Pediatric Allergic Reaction

History
- Onset and location
- Insect sting or bite
- Food allergy/ exposure
- Medication allergy/ exposure
- New clothing, soap, detergent
- Past medical history/ reactions
- Medication history

Signs and Symptoms
- Itching or hives
- Coughing/ wheezing or respiratory distress
- Chest or throat constriction
- Difficulty swallowing
- Hypotension or shock
- Edema

Differential
- Urticaria (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration/ Airway obstruction
- Vasovagal event
- Asthma/ COPD /CHF

Assess Symptom Severity

MILD
Skin Only

Diphenhydramine
1 mg/kg mg PO
Maximum 50 mg
See Pearls

IV or IO Access Protocol UP 6
If indicated

A
Diphenhydramine
1 mg/kg IV / IM / IO / PO

Famotidine 0.25 mg/kg PO
Maximum 20 mg
If available

B
Monitor and Reassess
Monitor for Worsening
Signs and Symptoms

MODERATE
2+ Body Systems

Epinephrine 1:1000 IM
≥ 30 kg 0.3 – 0.5 mg IM
< 30 kg 0.15 mg IM
Repeat every 5 minutes
if no improvement

Diphenhydramine
1 mg/kg mg PO
Maximum 50 mg
See Pearls

B
Albuterol Nebulizer
2.5 – 5 mg
Repeat as needed x 3
if indicated

A
Epinephrine 1:1000 IM
≥ 30 kg 0.3 – 0.5 mg IM
< 30 kg 0.15 mg IM
Repeat every 5 minutes
if no improvement

Diphenhydramine
1 mg/kg IV / IM / IO / PO
Maximum 50 mg

SEVERE
2 + Body Systems + hypotension
Or Isolated Hypotension

Epinephrine 1:1000 IM
≥ 30 kg 0.3 – 0.5 mg IM
< 30 kg 0.15 mg IM
Repeat every 5 minutes
if no improvement

B
Albuterol Nebulizer
2.5 – 5 mg
Repeat as needed x 3
if indicated

A
Epinephrine 1:1000 IM
≥ 30 kg 0.3 – 0.5 mg IM
< 30 kg 0.15 mg IM
Repeat every 5 minutes
if no improvement

Airway Pediatric Protocol(s)
if indicated

Pediatric Hypotension/ Shock
Protocol PM 3
if indicated

IV or IO Access Protocol UP 6

A
Albuterol Nebulizer
2.5 – 5 mg
+/- Ipratropium 0.5 mg (DuoNeb)
Repeat as needed x 3
if indicated

Famotidine 0.25 mg/kg IV / IO
Maximum 20 mg
If available

Normal Saline Bolus 20 mL/kg IV / IO
Repeat as needed
Maximum 60 mL/kg Liter(s)

P
No improvement with IM Epinephrine
Push Dose Epinephrine 0.5 mcg/kg IV / IO
Repeat every 2 to 3 minutes as needed
Maximum Single Dose 10 mcg *See Page 2*

Methylprednisolone 2 mg/kg IV / IO
Maximum 125 mg
Or
Dexamethasone 0.6 mg/kg IV / IO
Maximum 10 mg

Notify Destination or Contact Medical Control

Pediatric Medical Protocol Section

Pediatric Allergic Reaction

Pediatric Medical Protocol Section

Allergic reactions occur when a patient is exposed to an allergen (pollen, insect, medication, food, etc.) causing the body to respond by releasing specific immunoglobulins such as histamine which causes hives, itching and capillary leaking leading to edema.

Anaphylaxis is likely present when any 1 of the 3 criteria below are present:

1. Acute onset of illness (minutes to hours) with skin involvement: Hives, erythema, itching and / or angioedema.
PLUS
Dyspnea, wheezing, stridor or hypoxemia.
OR
Hypotension, poor perfusion, shock, incontinence, syncope.

2. Acute onset of illness (minutes to hours) with 2 or more of the following are present:
a. Hives, erythema, itching and/ or angioedema.
b. Dyspnea, wheezing, stridor or hypoxemia.
c. Hypotension, poor perfusion, shock, incontinence
d. Nausea, vomiting an / or abdominal pain/ cramping.

