



# EMSA-Intermediate Treatment Protocol 5108

## Hypoperfusion (Shock)

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Shock, or hypoperfusion, is decreased effective circulation causing inadequate delivery of oxygen to tissues. Signs of early (compensated) shock include tachycardia, poor skin color, cool/dry skin, and delayed capillary refill. Systolic blood pressure is normal in early shock. In late (decompensated) shock, perfusion is profoundly affected. Signs include low blood pressure, tachypnea, cool/clammy skin, agitation, and altered mental status.

Shock is categorized as: 1) hypovolemic, 2) distributive, or 3) cardiogenic.

- A. If trauma, perform **TAMP Protocol 5101**. If medical, perform **MAMP Protocol 5201**.
- B. Determine most likely cause of shock.
  1. Hypovolemic (loss of fluid) is **most common**. Usually from bleeding or vomiting and diarrhea.
  2. Distributive (loss of vascular tone) is usually from sepsis (infection). Other causes include anaphylaxis, toxic chemicals, or spinal cord injury.
  3. Cardiogenic (heart pump failure). Most common cause in adults is acute MI or CHF. Is rare in children.
- C. If hypovolemic shock is suspected (most common):
  1. If associated with trauma, refer to **TAMP Protocol 5101**.
  2. Monitor vital signs, ECG, and pulse oximeter.
  3. Expedite transport.
  4. As soon as possible without delaying transport, establish two (2) IV lines of normal saline with as large a catheter as possible up to a 14 gauge.
  5. If systolic blood pressure <90 or patient has other signs and symptoms of shock such as tachycardia, delayed capillary refill, cool/clammy skin, or altered mental status, then administer 20 ml/kg normal saline IV set to maximum flow rate up to 2 liters and reassess.



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6. If on reassessment blood pressure is still  $<90$  or other signs and symptoms of shock are still present, then contact Medical Command and reconsider causes.
7. If still felt to be hypovolemic shock:

a. Repeat 20 ml/kg normal saline IV **per order of Medical Command.**



b. Consider MAST, if indicated, **per order of MCP** (see Special Notes below).



c. Continue treatment **per MCP orders.**

8. If blood pressure  $>90$  systolic and patient has no other signs or symptoms of shock, administer 100 ml/hour normal saline IV and continue to monitor patient.
- D. If distributive shock is suspected:
1. If anaphylaxis or allergic reaction, refer to **Allergic Reaction/Anaphylaxis Protocol 5501.**
  2. Initial treatment same as hypovolemic shock above.
  3. If hypotension (BP  $<90$  systolic) and other signs and symptoms of shock persist after administration of second 20 ml/kg normal saline bolus, then:
    - a. Reassess that shock is distributive and not from untreated hypovolemia.



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- b. Repeat 20 ml/kg normal saline IV **per order of Medical Command.**
- c. Consider MAST, if indicated, **per order of MCP** (see Special Notes below).



E. If cardiogenic shock is suspected:

1. Immediate transport.
2. Establish IV normal saline and administer cautious fluid bolus of 250 ml.
3. Reassess appearance, vital signs, and signs and symptoms of shock.
4. If there is no rhythm disturbance and patient remains poorly perfused after the initial fluid bolus:

- a. Contact Medical **Command and consider repeat 250 ml. fluid** bolus per MCP order.



### Special Notes:

1. Patients with distributive shock from infection may also have hypovolemia from vomiting, diarrhea, and poor fluid intake.