Pediatric Anaphylaxis Algorithm

Recognition of Anaphylaxis:

Acute onset of
- Skin changes (urticaria, erythema/flushing and/or angioedema) **AND** at least one of the following : Respiratory +/- Cardiovascular +/- GI symptoms

OR
- Hypotension, Bronchospasm or Upper Airway obstruction after exposure to known or highly probable allergen

If pre-hospital care (home or EMS) was given, please note:
- Epinephrine, salbutamol or antihistamine may have altered the signs and symptoms at presentation
- Anaphylaxis diagnosis is based on full history of symptoms

Initial Management:

- Place patient in supine position
- Assess ABCs, vital signs
- Provide O_2 10-15 L/min by non-rebreather mask
- Identify and remove allergic trigger, if possible

ADMINISTER IM EPINEPHRINE
- Dose: 0.01 mg/kg (1 mg/mL), MAX 0.5 mg (see dosage chart)
- Route: **INTRAMUSCULAR (IM)** in anterolateral thigh
  - ***Never administer the IM preparation of epinephrine (1mg/mL) through IV/IO route***
  - ***Never give IV epinephrine bolus dose for initial anaphylaxis management***
- **Repeat IM EPINEPHRINE every 5-10 min as needed** (see below)

Do not delay IM EPINEPHRINE administration

If no improvement after 1st dose of EPINEPHRINE, give 2nd dose of EPINEPHRINE

5-10 min

Respiratory symptoms:
- Sitting position
- Administer high flow O_2, consider need for intubation

If stridor or upper airway obstruction, give inhaled epinephrine
If wheeze or lower airway obstruction, give inhaled salbutamol

Hypotension or ↓ LOC:
- Supine position
- Secure large bore IV or obtain intraosseous (IO) access
- Crystalloid NS or LR , 20 mL/kg IV/IO rapid push

If no improvement, give 2nd dose of **IM EPINEPHRINE**

10-15 min

Secure IV/IO access (if not yet done)

Respiratory symptoms:
- Repeat inhaled epinephrine (upper airway obstruction) or salbutamol (lower airway obstruction)
- Prepare for difficult airway intubation

Hypotension or ↓LOC, persistent abdominal pain/vomiting:
- 2nd crystalloid NS or LR, 20 mL/kg IV/IO rapid push
- Prepare for possible **epinephrine** infusion (see Drug Dosing Binder for details)

Alert Pediatric Referral Centre

If no improvement, give 3rd dose of **IM EPINEPHRINE**

15-20 min

Respiratory
- Consider 3rd inhaled epinephrine or salbutamol
- Consider IV hydrocortisone for persistent shock, asthma or upper airway obstruction
- Proceed with intubation if no improvement

Hypotension or ↓ LOC:
- Start **epinephrine** infusion 0.05 mcg/kg/min IV, titrate up by 0.02 mcg/kg/min to effect (see Drug Dosing Binder for details)

Alert Pediatric Referral Centre

If no improvement

Refractory Anaphylaxis

Norepinephrine infusion *(For persistent hypotension)*
Start at 0.05 mcg/kg/min IV, titrate by 0.02 mcg/kg/min to effect (MAX 2 mcg/kg/min)

Glucagon bolus *(For persistent anaphylaxis symptoms or patients on beta blockers)*
Dose: 20 - 30 mcg/kg/dose (MAX 1 mg) IV over 5 minutes, followed by infusion of 5 -15 mcg/min, titrated to clinical effect

IM EPINEPHRINE DOSAGE CHART

Weight (Kg)	Epinephrine IM Dose (1mg/ml amp)	Epinephrine IM Dose (Autoinjector)
5-10	0.1 mg	0.15 mg (EpiPen Jr®, Allerject®, Emerade®)
11-15	0.15 mg	
16-20	0.2 mg	
21-25	0.25 mg	0.3 mg (EpiPen®, Allerject®, Emerade®)
26-30	0.3 mg	
31-35	0.35 mg	
36-40	0.4 mg	
41-45	0.45 mg	
≥46	0.5 mg	0.5 mg (Emerade®) preferred 0.3 mg (as above) if not available

CAUTION!

Administering epinephrine:
- Give epinephrine dose by INTRAMUSCULAR (IM) route only
- If no improvement after ≥3 doses of IM epinephrine, consider IV epinephrine infusion
- Do not give boluses of IV epinephrine unless indicated for advanced life support

Potentially *Difficult Airway*:
- Prepare equipment and personnel for difficult airway intubation while giving epinephrine neb for upper airway obstruction.

Discuss with Pediatric Referral Centre

Pediatric Referral Centre Discussion

Issues related to:
- Difficult vascular access
- Airway management
- Need for epinephrine infusion
- Refractory anaphylaxis/shock
- Admission/transfer and disposition decisions

Disposition

Refer to TREKK Anaphylaxis Bottom Line Recommendations (*trekk.ca*) for further details.

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PedsPacs Point-of-Care Tools by TREKK
trekk Translating Emergency Knowledge for Kids
Visit **trekk.ca** for a list of references and development team members.