

Severe Sepsis and Septic Shock (Adult and Pediatric)

CRITERIA

- This protocol is for patients with systemic inflammatory response syndrome (SIRS) due to a presumed infection (i.e. sepsis). Patients with shock due to specific reasons (e.g. trauma, cardiac, dysrhythmia, anaphylaxis) should be treated accordingly
- Adult and pediatric patients are considered to be severely septic and/or in septic shock if they have the following criteria:
 - Presumed infection AND
 - ANY TWO of the following clinical abnormalities:

	ADULT	PEDIATRIC
Abnormal Vital Signs	Heart rate > 110 beats/min	High heart rate (age dependent)
	Respiratory rate > 20 breaths/min OR ETCO ₂ < 30 mmHg	High respiratory rate (age dependent)
	SBP < 90 mmHg OR MAP < 65 mmHg	
Abnormal Temperature	Skin: Tactile fever OR hypothermia; OR temperature > 100.4°F (38°C), if thermometer is available	
Signs/Symptoms/ Abnormal Laboratory Values	Altered mental status	Altered mental status (lethargy, irritability)
	White blood count > 12,000 cells/mm ³ or < 4,000 cells/mm ³ or > 10% bands, if available	Poor perfusion
		Need for high concentration oxygen
	Point of care lactate > 4 mmol/l	

CFR and All Provider Levels

1. ABCs and vital signs
2. Administer oxygen

CFR STOP

EMT

3. Obtain blood glucose level and treat as needed
4. Request ALS assistance
5. Transport

EMT STOP

Paramedic

6. Perform advanced airway management as needed
7. Begin cardiac monitoring
8. Perform, record and evaluate EKG rhythm
9. For adult patients, obtain intravascular access via either large bore IV or IO. Consider intraosseous access for pediatric patients if needed
10. Administer crystalloid fluids 20 ml/kg IV
11. For **ADULT** patients who remain in shock after the initial 20 ml/kg IV bolus, administer one of the following to maintain SBP > 90 mmHg or MAP > 65 mmHg:
 - OPTION A: Additional crystalloid fluids 20 ml/kg IV (cumulative fluid bolus 40 ml/kg)
 - OPTION B: Norepinephrine 2 mcg/min continuous IV infusion (maximum 20 mcg/min).
Titrate as needed every 3-5 minutes
 - OPTION C: Epinephrine 10 mcg IV over 1 minute. Repeat as needed every 3-5 minutes
11. Monitor vital signs every 2-3 minutes

Paramedic STOP

Medical Control Options

12. Administer additional dosing of any standing order medication
13. For **ADULT** patients administer Vasopressin 0.02 units/min continuous IV infusion (maximum 0.04 units/min) to maintain SBP > 90 mmHg or MAP > 65 mmHg. Titrate as needed every 3-5 minutes
14. For **PEDIATRIC** patients administer one of the following to maintain minimum age-appropriate blood pressure:
 - OPTION A: Additional crystalloid fluids 20 ml/kg IV (cumulative fluid bolus 40 ml/kg)
 - OPTION B: Epinephrine 5 mcg IV over 1 minute. Repeat as needed every 3-5 minutes
 - OPTION C: Norepinephrine 0.05 mcg/kg/min continuous IV infusion
(maximum 20 mcg/min). Titrate as needed every 3-5 minutes

Key Points / Considerations

- Peri-intubation hypotension may lead to patient decompensation and/or cardiac arrest. Attempt to improve blood pressure via crystalloid fluid infusion and/or vasopressors prior to intubation
- Continuous vasopressor infusions must be administered using an IV flow regulating device or IV infusion pump