3. Acute onset of illness (minutes to hours) with hypotension, poor perfusion, syncope, incontinence after exposure to known allergen.

- The main point is that anaphylaxis does not mean the patient must be in shock. Patients who demonstrate skin involvement plus a respiratory complaint have anaphylaxis. Patients who have skin involvement and GI symptoms such as nausea or abdominal cramping have anaphylaxis. And finally a patient may have anaphylaxis and have no skin findings such as rash or erythema.

Famotidine:
- Dilute in at least 10 mL of NS and give slow IV Push over 2 – 3 minutes.

Epinephrine IV in Severe Allergy unresponsive to IM Epinephrine after 2 doses:
- Mix Epinephrine 1:1000 (1mg in 1mL) into 1000 mL of NS or LR = a concentration of 1 mcg/mL of Epinephrine.
- Give **0.5 mcg/kg** and repeat every 2 – 3 minutes to effect SBP > 70+ 2(Age) mmHg and/or MAP ≥ 65 mmHg (**Each Single Dose Max: 10 mcg**)
- Consider IV Epinephrine when no response after second dose of IM Epinephrine.

Pearls

- **Recommended Exam: Mental Status, Skin, Heart, Lungs, Abdomen**
- **Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.**
- **Epinephrine administration:**
  Drug of choice and the FIRST drug that should be administered in acute anaphylaxis (Moderate/ Severe Symptoms.)
  IM Epinephrine should be administered in priority before or during attempts at IV or IO access.
- **Diphenhydramine and steroid administration:**
  Diphenhydramine/ steroids have no proven benefit in Moderate/ Severe anaphylaxis.
  Diphenhydramine/ steroids should NOT delay initial or repeat Epinephrine administration.
  In Moderate and Severe anaphylaxis, Diphenhydramine may decrease mental status.
  Diphenhydramine should NOT be given to a patient with decreased mental status and/ or a hypotensive patient as this may cause nausea, vomiting, and/ or worsening mental status.
- **Anaphylaxis unresponsive to repeat doses of IM epinephrine may require IV epinephrine administration by IV push or epinephrine infusion. Contact Medical Control for appropriate dosing.**
- **Symptom Severity Classification:**
  Mild symptoms:
  Flushing, hives, itching, erythema with normal blood pressure and perfusion.
  Moderate symptoms:
  Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with normal blood pressure and perfusion.
  Severe symptoms:
  Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with hypotension and poor perfusion.
- **Allergic reactions may occur with only respiratory and gastrointestinal symptoms and have no rash/ skin involvement.**
- **Angioedema** is seen in moderate to severe reactions and is swelling involving the face, lips or airway structures. This can also be seen in patients taking blood pressure medications like Prinivil / Zestril (lisinopril)-typically end in -**il**.
- **Hereditary Angioedema** involves swelling of the face, lips, airway structures, extremities, and may cause moderate to severe abdominal pain. Some patients are prescribed specific medications to aid in reversal of swelling. **Paramedic may assist or administer this medication per patient/ package instructions.**
- **Fluids and Medication titrated to maintain a SBP >70 + (age in years x 2) mmHg.**
- **Patients with moderate and severe reactions should receive a 12-Lead ECG and should be continually monitored, but this should NOT delay administration of epinephrine.**
- **EMR/ EMT:**
  The use of Epinephrine IM is limited to the treatment of anaphylaxis and may be given only by autoinjector, unless manual draw-up is approved by the Agency Medical Director and the NC office of EMS.
  Administration of diphenhydramine is limited to the oral route only.
- **EMT administration of beta-agonist is limited to only patients currently prescribed the medication,** unless approved by the Agency Medical Director and the NC office of EMS.
- Agency Medical Director may require contact of medical control prior to EMT/ EMR administering any medication(s). Medical Director may require contact of medical control prior to EMT/ EMR administering any medication.
- The shorter the onset from exposure to symptoms the more severe the reaction.