Allergy and anaphylaxis – Emergency management in children – Flowchart

Child presents to ED with suspected acute allergic reaction

Assess severity (Including careful questioning to identify respiratory and cardiovascular symptoms pre-hospital)

Remove allergen where possible

LOCALISED ALLERGIC REACTION
- Localised skin redness, oedema and itching
  - Consider antihistamine (oral) for symptomatic treatment of itch
  - Observation period up to 1 hour

GENERAL ALLERGIC REACTION
- Skin and/or gastrointestinal features but no respiratory or cardiovascular features
  - Antihistamine (oral)
  - Close observation for ≥1 hour for symptom progression

ANAPHYLAXIS
- Respiratory and/or cardiovascular features (+/- skin or gastrointestinal features)
  - Adrenaline (IM) into thigh every 5 minutes as needed – microgram/kg (maximum 0.5 mg)
  - Respirate using ABCD:
    - high flow oxygen via NRBM
    - support ventilation (BVM)
    - call for senior help onsite to manage airway
    - obtain IV or IO access as needed
    - IV fluid boluses 20 mL/kg Sodium Chloride 0.9% as required

Respiratory or CVS symptoms?

Nut exposure?

Discharge with advice

Consider discharge with advice if symptoms improving

Refer to inpatient service

Refer to Paediatric Critical Care

Consider differential diagnoses (see Guideline)

> 2 doses Adrenaline?

Consider:
- ongoing allergen exposure
- Adrenaline (IV infusion)
- Adrenaline (NEB)
- Salbutamol (MDI/NEB)

Residual symptoms?

Provide caregivers with:
- Action plan & education
- 2 Adrenaline autoinjectors/ampoules (see below) – must be dispensed prior to discharge post-anaphylaxis

Discharge with advice

Consider discharge with advice if symptoms improving

Refer to inpatient service

Refer to Paediatric Critical Care

Note:
- A single respiratory or cardiovascular feature constitutes an anaphylaxis diagnosis.
- Manage insect bites or stings with severe abdominal pain and vomiting as for anaphylaxis.
- See over page for description of gastrointestinal and cutaneous features.

Respiratory features
- difficulty/noisy breathing
- swelling of the tongue
- swelling/brightness in throat
- difficulty talking +/- hoarse voice
- wheeze or persistent cough

Cardiovascular features
- loss of consciousness
- collapse
- pallor and flappiness in young child
- hypotension

Adrenaline given on discharge

<table>
<thead>
<tr>
<th>Weight of child</th>
<th>Adrenaline</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8.5 kg</td>
<td>Adrenaline ampoules 1:1000</td>
</tr>
<tr>
<td>8.5-20 kg</td>
<td>Epipen Jr autoinjector</td>
</tr>
<tr>
<td>&gt; 20 kg</td>
<td>Epipen autoinjector</td>
</tr>
</tbody>
</table>

Seek senior emergency/paediatric advice as per local practice

Seek urgent paediatric critical care advice (onsite or via Retrieval Services Queensland (RSQ) on 1300 799 127)
Allergy and anaphylaxis – Emergency management in children – Medications

### Clinical features of a generalised allergic reaction*

<table>
<thead>
<tr>
<th>Gastrointestinal</th>
<th>Cutaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>• abdominal pain</td>
<td>• generalised pruritus</td>
</tr>
<tr>
<td>• vomiting</td>
<td>• urticaria/angioedema</td>
</tr>
<tr>
<td>• loose stools</td>
<td>• erythema</td>
</tr>
</tbody>
</table>

*May also be present in anaphylaxis

### Adrenaline dosing for the treatment of anaphylaxis in children

<table>
<thead>
<tr>
<th>Adrenaline (IM)</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 microgram/kg (maximum 0.5 mg)</td>
</tr>
<tr>
<td></td>
<td>~ 0.01 mL/kg of 1:1000 solution (undiluted)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adrenaline (NEB)</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 mL of undiluted 1:1000 Adrenaline nebulised with oxygen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adrenaline (IV infusion)</th>
<th>Dose</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>With Smart Pump Drug Errors Reducing System:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mL of 1:1000 Adrenaline solution (contains 1 mg) in 50 mL of Sodium Chloride 0.9%. Start infusion at 0.1 microgram/kg/min.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Without Smart Pump Drug Errors Reducing System:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mL of 1:1000 Adrenaline solution (contains 1 mg) in 50 mL of Sodium Chloride 0.9%. Start infusion at 0.3 mL/kg/hour (0.1 microgram/kg/min).</td>
</tr>
</tbody>
</table>

**ALERT** – Adrenaline IV should be reserved for the following children:

- immediately life-threatening profound shock
- circulatory compromise and continuing to deteriorate after Adrenaline IM
- ongoing rebound of anaphylaxis despite recurrent Adrenaline IM

### Antihistamine dosing for the treatment of allergic reaction in children

<table>
<thead>
<tr>
<th>Antihistamine</th>
<th>Age</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetirizine (Oral) (Zyrtec)</td>
<td>1-2 years</td>
<td>2.5 mg twice daily</td>
</tr>
<tr>
<td></td>
<td>2-6 years</td>
<td>5 mg once daily or 2.5 mg twice daily</td>
</tr>
<tr>
<td></td>
<td>6-12 years</td>
<td>10 mg once daily or 5 mg twice daily</td>
</tr>
<tr>
<td></td>
<td>12-18 years</td>
<td>10 mg once daily</td>
</tr>
</tbody>
</table>

* Loratadine, Fexofenadine and Desloratadine are not available within QH Hospitals but are available in the community. Fexofenadine and Desloratadine can be prescribed to infants 6 months and over.