

Review: Sepsis and Septic Shock During Pregnancy and Postpartum

Sepsis is a major challenge in maternal healthcare, serving as a large contributor of pregnancy-related morbidity and mortality. According to the 2025 clinical series by Bauer and Pacheco, sepsis complicates approximately 1 in 1,000 pregnancies and accounts for 24% of in-hospital maternal deaths. This risk intensifies following hospital discharge, with sepsis linked to 38.4% of deaths during postpartum readmissions. Despite these figures, a significant portion of these deaths are considered preventable through early identification and rapid clinical intervention.

The Challenges of Diagnosis

It can be difficult to diagnose sepsis, because it mimics the normal physiologic changes that occur in pregnancy. Standard vital sign changes in healthy pregnant patients—such as increased heart rate and respiratory rate—often mask the early warning signs. Hence, patients appear stable until they have reached an advanced disease state.

Clinicians must remain alert, carefully monitoring and looking for subtle indicators of organ hypoperfusion. For instance, difficulty obtaining a pulse oximetry reading due to a poor waveform or difficulty measuring temperature can be a sign of failing circulation. Furthermore, 20–25% of pregnant or postpartum patients with sepsis do not present with a fever or hypothermia, even in fatal cases.

How We Screen and Diagnose

There is no single screening tool for sepsis, but hospitals should adopt systems modified for the obstetric population.

- **Intrapartum Screening:** The California Maternal Quality Care Collaborative (CMQCC) and the UK Obstetric Surveillance System (UKOSS) are currently two of the most accurate detection systems.
- **Timing:** Heart rate increases gradually during pregnancy but decreases rather quickly 48–72 hours after delivery. Consequently, heart rate thresholds for sepsis in normal adults are not always accurate in the early postpartum period.
- **Sepsis 3:** the diagnosis of sepsis is clinically operationalized by a change in 2 or more points on the SOFA (Sequential Organ Failure Assessment) scale as a marker for new-onset organ injury. However, these criteria are not adjusted for pregnancy; for example, the SOFA threshold for creatinine of 2.0 is likely too high for pregnant patients whose levels are normally 0.8 or less. Additionally, variables like thrombocytopenia and mean arterial pressure thresholds in the SOFA score are not as accurate in a pregnant/postpartum population

How Do We Treat

Once sepsis is identified, the goal is for immediate hemodynamic resuscitation and the "Initial 6 Basic Steps":

1. **Broad-Spectrum Antibiotics:** Administration within one hour is critical, as every hour of delay increases mortality risk significantly.
2. **Fluid Resuscitation:** Providers should administer 1–2 liters of balanced crystalloids (like Lactated Ringers) within the first three hours to maintain a mean arterial pressure (MAP) above 65mmHg.

3. **Lactate and Cultures:** Serum lactate must be monitored, and cultures should be obtained from blood, urine, and respiratory sources prior to starting antibiotics.
4. **Vasopressors:** If fluids fail to restore MAP, norepinephrine is the first-line vasopressor and can be started peripherally to avoid delays.
5. **Source Control:** Identifying the source of infection and tailoring the antibiotics to that specific infection is key.
6. **Steroids:** For patients in septic shock, steroids like hydrocortisone can be used.

Patient Education and Long-Term Consequences

Because most sepsis cases originate outside the hospital, patient education is key. Patients and their support systems should be trained to recognize **Urgent Maternal Warning Signs**, including extreme fatigue, shortness of breath, severe pain, and fever/chills. The "Stop, Look, and Listen" campaign is highlighted as an important tool to ensure that when a patient has concerns, they are addressed thoroughly rather than dismissing symptoms as "normal" for pregnancy.

Another concern is **Postsepsis Syndrome**, which is a collection of long-term effects including cognitive dysfunction, physical weakness, and psychological sequelae. Survivors face a 4.5-times higher risk of hospital readmission and increased rates of depression, anxiety, and PTSD for up to a year following the event.

Conclusion

Managing maternal sepsis takes a coordinated approach between informed patients and clinical providers. By prioritizing early antibiotic therapy, utilizing pregnancy-specific screening tools, and providing long-term support for survivors, healthcare systems can significantly reduce the impact of this preventable condition.