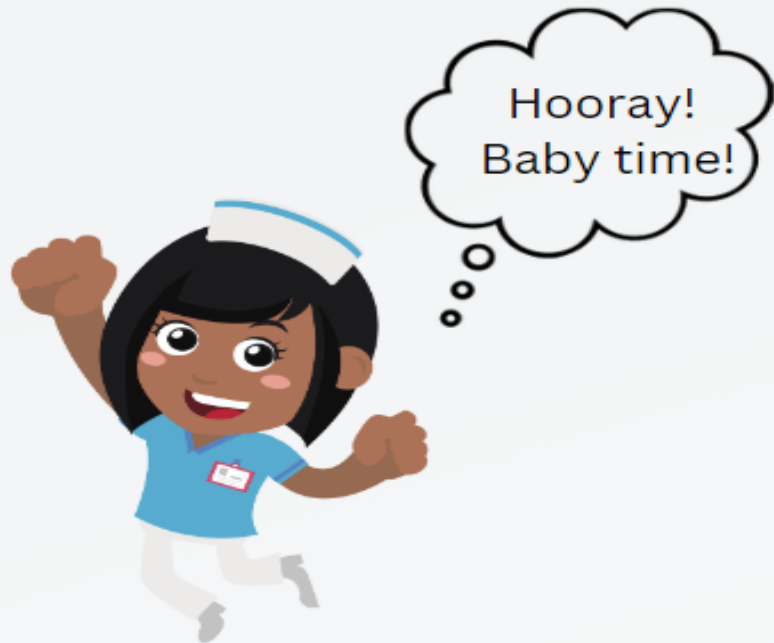
Discuss appropriate management of Perinatal Sepsis.

Prevention

Recognize early warning signs of Perinatal Sepsis and prevent morbidity and mortality related to Perinatal Sepsis.



Different Approaches to the Perinatal Patient



L&D RN



ED RN

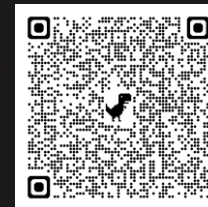
Brie and Beau's Story: Finding Inspiration

EXCLUSIVE: Pregnant mom, 35, has 4 limbs amputated due to strep infection. This was her 1st symptom

