ALLERGIC REACTION / ANAPHYLAXIS - PEDIATRIC

Notes:

- **Allergic Reaction**: A skin-based reaction to an allergen with normal vital signs, such as hives, itching, flushing/redness and no airway involvement.
- **Anaphylaxis:** Acute onset of a systemic reaction involving two or more systems, any airway involvement or unstable vital signs.
- Diphenhydramine and Albuterol do not treat anaphylaxis. For patients with anaphylaxis, Epinephrine administration is the priority. Diphenhydramine and Albuterol may be administered in addition to Epinephrine.
- If there is a history of anaphylaxis, relay in report.

Base Hospital Contact for Anaphylaxis

BLS Interventions

- Refer to BLS Standing Orders SO-B-001.
- Assist patients with the administration of their physician prescribed emergency devices and medications to include but not limited to bronchodilator inhaler / nebulizer or epinephrine device (autoinjector).
- Remove the stinger / injection mechanism.
- Ensure proper positioning for adequate ventilation and suction as needed.

ALS Interventions

- Assess Pediatric Assessment Triangle (PAT)
  - General appearance: tone, interactiveness, consolability, look / gaze, speech / cry
  - Work of breathing: retractions, nasal flaring, abnormal airway sounds, positioning
  - Circulation to skin: pallor, mottling, cyanosis
- When BLS airway management cannot maintain adequate ventilation or oxygenation and criteria met, consider:
  - Supraglottic airway insertion for ≥ 50 kg (PR-135)
  - Endotracheal intubation for > 36 kg (PR-030)
- Apply capnography (EtCO2) as tolerated.
  - Maintain EtCO2 between 35 and 45 mmHg
  - If EtCO2 > 50: ensure proper positioning for adequate ventilation and suction as needed.
  - If no improvement, initiate BVM.

- Obtain the patient's estimated weight utilizing an approved pediatric length-based resuscitation tape.
- Initiate cardiac monitor as needed. Interpret, monitor, and document rhythm.
- Assess GCS. Use pediatric GCS for patients age ≤ 2 years. Refer to Procedure B-002.

Allergic Reaction treatment:

► **Diphenhydramine (Benadryl®) 1 mg / kg IM** - once (max dose 50 mg).
*Do not administer if taken prior to arrival.

- Reassess VS and symptom severity. If patient is not improving or if airway involvement, consider treating as anaphylaxis.

Anaphylaxis: Any one of the following symptoms: wheezing, stridor, hypoxia (< 95%), signs of poor perfusion, hypotension, delayed capillary refill, or intra-oral swelling. **–OR--**

Any combination of the following symptoms: skin-based allergic reaction and persistent GI symptoms (nausea, vomiting, diarrhea, or cramping), treat as follows:

► **Epinephrine 0.01 mg / kg IM** lateral thigh (1 mg / mL concentration) (max dose 0.5 mg).

► If SPO2 < 95% apply **Oxygen** by mask (high flow) or nasal cannula (for nasal cannula provide 6 L / min flow rate) as tolerated.

- Treat for wheezing, administer:
  - ► **Albuterol 6 mL (5 mg)** continuous nebulization.
- Treat for hypotension (refer to Vital Sign table below):
  - ► **Normal Saline 20 mL / kg IV / IO** (max dose 250 mL) – may repeat same dose twice for total of 3 boluses.
- If symptoms persist after patient self-administered EpiPen or 5 minutes after initial IM epinephrine, administer:
  - ► **Epinephrine 0.01 mg / kg IM** (1 mg / mL concentration) (max dose 0.5 mg).
- For weak or absent palpable pulse, lack of response to fluid boluses or IM Epinephrine, and/or impending airway obstruction, consider:
  - ► **Epinephrine 0.01 mg / kg IV / IO** (1 mg / 10 mL concentration) (max single dose 0.3 mg)

► **Diphenhydramine 1 mg / kg IM / IV -** once (max dose 50 mg).
*Do not administer if taken prior to arrival.

Transport Considerations

- ALS transport to the nearest ERC.
- **Base Hospital Contact required (CCERC Preferred)** for anaphylaxis symptoms, self-administration of Epi-Pen, abnormal PAT, no response to treatment, or if status worsens for any of the above conditions.

Additional Considerations

- Intraoral swelling can present as hoarse voice or swelling to tongue, lips or mouth, uvula or soft palate.
- Epinephrine is the priority and first line treatment for anaphylaxis. Patients in severe anaphylaxis may require multiple doses of epinephrine. Early base hospital contact encouraged.
- Maximum dose of Diphenhydramine is 50 mg IM or IV. Diphenhydramine does not treat anaphylaxis and should only be given once other treatments are complete or in stable patients with discomfort for isolated hives.
- Wheezing caused by anaphylaxis should be treated with epinephrine prior to albuterol.

Pediatric Vital Signs by Age

Age	Pulse	Systolic Blood Pressure	Respiratory Rate
Neonate (0-30 days)	100-180	> 60	30-60
Infant (31 days - < 1 yr)	100-160	> 60	30-60
Toddler (1 yr - < 3 yrs)	90-150	> 70	24-40
Pre-school (3 yrs - < 5 yrs)	80-140	> 75	22-34
School Aged (5 yrs - < 10 yrs)	70-120	> 80	18-30
Teen (≥ 10 yrs)	60-100	> 90	12-16

Base Hospital Considerations

- For impending airway obstruction or weak palpable pulse, consider:
  - ▶ **Epinephrine 0.01 mg / kg IV / IO** (0.1 mg / 1 mL concentration) (max single dose 0.3 mg)

Cross References:

SO-B-001 BLS Standing Orders
Procedure B-002 Glasgow Coma Scale (Score)
SO-P-080 Shock (Symptomatic Hypotension) - Pediatric
SO-FR-004 Oropharyngeal Airway (OPA)
SO-FR-005 Nasopharyngeal Airway (NPA)
Procedure PR-030 Endotracheal Intubation (including ETCO2)
Procedure PR-135 Supraglottic Airway Device Placement – Adult / Adolescent