

POSTette: Early Detection of Sepsis: Therapy Considerations

Sepsis is a clinical syndrome defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. The burden of sepsis is high, with over 1.7 million adult sepsis cases annually in the U.S. which contribute to 270,000 deaths.

Patients who survive sepsis often suffer long-term physical, psychological, and cognitive disabilities. Repeated sepsis admissions within one year increased from 11.5% in 2005 to 16% in 2010 and 23% in 2015-2017 in the U.S.

In-hospital mortality for adults is 29% for sepsis, 46% for severe sepsis, and 56% for septic shock. For every hour that Sepsis goes without treatment, it increases the mortality rate by 7.6%

Sepsis can be considered as a spectrum progressing from SIRS criteria establishing Sepsis to Severe Sepsis to Septic Shock.

- **SIRS** Sudden Inflammatory Response Syndrome
- **Sepsis** is the presence of infection (probable or documented) with systemic vascular manifestations of infection.
- **Severe Sepsis** is early indication of the first sign of organ dysfunction or failure. Mortality rate is 20-50%.
- **Septic shock** includes hypotension not reversed with fluid resuscitation.

Sepsis prevention relies on identifying early symptoms and acting fast!

STEPS FOR EARLY DETECTION OF SEPSIS: Measure Vital Signs

- A. Temperature
- B. Heart Rate/Pulse
- C. Respiratory Rate
- D. Blood Pressure

Take Vitals During Therapy Sessions:

- Take vitals **before** the exercise (to establish a baseline),
- **6 to 8 minutes into** the exercise and,
- **5 minutes after** the exercise (recovery).

Report any abnormal vitals to the nurse/physician/ DOR. Early diagnosis and treatment are essential to prevent septic shock and further complications.

Sepsis Early Warning Signs: Report any of these findings to the nurse and DOR immediately:

- Temperature higher than 100.4° F (38°C) or lower than 96.8° F (36°C)
- Heart rate greater than 90 beats per minute
- Respirations greater than 20 breaths per minute
- White blood cell count (WBC) higher than 12,000 or lower than 4,000
- Altered Mental Status
- SPO2 less than or equal to 90
- Decreased urine output
- From recently drawn labs (within 24 hours)
 - Creatinine > 2mg/dl
 - Bilirubin > 2mg/dl
 - Platelet count less than or equal to 100,000
 - Lactate greater than or equal to 2mmol/L

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- Coagulopathy INR greater than or equal to 1.5 or a PTT > 60 sec

NOTE: Two or more of the symptoms suggest that someone is becoming septic and needs immediate medical attention.

Symptoms of severe sepsis:

- Less urine output
- Worsening mental status
- Increased trouble breathing
- Abnormal heart beat
- Abdominal pain

Symptoms of Septic Shock

- Severe drop in blood pressure which indicates vital organs are suffering.

Sepsis-induced hypotension is defined as "the presence of a systolic blood pressure of less than 90 mm Hg or a reduction of more than 40 mm Hg from baseline in the absence of other causes of hypotension." Please notify the nurse and DOR immediately if you notice sepsis-induced hypotension.

Patients suffering from sepsis will be treated with antibiotics, intravenous fluids, and medicine to increase the blood pressure. The patients may also need surgery to remove the infected body parts.

Nursing will focus on: Blood cultures, lactate assessment, fluid resuscitation, antibiotics, and ventilation. Measurable resuscitation targets should be initiated within 3 to 6 hours depending on symptoms. Adherence to the guidelines has been shown to reduce hospital mortality from sepsis by 50%!!

Understanding the Spectrum Classification for Sepsis:

SIRS: Sudden Inflammatory Response Syndrome Criteria:

- Temperature higher than 100.4° F (38°C) or lower than 96.8° F (36°C)
- Heart rate greater than 90 beats per minute
- Respirations greater than 20 breaths per minute
- White blood cell count (WBC) higher than 12,000 or lower than 4,000 (consider immune-suppressed residents)

Sepsis:

If the resident meets TWO of the FOUR SIRS criteria, and has a **suspected** or **confirmed infection**, they would be considered **Septic**.

Severe Sepsis: Meets **two of the four SIRS**, has a suspected or confirmed infection AND new onset organ dysfunction or failure.

Septic Shock: Meet the previous criteria, have had fluid interventions and Systolic BP will not rise above 90 mm Hg.

Additional Resources:

- Vital Signs POSTette