Sepsis: Diagnosis and Management - Adult - Inpatient/Emergency Department Guideline Summary

Target Population: Adult patients age 18 years or older who present with suspected or confirmed sepsis, severe sepsis, or septic shock in the ED or following inpatient admission.

Link to Full Guideline: Sepsis: Diagnosis and Management—Adult—Inpatient/Emergency Department

Key Definitions

- **Sepsis**: Suspected source of clinical infection and ≥ 2 SIRS criteria.*
- **Severe Sepsis**: Suspected source of clinical infection, ≥ 2 SIRS criteria, and the presence of sepsis-induced organ dysfunction not attributed to baseline medical condition or medication (e.g., CKD or use of warfarin).
- **Septic Shock**: Severe sepsis with sepsis-induced hypoperfusion, using markers of either SBP < 90 mm Hg or MAP < 65 mm Hg persisting despite adequate fluid resuscitation **OR** lactate ≥ 4 mmol/L (regardless of timing of fluid administration).

***Note:** Documentation of sepsis using the SOFA or qSOFA score alone is inadequate. These tools may be used adjunctively to support stratification of patients following initial identification/documentation via SIRS criteria.

Blood pressure thresholds for sepsis-induced hypoperfusion should not be attributable to baseline medical condition, medication, or individual patient state (e.g., patients with end-stage liver disease and/or cirrhosis).

SIRS Criteria	Sepsis-induced organ dysfunction
Core temp. < 36°C (96.8°F) or > 38°C (100.4°F)	SBP < 90 mm Hg
	MAP < 65 mm Hg
Heart rate > 90 bpm	Cr > 2.0 mg/dL or increase of > 0.5 mg/dL from previous value
	Urine output < 0.5 mL/kg/hr for > 2 hours
Respiratory rate > 20 breaths/min or paCo2 < 32 mmHg or the requirement of invasive mechanical ventilation for an acute process	Bilirubin > 2.0 mg/dL
	Platelets < 100,000/μL
	INR > 1.5 or PTT > 60 secs
	Lactate above upper limits laboratory normal (e.g., > 2.0 mmol/L)
WBC > 12 x 10^9 mm^3 or < 4 x 10^9 mm^3 or > 10% immature band forms	Acute respiratory failure with invasive or non-invasive ventilation

Within 3 hours of presentation

- Assess level of shock by measuring lactate level.
- Obtain blood culture prior to initiating antimicrobial therapy if culture will not cause significant delay in administration.
- Administer IV antimicrobial within first hour of recognition.
- Patients with suspected or confirmed severe sepsis and hypotension or elevated lactate (≥ 4 mmol/L) should receive in total a minimum of 30 mL/kg (total body weight) IV fluid challenge, generally administered as quickly as possible.

Within 6 hours of presentation

- Repeat lactate monitoring within six hours of an initial elevated level (> 2.0 mmol/L) in all patients with severe sepsis or septic shock.
- Vasopressor therapy may be applied in patients with septic shock following initial fluid challenge to initially target a MAP of 65 mm Hg.
- Reassess tissue perfusion (i.e., lactate level) after initial fluid resuscitation in patients with septic shock.

Corticosteroids and Vitamin Infusion Therapy

1) If adequate fluid resuscitation and vasopressor therapy restore a patient's hemodynamic stability, IV hydrocortisone is not suggested as a treatment for sepsis.
2) Corticosteroids should not be administered for the treatment of sepsis in the absence of shock. For patients with septic shock, consider IV hydrocortisone, ascorbic acid, and thiamine with following dosing:
   - Hydrocortisone 50 mg every 6 hours
   - IV ascorbic acid 1.5 grams every 6 hours
   - IV thiamine 200 mg every 12 hours

Relevant Links

UW Health Pharmacokinetic/Pharmacodynamic Dose Optimization of Antibiotics for the Treatment of Gram-Negative Infections – Adult – Inpatient Clinical Practice Guideline

UW Health antibiograms

UW Health Renal Function-Based Dose Adjustments clinical practice guideline

Burn Patient Care: Sepsis: Diagnosis and Management - Adult - Inpatient/Emergency Department Guideline Summary

Target Population: Adult patients age 18 years or older who present with suspected or confirmed sepsis and have burns >15-20% TBSA

Link to Full Guideline: Sepsis: Diagnosis and Management—Adult—Inpatient/Emergency Department

Key Differences

- **Have persistent SIRS due to exposure to inflammatory mediators and pathogens from burn injury**
- **Screening:** Sepsis may be delayed for weeks or months after the initial injury. Risk remains as long as the wounds remain open. Continually screen for sepsis.
- **Septic Shock**: Sepsis from burn criteria with refractory hypotension. Lactic acid is not accurate measure of sepsis severity in burn patients.
- Additional considerations for fluid resuscitation: base on age, fluid creep, insensible loss from wounds, cardio and/or renal function. Fluid resuscitation will be guided by burn resuscitation management.

Diagnosis of Sepsis in burn patient

Required: Documentation of infection: Culture positive, pathologic tissue source identified, or clinical response to antimicrobials
Temperature > 39°C (102.2°F) or < 36.5°C (97.7°F)
Progressive tachycardia, heart rate > 110 bpm
Progressive tachypnea > 25 breaths/min or >12 L/min ventilation
Thrombocytopenia < 100,000 /mcL (after first 3 days post burn)
Hyperglycemia (plasma glucose > 200 mg/dl, IV insulin > 7 units/hr, or significant insulin resistance >25% increase in insulin requirements in 24 hours) in absence of history of diabetes
Intolerance of enteral tube feedings > 24 hours (abdominal distension, residuals 2 times feeding rate, uncontrollable diarrhea > 2500 mL/day)

Antimicrobial Therapy

- Obtain culture prior to initiating antimicrobial therapy if culture will not cause significant delay in administration.
- Administer IV antimicrobial within first hour of recognition of sepsis.
- **Empiric therapy**: anti-pseudomonal β-lactam and anti-MRSA agent
  - **cefepime and vancomycin** (piperacillin/tazobactam and vancomycin may be considered, but increased risk of AKI).
  - **Tobramycin** may be added if patient is severely ill or unresponsive to IV antibiotic treatment and source control.

Burn Excision

- Most common presentation is cellulitis of surrounding tissues, wound changes, exudates, and odor changes.
- Wounds may show progression from partial to full-thickness necrosis.
- Debridement of infectious and necrotic tissue is recommended with follow up exam within 24-48 hours.

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