

HEALTHEAST MEDICAL TRANSPORTATION
MEDICAL OPERATIONS MANUAL

5A ALLERGIC REACTION/ANAPHYLAXIS

PATIENT CARE GOALS

- Determine the severity of the allergic reaction and provide treatment to prevent or reverse anaphylaxis.^{1,2}
- Protect the airway and maintain adequate oxygenation, ventilation and perfusion.

EMT

ADULT	PEDIATRIC (less than 60 kg)
<ol style="list-style-type: none"> 1. Assess the patient and determine the severity of the allergic reaction.² Provide initial care, including oxygen and vascular access, per 1B General Assessment and Care. 2. Eliminate the source of exposure, if possible. 3. Start two large-bore IV lines, if possible. 4. For anaphylaxis or anaphylactic shock, administer EpiPen® 0.3 mg.³ May perform 7V EpiPen® Administration using service owned device or assist the patient with their own. 5. Contact medical control for additional doses of EpiPen®. 6. For bronchoconstriction, administer nebulized albuterol (Proventil), 5 mg every 20 minutes as needed. 	<ol style="list-style-type: none"> 1. Assess the patient and determine the severity of the allergic reaction.² Provide initial care, including oxygen and vascular access, per 1B General Assessment and Care. 2. Eliminate the source of exposure, if possible. 3. Start two large-bore IV lines, if possible. 4. For anaphylaxis or anaphylactic shock, administer EpiPen Jr.® 0.15 mg.³ If the patient is larger than 30 kg, use a regular EpiPen®. May perform 7V EpiPen® Administration using service owned device or assist the patient with their own. 5. Contact Medical Control for additional doses of EpiPen Jr.® or EpiPen®. 6. For bronchoconstriction, administer nebulized albuterol (Proventil), 5 mg every 20 minutes as needed.

PARAMEDIC

ADULT	PEDIATRIC (less than 60 kg)
<ol style="list-style-type: none"> 7. Treat bronchoconstriction with nebulized ipratropium bromide/albuterol (Duoneb). If not effective, repeat nebulized treatment with only albuterol (Proventil). 8. For all allergic reactions, administer diphenhydramine (Benadryl) 50 mg IV/IO or deep IM (rate not to exceed 25 mg/minute). 9. For anaphylaxis, administer 1:1,000 epinephrine (Adrenalin) 0.3 mg IM.⁴ May 	<ol style="list-style-type: none"> 7. In children 10 kg or greater, treat bronchoconstriction with nebulized ipratropium bromide/albuterol (Duoneb). If not effective, repeat nebulized treatment with only albuterol (Proventil). For children less than 10 kg use albuterol (Proventil) only. 8. For all allergic reactions, administer diphenhydramine (Benadryl), 1 mg/kg mg IV/IO or deep IM (rate not to exceed 25

