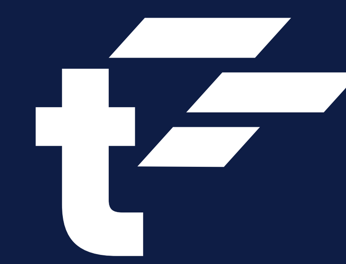
Pediatric Anaphylaxis Algorithm



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

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

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©, Allergect©, Emerade©)
11-15	0.15 mg	
16-20	0.2 mg	
21-25	0.25 mg	0.3 mg (EpiPen Jr©, Allergect©, 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.

Scan or click the QR code to learn more, to see a list of key references, and development team members.

__Disclaimer:__ The purpose of this document is to provide emergency healthcare professionals an approach to the assessment and management of Pediatric Anaphylaxis. The TREKK Network is not liable for any damages, claims, liabilities, costs or oblications arising from the use of this document, including loss or damages arising from any claims made by a third party.

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