ADULT SEPSIS AND SEPTIC SHOCK: SCREENING, EARLY INTERVENTION AND RESUSCITATION

ALS 2025
REFERENCE CARD

- Use screening tools such as SIRS, NEWS, MEWS and qSOFA* to identify sepsis/septic shock
- Perform primary assessment (**A**irway, **B**reathing, **C**irculation, **D**isability, **E**xposure) and emergent/initial interventions, if not already done
- Rapidly identify and control source of infection, if possible
- Obtain vascular access, clinically relevant laboratory studies, lactate and blood cultures
  - Re-measure lactate if initial lactate is elevated > 2.0 mmol/L
  - Consider alternative causes of elevated lactate
  - Do not delay antimicrobials to obtain cultures
- Perform secondary assessment as patient condition allows

Sepsis?

High likelihood

A

Immediately; Ideally Within 1 Hour of Recognition

- Ensure adequate airway, oxygenation, ventilation and perfusion, if not already done
  - Consider high-flow nasal oxygen, noninvasive ventilation or invasive ventilation with low tidal volume (6 mL/kg)
- If shock/hypoperfusion: Administer 30 mL/kg of **balanced IV crystalloid fluid** (Lactated ringers, Plasma-Lyte A); complete infusion within 3 hours
- Administer **broad spectrum IV antimicrobials**

Hypotension (MAP < 65 mmHg) despite IV fluid?

YES → See reverse side

NO

Continue monitoring and re-evaluate patient:

- Guide resuscitation with lactate level, capillary refill time and changes in dynamic measures
- Titrate medications and continue interventions as appropriate

Low likelihood

Shock present?

YES (sepsis suspected) → **A**

YES (sepsis not suspected) → Evaluate for other causes of shock

NO

Within 3 Hours of Presentation

- Perform ongoing assessments
- Rapidly test for infectious versus noninfectious causes of acute illness
- Immediately treat for acute conditions that mimic sepsis

Sepsis identified?

NO → Follow appropriate code cards

YES → Go to **A**

Care Note

- Rapidly identify or exclude specific diagnoses of infection and implement any required source control interventions as soon as logistically practical.
- Promptly remove IV access that may be source of infection after new access has been established.

Sepsis Mimics

Pulmonary embolism, diabetic ketoacidosis, adrenal insufficiency, anaphylaxis, pancreatitis, bowel obstruction, hypovolemia, vasculitis, toxin ingestion/withdrawal or medication effect.

* qSOFA should not be used as a single screening tool for sepsis or septic shock.

Antimicrobial Therapy: Timing, Dose and Duration

- Initiate antimicrobial coverage based on suspected source and institutional protocols:
  - For septic shock, administer broad spectrum IV antimicrobials **immediately**, ideally within 1 hour of recognition of sepsis/septic shock
  - For possible sepsis, administer broad spectrum IV antimicrobials **within 3 hours** if concern for infection persists
- When using a beta-lactam antibiotic, use a prolonged infusion for maintenance after an initial bolus; use specific pharmacokinetic/dosing guidance for different drugs/drug classes

Antimicrobial Therapy: Guidelines For Sepsis/Septic Shock

Methicillin-resistant *Staphylococcus aureus* (MRSA)

- High risk: Use empiric antimicrobials with MRSA coverage
- Low risk: Use antimicrobials without MRSA coverage

Multidrug resistance (MDR) organisms

- High risk: Use two antimicrobials with gram-negative coverage for empiric treatment
- Low risk: Use one gram-negative antimicrobial

Fungal infection

- High risk: Use empiric antifungal coverage

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Hypotension (MAP < 65 mmHg) or signs of poor perfusion despite IV fluid resuscitation

- Administer **norepinephrine** as first-line vasopressor
- If no central line, consider short-term peripheral administration in a vein proximal to antecubital fossa
- Consider invasive monitoring of arterial blood pressure

Persistent hypotension (MAP < 65 mmHg)?

- YES → Consider adding **vasopressin**
- NO → Maintain on low-to-moderate dose **norepinephrine**

Persistent hypotension YES (MAP < 65 mmHg)?

- YES →
  - **Without cardiac dysfunction:** Add **epinephrine**
  - **With cardiac dysfunction:** Consider adding **dobutamine** or switching to **epinephrine**
  - Consider adding IV **corticosteroids** for patients requiring ongoing vasopressor therapy
    - Consider adding hydrocortisone when the dose of norepinephrine or epinephrine is ≥ 0.25 mcg/kg/min at least 4 hours after initiation
- NO → Maintain on low-to-moderate dose **norepinephrine**

Continue monitoring and re-evaluate patient:

- Continue to ensure adequate airway, oxygenation, ventilation and perfusion
- Guide additional fluid resuscitation with lactate level, capillary refill time and changes in dynamic measures
- Titrate medications and continue interventions as appropriate
- Continue assessment for etiology of sepsis and shock and direct therapy accordingly
- Continue source control
- Continue to assess for comorbidities and complications
- Obtain further diagnostic laboratory studies as clinically indicated

Go to B

B

Provide ongoing care (goal = ICU within 6 hours as needed)

- Continue to ensure adequate airway, oxygenation, ventilation and perfusion; conduct daily assessment for de-escalation of oxygenation and ventilation support
- Continue source control
- Adjust vasopressors as clinically indicated
- Manage blood glucose levels:
  - Initiate insulin therapy at a blood glucose level of ≥ 180 mg/dL
  - Following the initiation of **insulin therapy**, a typical target blood glucose range is 144 to 180 mg/dL
- Treat comorbidities
- Ensure adequate nutritional support
- Conduct a daily assessment for antimicrobial de-escalation

Medications	Administration
Crystalloid fluid bolus	30 mL/kg IV/IO
Norepinephrine	0.1 to 0.5 mcg/kg/min (2 to 80 mcg/min) IV/IO
In settings where norephinephrine is not available, epinephrine or dopamine can be used as an alternative.	
Vasopressin	0.01 to 0.04 units/min (usual dose: 0.03 units/min) IV/IO
Vasopressin is usually started when the dose of norephinephrine is in the range of 0.25 to 0.5 mcg/kg/min.	
Epinephrine	0.01 to 0.5 mcg/kg/min (2 to 10 mcg/min) IV/IO
Dobutamine	2 to 20 mcg/kg/min IV/IO
Dopamine	2 to 20 mcg/kg/min IV/IO
IV Hydrocortisone	50 mg IV every 6 hours or as a continuous infusion of 200 mg/day
For IV hydrocortisone, higher doses may be used if clinically indicated.	

Dynamic Parameters

For adults with sepsis/septic shock, dynamic measures are recommended to guide fluid resuscitation over physical examination or static parameters alone. Dynamic parameters that may be assessed following passive leg raise or a fluid bolus include:

- Stroke volume (SV)
- Stroke volume variation (SVV)
- Pulse pressure variation (PPV)
- Echocardiography, where available

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