

## 1.16 SEPSIS SYNDROME

Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.<sup>1</sup> Sepsis has various etiologies and clinical presentations. It accounts for substantial morbidity and mortality and is a leading cause of hospitalization in the United States. More than 1 million hospital discharges occur with sepsis as the primary diagnosis, and the incidence continues to rise.<sup>2,4</sup> Sepsis is the most expensive condition treated in US hospitals, and length of stay is roughly 75% longer than it is for other conditions.<sup>5,6</sup> Sepsis requires expeditious diagnosis and standardized treatment plans to favorably influence patient morbidity and mortality. The in-hospital mortality rate for sepsis varies depending on disease severity and is approximately 16%.<sup>5</sup> Septic shock is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality.<sup>1</sup> Hospitalists have a key role in the early identification of patients with sepsis, and they practice evidence-based evaluation and interventions such as early goal-directed therapy for patients with sepsis and septic shock. Hospitalists lead their institutions to implement early diagnostic strategies, initiate evidence-based medical therapies, and incorporate multidisciplinary approaches to the care of patients with sepsis.

**KNOWLEDGE**

*Hospitalists should be able to:*

- Define and differentiate sepsis and septic shock from uncomplicated infection.
- Describe prognostic scoring tools used to assess morbidity and mortality in patients with sepsis, such as the Sequential Organ Failure Assessment (SOFA) and Quick SOFA (qSOFA) scores, and the systemic inflammatory response syndrome (SIRS) criteria.
- Describe the pathobiology that leads to sepsis and septic shock.
- Differentiate septic shock from other causes of shock.
- Recognize the value and limitations of the history and physical examination in determining the cause of sepsis.
- Recognize the indications for specialty consultations, which may include critical care medicine.
- Identify patient groups with increased risk for the development of sepsis, increased morbidity or mortality, or uncommon etiologic organisms.
- Describe the elements and efficacy of early goal-directed therapy for the treatment of sepsis and septic shock.
- Describe the mechanism of action, indications, contraindications, and adverse effects of therapeutic agents, including intravenous fluids, vasopressors, and antimicrobials, in the treatment of sepsis.
- Describe the indications for and limitations of central venous access and its value for hemodynamic monitoring and administration of vasoactive agents.
- Explain patient characteristics that on admission portend poor prognosis.

- Explain goals for hospital discharge, including specific measures of clinical stability for safe care transition.

**SKILLS**

*Hospitalists should be able to:*

- Use all available information, including medical records and history provided by the patient and caregivers, to identify factors that contribute to the development of sepsis.
- Perform a rapid and targeted physical examination to identify potential sources of sepsis.
- Order indicated diagnostic testing to identify the source of sepsis and determine severity of organ dysfunction.
- Rapidly identify patients with septic shock and aggressively treat in parallel with transfer to a critical care setting.
- Assess cardiopulmonary stability and implement aggressive fluid resuscitation, airway maintenance, and circulatory support.
- Measure and interpret indicated hemodynamic monitoring parameters.
- Initiate empiric antimicrobial therapy on the basis of the suspected etiologic source of infection.
- Assess the need for central venous access and monitoring; when needed, coordinate or establish central venous access.
- Determine or coordinate appropriate nutritional and metabolic interventions.
- Support organ function and correct metabolic derangements when indicated.
- Implement measures to ensure optimal glycemic control.
- Adopt measures to prevent complications, which may include aspiration precautions, stress ulcer and venous thromboembolism prophylaxis, and decubitus ulcer prevention.
- Communicate with patients and families to explain the history and prognosis of sepsis and indicators of functional improvement or decline.
- Communicate with patients and families to explain tests and procedures and their indications and to obtain informed consent.
- Address resuscitation status early during hospital stay and discuss and implement end-of-life decisions by patient or family when indicated or desired.
- Communicate with patients and families to explain the goals of care, clinical stability criteria, discharge instructions, and management after hospital discharge to ensure safe follow-up and transitions of care.

**ATTITUDES**

*Hospitalists should be able to:*

- Employ an early and multidisciplinary approach, which may include respiratory therapy, nursing, pharmacy, nutrition, rehabilitation and social services, that begins at

admission and continues through all care transitions.

- Follow evidence-based recommendations to guide diagnosis, monitoring, and treatment of sepsis.
- Establish and maintain an open dialogue with patients and families regarding care goals and limitations, including palliative care and end-of-life wishes.
- Value good communication with patients and receiving physicians during care transitions.

### SYSTEM ORGANIZATION AND IMPROVEMENT

To improve efficiency and quality within their organizations, hospitalists should:

- Lead, coordinate, and/or participate in multidisciplinary teams, which may include nutrition, pharmacy, rehabilitation, social services, and respiratory therapy, early in the hospital course to improve patient function and outcomes.
- Lead, coordinate, and/or participate in the development and promotion of guidelines and/or pathways that facilitate efficient and timely evaluation and treatment of patients with sepsis.
- Lead, coordinate, and/or participate in multidisciplinary initiatives to promote patient safety and optimize resource use.
- Lead, coordinate, and/or participate in intrainstitutional and interinstitutional efforts to develop protocols for the

rapid identification and transfer of patients with sepsis to appropriate facilities.

- Implement systems to ensure hospital-wide adherence to national standards and document those measures as specified by recognized organizations.
- Integrate outcomes research, institution-specific laboratory policies, and hospital formulary to create indicated and cost-effective diagnostic and management strategies for patients with sepsis.

### References

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