



Portage County EMS Patient Care Guidelines



Hypovolemia, Shock and Suspected Sepsis

Note:

- Shock is a state of decreased tissue oxygenation. Significant vital organ hypoperfusion may be present without hypotension. Home medications and/or comorbidities may also limit development of tachycardia
- Goal is to maximize oxygen delivery with supplemental oxygen and assisted ventilations (if needed), and to maximize perfusion with IV fluids.
- Consider the etiology of your patient's shock state, which may have specific treatments. Consider chronic steroid users at risk for adrenal insufficiency causing their hypotension.

Priorities	Assessment Findings
Chief Complaint	Variable based on etiology
LOPQRST	Identify onset, duration, progression and provocation.
AS/PN	Fever/chills, chest pain (angina), trauma
AMPL	Pertinent past history and medications may provide important clues.
Initial Exam	ABCs and correct immediately life-threatening problems.
Detailed Focused Exam	Vital Signs: BP, HR, RR, Temp, SpO2 General Appearance: Does the patient appear ill? External hemorrhage? Skin: Pale, cool, and moist? Flushed, warm and dry? Chest: Labored breathing? Lungs: Wheezes, rales or rhonchi? Heart: Rate and rhythm? Abdomen: Internal hemorrhage? Tender? Distended? GI blood loss? Extremities: Trauma? Edema? Neuro: ALOC?
Data	SpO2, 12-lead EKG, Blood glucose
Goals of Therapy	Maintain adequate perfusion
Monitoring	Blood pressure, heart rate cardiac rhythm, capnography and SpO2

EMERGENCY MEDICAL RESPONDER/ EMERGENCY MEDICAL TECHNICIAN

- Routine Medical -or- Trauma Care
- Control external hemorrhage
- Secure and maintain airway
 - Place non-visualized airway, if indicated
- Administer oxygen 2 – 4 LPM per nasal cannula if SpO2 < 94%. Increase flow and consider non-rebreather mask to keep SpO2 > 94%
- Keep patient flat with lower extremities elevated (if possible)
 - Place patient in left lateral recumbent position if in third trimester of pregnancy
- Splint fractures
- Conserve body temperature, and reassure patient
- Remove all transdermal medication patches using gloves

Give a status report to the ambulance crew by radio ASAP.

ADVANCED EMERGENCY MEDICAL TECHNICIAN

- IV/IO normal saline
- If SBP < 90 mmHg, initiate a fluid bolus of normal saline: 1 liter (PEDS 20 ml/kg)
 - Repeat boluses (Max 3 boluses) to maintain a SBP of 90 mmHg
 - Contraindicated in patients with signs or symptoms of pulmonary edema

Contact Medical Control for the following:

- Need for additional fluid boluses

INTERMEDIATE

- Obtain and interpret 12-lead EKG. Transmit to receiving facility.
- Identify possible septic shock[1]
 - The initial treatment of septic shock involves maximizing perfusion with IV/IO fluid boluses, not vasopressors

Contact Medical Control for the following:

- Additional orders

PARAMEDIC

- Consider RSI/RSA[2]
- Consider **norepinephrine** (preferred) in the non-trauma patient for persistent hypotension or MAP[3] < 60 mmHg after the administration of a reasonable fluid bolus (minimum of 250 ml).
 - Start at 0.5 – 2 mcg/kg/min and titrate in 5 mcg/min increments to a systolic BP > 90 mmHg or a MAP ≥ 60 mmHg with good patient mentation
 - Continue fluid administration and norepinephrine titration.
 - If signs of pulmonary edema develop, decrease fluids to KVO.
- Consider **dopamine** for persistent hypotension after maximum dose of norepinephrine
 - Continue norepinephrine at the maximal dose
 - Start at 10 mcg/kg/min and titrate in 5 mcg/kg/min increments to a systolic BP > 90 mmHg or a MAP ≥ 60 mmHg with good patient mentation, to a maximum of 20 mcg/kg/min
 - Continue fluid administration and dopamine titration.
 - If signs of pulmonary edema develop, decrease fluids to KVO.

Contact Medical Control for the following:

- Additional orders

FOOTNOTES:

[1] Septic shock is defined by:

- Suspected infection AND
- Signs of hypoperfusion (hypotension or elevated venous lactate) AND
- Presence of 2 or more Systemic Inflammatory Response Syndrome (SIRS) criteria:
 - HR > 110
 - RR > 24
 - Temp > 100.4° or < 96.8° F

[2] RSI/RSA requires 2 qualified paramedics at the patient's side

[3] $MAP = (SBP + 2*DBP)/3$

Date of Origin: 3/25/14 Date of This Revision: Date of Review:	Medical Director Approval: Electronically Signed Timothy Vayder, DO, FACOEP
--	---