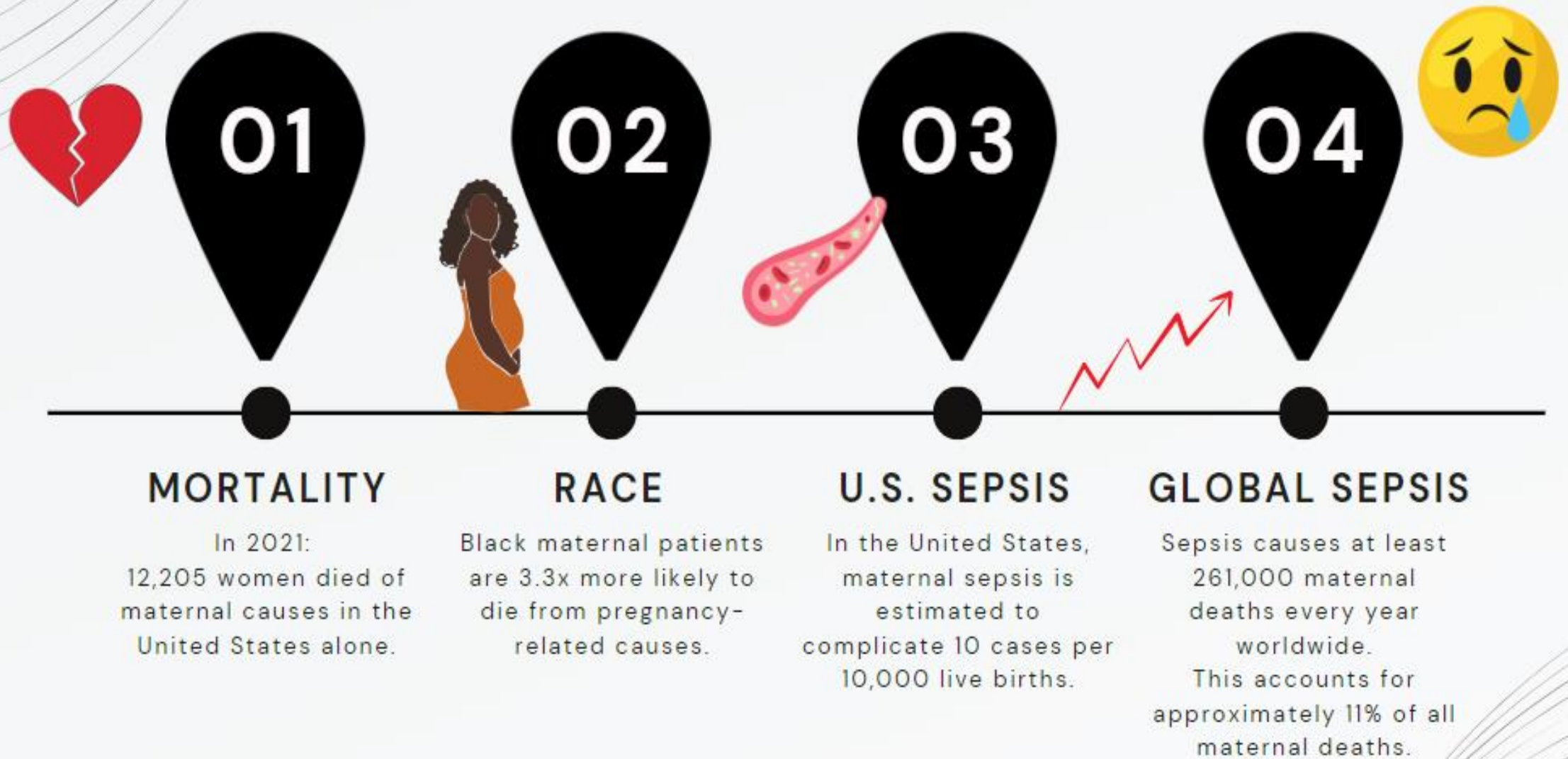


Brie and Beau
Instagram

TODAY Show
Article



Perinatal Sepsis Fast Facts



Perinatal Risk Factors for Sepsis



01

AMNIOCENTESIS



02

PRETERM LABOR/PROM/PROLONGED RUPTURED MEMBRANES



03

PERINATAL INFECTION

04

CESAREAN DELIVERY

05

INVITRO FERTILIZATION



06

MULTIPLE GESTATION

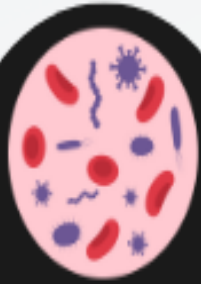


07

RETAINED PRODUCTS OF CONCEPTION



Sepsis vs Septic Shock



Life-threatening organ dysfunction caused by a dysregulated host response to infection

SEPSIS



Sepsis with circulatory and cellular or metabolic abnormalities profound enough to substantially increase mortality

SEPTIC SHOCK



**BOTH ARE
CONSIDERED
MEDICAL
EMERGENCIES**

Non-Pregnant vs Pregnant Criteria

LETS COMPARE



- Body temperature: $< 36^{\circ}\text{C}$ (98.6°F) or $\geq 38^{\circ}\text{C}$ (100.4°F)
- Heart Rate: $> 90\text{bpm}$
- Respiratory rate greater than 20 breaths/minute or partial pressure of CO_2 less than 32 mmHg
- WBC:
 - $> 12000/\text{mm}^3$ or $< 4000/\text{mm}^3$ or
 - over 10% immature neutrophils (bands)