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ADULT	PEDIATRIC (less than 60 kg)
<p>repeat every 5 minutes.</p> <p>10. For anaphylaxis, administer methylprednisolone (Solu-Medrol) 125 mg IV/IO over at least 1 minute for anti-inflammatory effects.</p> <p>11. If respiratory distress continues and the patient meets CPAP selection criteria, perform 7D CPAP with a PEEP setting of 5 cmH₂O.</p> <p>12. Infuse normal saline IV/IO at a rate adequate to maintain systolic blood pressure greater than 90 mmHg.</p> <p>13. For anaphylactic shock (unresponsive to fluids and 1:1,000 epinephrine (Adrenalin) IM):</p> <ul style="list-style-type: none"> ○ Administer 1:10,000 epinephrine (Adrenalin) 0.3 mg IV/IO over 2 minutes <p>AND</p> <ul style="list-style-type: none"> ○ Administer an epinephrine (Adrenalin) infusion at 0.1 mcg/kg/min titrating to a maximum dose of 0.5 mcg/kg/min.⁵ Titrate to keep MAP greater than 65 mmHg. <p>OR</p> <ul style="list-style-type: none"> ○ Administer a norepinephrine (Levophed) infusion at 0.1 mcg/kg/min titrating to a maximum dose of 0.5 mcg/kg/min.⁶ Titrate to keep MAP greater than 65 mmHg. 	<p>mg/minute).</p> <p>9. For anaphylaxis, administer 1:1,000 epinephrine (Adrenalin) 0.01 mg/kg IM.⁴ May repeat every 5 minutes.</p> <p>10. For anaphylaxis, administer methylprednisolone (Solu-Medrol) 10 mg/kg IV/IO over at least 1 minute for anti-inflammatory effects.</p> <p>11. If respiratory distress continues and the patient meets CPAP selection criteria, perform 7D CPAP with a PEEP setting of 5 cmH₂O.</p> <p>12. Administer a normal saline bolus as per Handtevy Pediatric Guidelines.⁷</p> <p>13. For anaphylactic shock (unresponsive to fluids and 1:1,000 epinephrine (Adrenalin) IM):</p> <ul style="list-style-type: none"> ○ Administer 1:10,000 epinephrine (Adrenalin) 0.01 mg/kg (up to 0.3 mg) IV/IO over 2 minutes. <p>AND</p> <ul style="list-style-type: none"> ○ Administer an epinephrine (Adrenalin) infusion at 0.1 mcg/kg/min titrating to a maximum dose of 0.5 mcg/kg/min.⁵ Titrate to keep MAP greater than 65 mmHg. <p>OR</p> <ul style="list-style-type: none"> ○ Administer a norepinephrine (Levophed) infusion at 0.1 mcg/kg/min titrating to a maximum dose of 0.5 mcg/kg/min.⁶ Titrate to keep MAP greater than 65 mmHg.

DOCUMENTATION KEY POINTS

- Identifications of substance(s) causing the reaction.
- Route of exposure.
- Description of organ systems involved.
- Severity of airway and respiratory involvement.
- Initial and ongoing assessments, monitoring, interventions, patient response, and complications (if any) encountered.

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NOTES

¹ **Progression:** In general, the most severe allergic reactions have the fastest onset and may progress quickly. Rapid treatment is essential. Consider early intubation if there is upper airway edema, and prepare to perform surgical airway in case intubation is unsuccessful.

² **Definitions of severity:**

- Allergic reaction – localized swelling or rash.
- Anaphylaxis – allergic reaction involving more than one organ system (e.g. Skin symptoms and either respiratory, decreased blood pressure or gastrointestinal symptoms).
- Anaphylactic shock – signs of tissue hypoperfusion despite administration of IM epinephrine and fluids: systolic blood pressure less than 90 mmHg or 40 mmHg drop below baseline or mean arterial pressure (MAP) less than 60 mmHg.

³ **EpiPen® and EpiPen Jr.®** : To use, prep the injection site with alcohol, pull the safety cap off, and apply the device to the exposed anterior/lateral thigh. Press hard into the thigh at a 90 degree angle until the injector triggers, and hold in place for several seconds. Remove the device and massage the injection site to enhance absorption.

⁴ **1:1,000 epinephrine (Adrenalin) IM:** There are no absolute contraindications to epinephrine in the setting of anaphylaxis.

⁵ **Epinephrine (Adrenalin) infusion:** Mix 5ml (5mg) of 1:1,000 epinephrine (from multi-dose vial) in 250 ml NS. Attach to 60 gtt tubing. Monitor carefully for infiltration at the IV/IO site. Continuous cardiac monitoring is required.

⁶ **Norepinephrine (Levophed) infusion:** Mix 8 mg of **norepinephrine (Levophed)** in a 250 ml bag of normal saline (concentration of 32 mcg/ml). Administer using 60gtt/ml tubing. Monitor carefully for infiltration at the IV/IO site. Continuous cardiac monitoring is required.

⁷ **Handtevy pediatric fluid bolus guidelines:**

- **Patients up to 4 months old:** Administer a 10 ml/kg normal saline bolus.
- **Patients 4 months to 11 years old:** Administer a 20 ml/kg normal saline bolus.
- **Patients greater than 11 years old:** Administer a 1-liter normal saline bolus.

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