

SECTION: PM-03

PROTOCOL TITLE: PED ALLERGY/ANAPHYLAXIS

REVISED: June 01, 2019

BLS SPECIFIC CARE: See General Pediatric Care Protocol PM-1

- Determine patient's color category on length based resuscitation tape (Broselow Tape)

Epi Pen Protocol (If optional Module not completed)

- Administer epinephrine via auto-injector per State of Idaho epinephrine auto-injector program guidelines
- In the absence of this training and patient has his/her own epinephrine auto-injector, the EMT may assist with its administration per the following guidelines
 - Confirm prior to administration:
 - Is Epi-Pen prescribed to the patient (Right Patient?)
 - Is it an Epi-Pen of the correct dose (Right Dose?)
 - Patient weight < 30 kg (66 lbs)?
 - Use Epi-Pen Junior: 0.15 mg 1:1,000 epinephrine
 - Patient weight > 30 kg (66 lbs)?
 - Use Epi-Pen Adult: 0.3 mg 1:1,000 epinephrine
 - Is the Epi-Pen an intramuscular (IM) auto injector (Right route?)
 - Is the Epi-Pen expired?
- Re-evaluate patient's sign and symptoms every 5 minutes following administration
 - Evaluate for presence adverse effects of epinephrine.
 - Chest pain
 - Headache
 - Palpitations
 - Anxiety/tremors
- Repeat in 10 minutes if no improvement
If signs of bronchospasm are present
Bronchodilators
- Nebulizer Treatment
 - Albuterol 2.5 mg (0.83% in 3 cc)
 - Ipratropium Bromide (Atrovent) 0.5 mg (0.02% in 2.5 cc)
 - May repeat as needed using Albuterol only. May use equivalent solutions of above medications such as *DuoNeb* as available
- Or assist the patient with his/her prescribed, "rescue inhaler." Use a spacer if the patient is prescribed one and has it available
 - Assisted Inhaler: 2 puffs or a specific number of puffs as prescribed by patient's MD
 - Repeat every 5-10 minutes or as prescribed by patient's MD
 - Hold for heart rate greater than 200 bpm
- As an alternative, the patient may be allowed to use his/her own nebulized medication or rescue inhaler. The EMT will offer to hook up oxygen in lieu

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of a room air “condenser” and run at 6-8 lpm with the patient’s hand held nebulizer (HHN). The patient must prepare it him/herself

AEMT/O.M. SPECIFIC CARE: See General Pediatric Care Protocol PM-1

- Treat hypotension aggressively with IV crystalloid up at 20 cc/kg repeated PRN to max of 1000 cc. Hold for s/s of CHF/pulmonary edema or CHF History

Sympathomimetic

- Epinephrine 1:1000
 - o Patient weight < 30 kg (66 lbs)? IM: 0.15 mg
 - o Patient weight > 30 kg (66 lbs)? IM: 0.3-0.5 mg (adult Dose)
 - o Repeat x 1 in 10 minutes if s/s do not significantly improve

ALS SPECIFIC CARE: See General Pediatric Care Protocol PM-1

IV Fluid Resuscitation

- Treat hypotension aggressively with IV crystalloid PRN. Hold for s/s of CHF/pulmonary edema or CHF History
 - o 20 cc/kg Boluses repeated PRN.

Vasoactive Drugs

- Epinephrine 1:1,000
 - IM: 0.01 mg/kg MAX: 0.3 mg
 - Repeat x 1 in 10 minutes if s/s do not significantly improve
- Epinephrine Infusion
 - Refer to the pediatric *Rule of 6* quick reference table in the epinephrine drug profile for infusion guidance
 - **IV: 0.1-1 mcg/kg/min, not to exceed 10 mcg/min**
- Epinephrine Neb (*for laryngeal edema only*)
 - 3 mg (3 ml) mixed with 3 ml NS for 6ml total epinephrine 1:1,000 nebulized

Bronchodilators

- HHN Nebulizer
 - Albuterol 2.5 mg (0.83% in 3cc)/ Atrovent 0.5 mg (0.02% in 2.5 cc) nebulized. May use Duo-Neb preparation for initial Neb.
 - Repeat as needed with Albuterol Only
 - Do not dilute

Antihistamine

- Benadryl (Diphenhydramine)
 - IV, IM, IO: 1-2 mg/kg MAX of 25 mg.
 - PO: (If available) 25 mg (for mild cases)