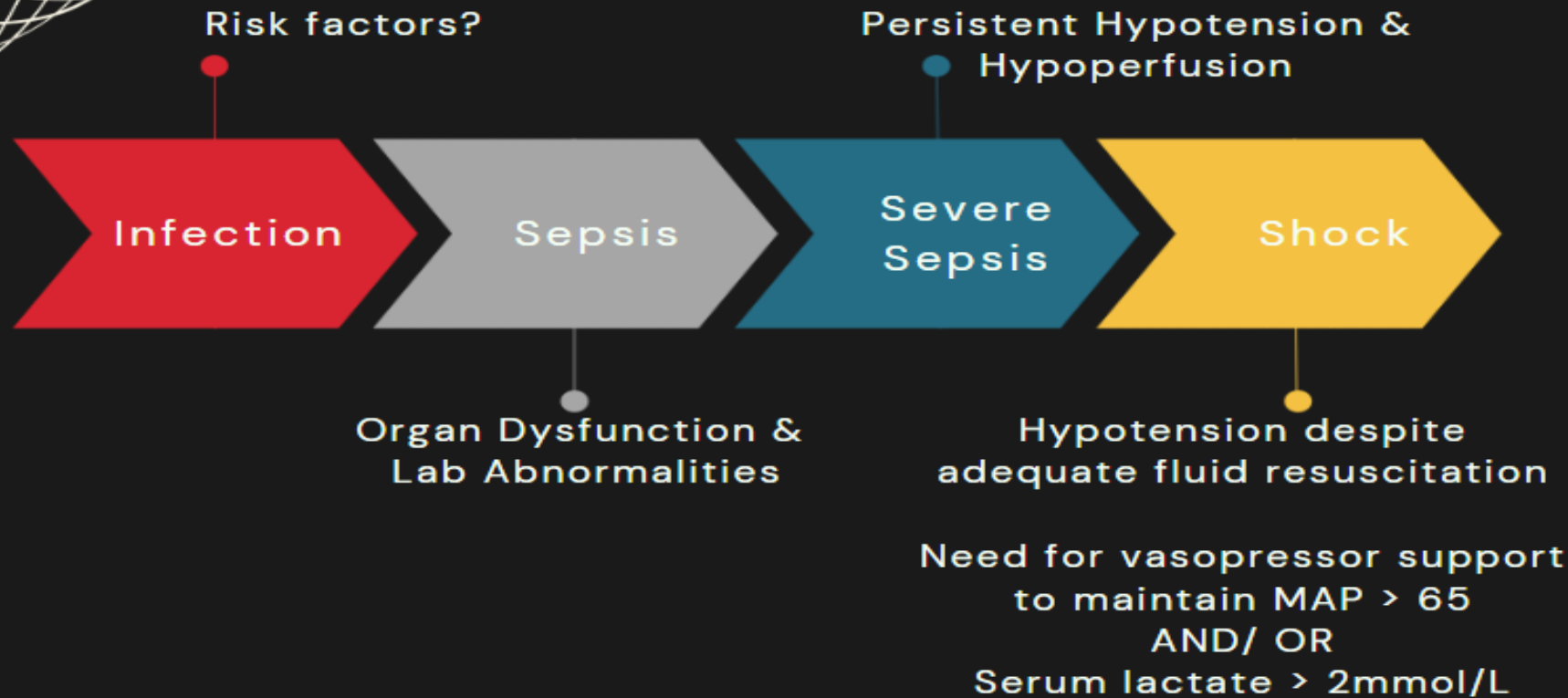
NON-PREGNANT ADULT SIRS CRITERIA



- Body temperature: $< 36^{\circ}\text{C}$ (98.6°F) or $\geq 38^{\circ}\text{C}$ (100.4°F)
- HR: > 110 beats per minute and sustained for 15 minutes
- RR: > 24 breaths per minute and sustained for 15 minutes
- WBC:
 - $> 15,000/\text{mm}^3$ or $< 4,000/\text{mm}^3$ or
 - $> 10\%$ immature neutrophils (bands)

PREGNANT ADULT SIRS CRITERIA

Infection to Sepsis Spectrum



Perinatal Sepsis Screening: Step 1



Sepsis Screen:
≥2 elements
considered positive

- Oral temperature: $< 36^{\circ}\text{C}$ (98.6°F) or $\geq 38^{\circ}\text{C}$ (100.4°F)
- HR: > 110 beats per minute and sustained for 15 minutes
- RR: > 24 breaths per minute and sustained for 15 minutes
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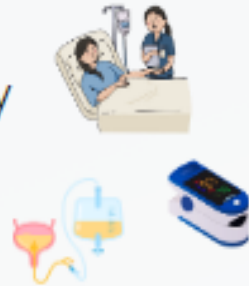


Laboratory values:

- CBC
- CMP
- Coags: PT, PTT, INR
- Lactic acid



- Bedside assessment
- Urine output
- Pulse oximetry
- Mental status assessment



If Step 1 = Positive



Step 2: Confirmation



Respiratory function

- Need for invasive or non-invasive mechanical ventilation OR
- $\text{PaO}_2/\text{FiO}_2 < 300$



Liver function

- Bilirubin $> 2 \text{ mg/dL}$



Coag studies

- Platelets $< 100 \times 10^9/\text{L}$ or
- INR: > 1.5 or
- PTT: > 60 seconds



Renal function

- Creatinine $> 1.2 \text{ mg/dL}$ or
- Doubling of creatinine or
- Urine output $< 0.5 \text{ mL/kg/hour}$ (for 2 hours)



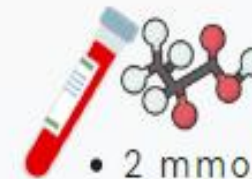
Cardiovascular function (persistent hypotension)

- SBP $< 85 \text{ mm Hg}$ or
- MAP $< 65 \text{ mm Hg}$ or
- $> 40 \text{ mm Hg}$ decrease in SBP



Mental Status

- Agitated, confused, unresponsive



Lactic acid

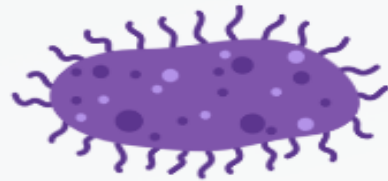
- 2 mmol/L
- Can be used for diagnosis in the absence of labor

So, How Do We Manage It?

