ANAPHYLAXIS AND ALLERGIC REACTION

**Patient Care Goals:**
- Provide timely therapy for potentially life-threatening reactions to known or suspected allergens to prevent cardiorespiratory collapse and shock
- Provide symptomatic relief for symptoms due to known or suspected allergens

**Patient Presentation:**
- Anaphylaxis – More severe and is characterized by an acute onset involving:
  - **Two or more** of the following organ systems involved occurring rapidly after exposure to a likely allergen:
    - Skin and/or mucosal involvement (urticaria, itchy, swollen tongue/lips)
    - Respiratory compromise (dyspnea, wheeze, stridor, hypoxia)
    - Persistent gastrointestinal symptoms (vomiting, abdominal pain, diarrhea)
    - Hypotension or associated symptoms (syncope, hypotonia, incontinence)
      - Adults: Systolic BP<90mmHg
      - Pediatric: Hypotension for age (lowest acceptable systolic blood pressure in mmHg):
        - Less than 1 yo: <60 mmHg
        - 1-10 yo: <70 mmHg + (age in years x2)
        - Greater than 10 yo: <90 mmHg
- Allergic Reaction (Non-anaphylactic)
  - Signs involving only **one** organ system (e.g. localized angioedema that does not compromise the airway, hives alone, etc.)

**Treatment and Interventions:**
- Manage airway as indicated (see Airway Management Protocol)
- Treat respiratory distress/hypoxia as indicated (see Respiratory Distress Protocol)
- Establish vascular access as indicated (see Vascular Access Protocol)
- If signs/symptoms of anaphylaxis administer:
  - Epinephrine/Epinephrine Auto-Injector (see epinephrine formulary and FRG)
  - Albuterol/ipratropium as indicated (see albuterol/ipratropium formulary and FRG)
  - Diphenhydramine (see diphenhydramine formulary and FRG)
  - Normal Saline as indicated (see Normal Saline formulary and FRG)
  - If stridor and/or severe lip/tongue angioedema is present consider administering:
    - Racemic epinephrine (ONLY AFTER IM EPINEPHRINE) (see racemic epinephrine formulary and FRG)
  - Position hypotensive anaphylaxis patient supine
  - Initiate EKG monitoring if epinephrine/racemic epinephrine given
If signs/symptoms of allergic reaction without signs of anaphylaxis consider:
  o Diphenhydramine (see diphenhydramine formulary and FRG)

For bites/envenomations (see Bites and Envenomations protocol)

Key Considerations:
- Anaphylaxis is a serious and potentially life-threatening medical emergency.
- When anaphylaxis is suspected, EMS personnel should always consider epinephrine as first-line treatment. Cardiovascular collapse may occur abruptly, without the prior development of skin or respiratory symptoms.
- Contrary to common belief that all cases of anaphylaxis present with cutaneous manifestations, such as urticaria or mucocutaneous swelling, a significant portion of anaphylactic episodes may not involve these signs and symptoms on initial presentation.
- Moreover, most fatal reactions to food-induced anaphylaxis in children were not associated with cutaneous manifestations.
- Skin involvement may be ABSENT in up to 40% of cases of anaphylaxis.
- Gastrointestinal symptoms occur most commonly in food-induced anaphylaxis, but can occur with other causes.
- Oral pruritus/itching is often the first symptom observed in patients experiencing food-induced anaphylaxis.
- Abdominal cramping is also common in food-induced anaphylaxis, but nausea, vomiting, and diarrhea are frequently observed as well (and can be particularly severe and life-threatening).
- Patients with asthma are at high risk for a severe allergic reactions.
- A localized allergic reaction (e.g. urticaria (hives) or angioedema that does not compromise the airway) may be treated with antihistamine therapy only.

Patient/Provider Safety Considerations:
- Failure to administer IM epinephrine when indicated is common and may lead to increased morbidity and mortality.
- There are no absolute contraindications to administration of IM epinephrine for anaphylaxis.
- Never administer ONLY racemic epinephrine for angioedema/stridor associated with anaphylaxis. IM epinephrine is still indicated and should be prioritized PRIOR to racemic epinephrine administration.
- Inadvertent administration of IV/IO epinephrine can result in catastrophic patient outcome.
- Ensure FRG and medication cross-check utilized to avoid giving adult doses of epinephrine to pediatric patients.
- Remove any constricting bands, jewelry, rings, clothing from swollen hands/feet etc.