- Zantac (Ranitidine) To be used in conjunction with Benadryl
 - IV, IM, IO: 1 mg/kg to a max of 50 mg
 - PO: (If available) 150mg (for mild cases)

- Pepcid (Famotidine) May be used in conjunction with Benadryl *as an alternative to Zantac* based on availability
 - IV, IO: 0.5 mg/kg Slow admin Every 12 hours. To a MAX of 20 mg. *May dilute to 100 or 250 cc and administer over 15 minutes.*
 - PO: (If available) 20 mg (for mild cases)

Sympathomimetics:

- Epinephrine:
 - IM: 0.01 mg/kg (0.01 ml/kg) 1:1,000 epinephrine to a maximum of 0.3 mg (0.3 ml)
 - Repeat once in 10 minutes if needed
 - Nebulized: 5 mg (5 ml) undiluted 1:1,000 delivered via oxygen driven nebulizer at 10 LPM
 - For upper airway angioedema
 - Can be used while preparing for endotracheal intubation
 - IV/IO: 0.1-1 mcg/kg/min.
 - For states of profound hypotension (anaphylactic shock) unresponsive to three 20 ml/kg crystalloid IV/IO fluid boluses

Nebulized bronchodilators:

- For bronchospasm associated with allergic reactions/anaphylaxis
 - For first treatment, combine one albuterol (2.5 mg/3 ml) nebule and one Atrovent (0.5 mg/2.5 ml) nebule in reservoir of oxygen driven nebulizer unit and administer at 10 LPM
 - If Atrovent is contraindicated, use 1 albuterol nebule for first treatment
 - Repeat as needed with albuterol treatments only

Antihistamines:

- Benadryl (diphenhydramine)
 - 1-2 mg/kg IV/IM/IO to a maximum of 25 mg

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PHYSICIAN PEARLS:

CAUTION: All patients receiving inhaled beta agonists and/or anticholinergic medications should be observed for a least one hour following treatment for return of symptoms.

ALS evaluation is indicated if Epi administered either PTA or by EMS, and transport strongly encouraged. Refusals require medical control contact.

Epinephrine Auto injector: EMTs can administer the epinephrine Auto-Injector if it has been prescribed to the patient. In addition, EMTs may administer an auto injector that HAS NOT been prescribed to the patient IF they have successfully completed additional training as required by the Department of Health and Welfare, Bureau of EMS and the ACCESS Medical Directors.

Epi IM admin Optional Module: EMTs can administer the epinephrine via IM injection after drawing it from a vial , glass amp, or other container if they have successfully completed additional training as required by the Department of Health and Welfare, Bureau of EMS and the ACCESS Medical Directors.

Zantac or Pepcid: H2 antagonists are adjunctive therapies to Benadryl (with or without epinephrine) in anaphylaxis & allergic reactions. It is not a stand-alone intervention. One or the other, based on availability should be used, but not both unless instructed to do so by physician order. **PEPCID is IV/IO ONLY.**

Common Presentations: The most common symptoms were urticaria and angioedema, occurring in 88% of patients. The next most common manifestations were respiratory symptoms, such as upper airway edema, dyspnea, and wheezing. Gastrointestinal symptoms occur most commonly in food-induced anaphylaxis, but can occur with other causes as well. Oral pruritus is often the first symptom observed in patients experiencing food-induced anaphylaxis. Abdominal cramping is also common, but nausea, vomiting, and diarrhea are frequently observed as well. Cardiovascular symptoms of dizziness, syncope and hypotension were less common, *but it is important to remember that cardiovascular collapse may occur abruptly without the prior development of skin or respiratory manifestations.*

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PITFALLS: It is commonly believed that all cases of anaphylaxis present with cutaneous manifestations, such as hives or mucocutaneous swelling. In fact, as previously mentioned, up to 20% of anaphylactic episodes may not involve these signs and symptoms on presentation for emergency care. Moreover, a survey of children with food-induced anaphylaxis showed that 80% of fatal reactions were not associated with cutaneous manifestations. In one study (Sampson et al) many cases of fatal food-induced anaphylaxis occurred in a biphasic clinical pattern. In these, mild oral and gastrointestinal symptoms occurred within 30 minutes of food ingestion. These symptoms resolved, only to be followed 1–2 hours later by severe respiratory symptoms and hypotension.

Individuals at great risk for a fatal reaction include those with asthma, atopic dermatitis (eczema), a prior anaphylactic history, and those who deny symptoms and therefore delaying treatment with epinephrine.

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