MANAGEMENT

The 1 Hour Treatment Bundle

4 Important Steps



Ampicillin and Gentamycin cover approximately 90% of organisms that cause obstetric sepsis.

But Wait! There's More!

Monitor volume status

- MAP >65

Normalize lactate level

- <2mmol/L
- Improve tissue perfusion

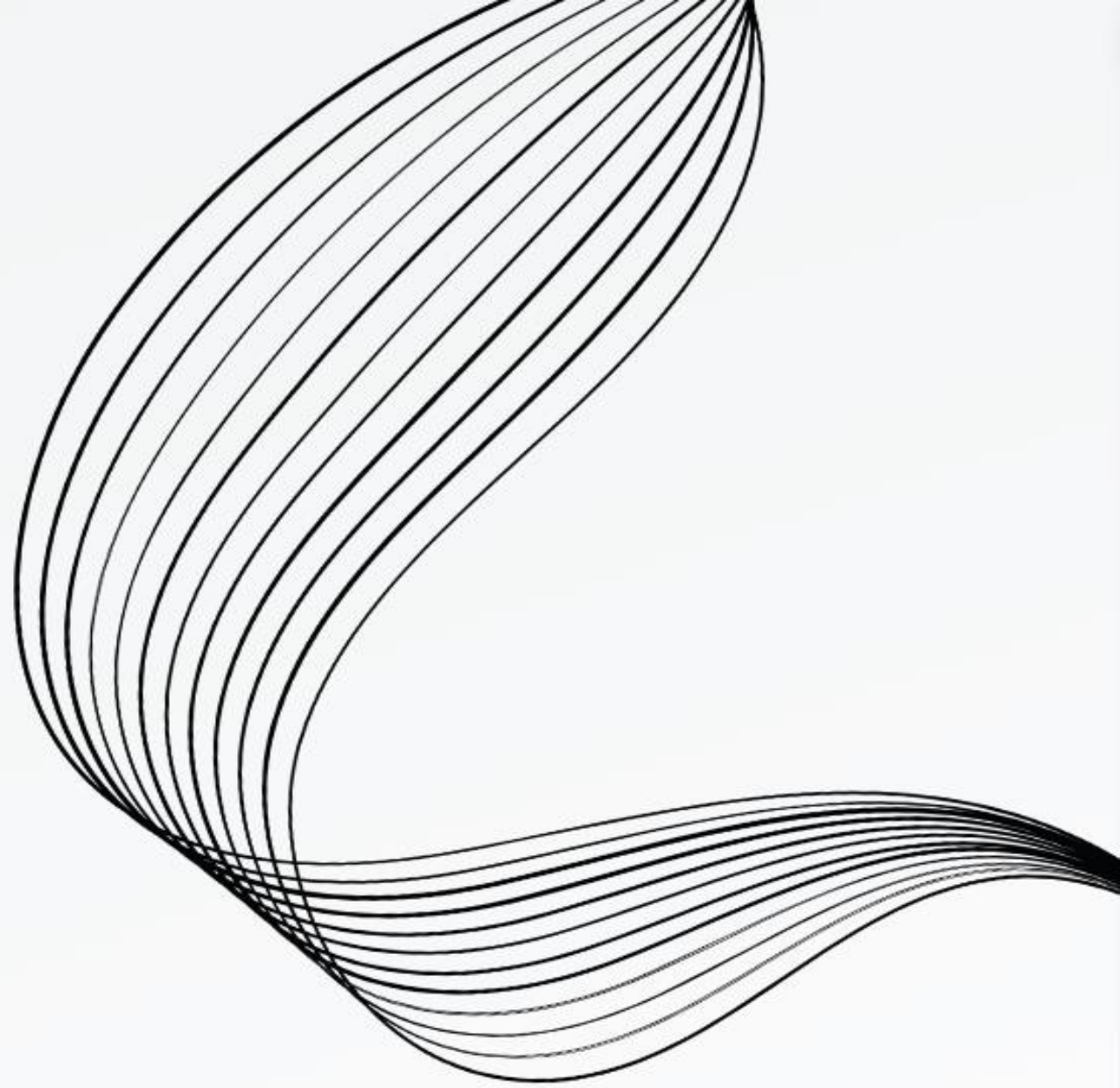


IN CONCLUSION



Perinatal Sepsis is a leading cause of maternal morbidity and mortality in the United States.

Earlier recognition, appropriate management, and increased awareness can improve outcomes for the maternal patients in our country.



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