Management of CHQ Inpatients with a Suspected Anaphylactic Reaction

Purpose

This procedure provides clinical practice guidelines to guide clinicians involved in the emergency management of children with an allergic reaction.

Scope

This procedure relates to staff involved in the care and management of CHQ inpatients with an allergic reaction or suspected anaphylaxis.

Procedure

Introduction

An allergic reaction is an immunologically-mediated adverse reaction which occurs when a person’s immune system reacts to a substance (allergen) in the environment which would normally be innocuous. Allergens cause allergic reactions by entering the body via a number of different portals, including inhalation, ingestion, contact with skin and injection (parenteral medication or insect stings and bites).

Up to 40% of children in Australia and New Zealand are affected by allergic disorders at some time during their life, with 20% having current symptoms. Allergic diseases have approximately doubled in western countries over the last 25 years. The most common allergic conditions in children are food allergies, eczema, asthma and hayfever (allergic rhinitis).1

Most allergic reactions do not cause major problems, even though for many people they may be a source of extreme irritation and discomfort. A small number of people may experience a severe allergic reaction called anaphylaxis.

Anaphylaxis is an acute systemic allergic reaction in response to an allergen or trigger and caused by an IgE-mediated release of histamine, leukotrienes and prostaglandins from tissue mast cells and peripheral blood

---

basophils. This reaction is multisystem in nature with systemic cardiovascular and/or respiratory symptoms and involvement of other systems such as the skin and gastrointestinal tract. Anaphylaxis may also be accompanied by signs of general allergic reaction. It is important to note when diagnosing anaphylaxis, that urticaria / skin symptoms may be transient or subtle.

Non-immunologic anaphylaxis or ‘anaphylactoid’ reaction is an acute systemic reaction which is clinically identical to anaphylaxis. This occurs as a result of direct mast cell stimulation in response to a trigger and requires the same treatment.

Food allergies are the most common cause of anaphylaxis in children. Common allergens include peanuts, tree nuts, wheat, sesame, egg, cow's milk, fish, shellfish and on rare occasions spices, fruit and soy. Other causative agents include drugs, insects, latex, allergen therapy and, less commonly, exercise, cold and immunisations. In up to 30% of reactions, a cause cannot be identified.

The prevalence of anaphylaxis in the paediatric population is estimated to be 1 in 1000. Admission rates for anaphylaxis are increasing in Australia with food allergies affecting 4 - 8% of children younger than five (5) years of age. Deaths from anaphylaxis are relatively rare in Australia with 112 deaths recorded over a nine (9) year period (1995 - 2007).

Risk factors for fatal anaphylaxis include:

- Asthma
- Delayed administration of adrenaline
- Age (teenagers and adults are at higher risk)
- Upright position during anaphylaxis
- Individuals with food allergies eating away from home
- Initial misdiagnosis
- Systemic mastocytosis

Assessment

Clinical Assessment

Emergency assessment and management should always involve a rapid primary survey with evaluation of (and immediate management of concerns with) Airway, Breathing, Circulation and Disability (ABCD). Pre-hospital treatment should be taken into consideration.

Once the patient is stabilised, the allergen trigger for the event should be identified (if possible). Historical questions should be aimed at identifying all foods and medications consumed several hours before the reaction and any possible stings or bites. Current medications, such as beta-blockers, may affect response to treatment. Previous medical history is essential as co-morbid diseases such as asthma can affect the severity of the reaction and disposition of the patient.

**ALERT**

Some insect bites or stings can result in severe abdominal pain and vomiting. This represents a severe allergic reaction and should be managed as for anaphylaxis.
Diagnostic Studies

The diagnosis of allergic reaction or anaphylaxis is made clinically, based on history and symptoms (see Table 1). As anaphylaxis requires immediate treatment, investigations are unlikely to be of assistance in the emergency management. However, in circumstances where the diagnosis may be unclear, measurement of serum markers may occasionally assist long-term management.²

Serum tryptase and histamine levels may be temporarily elevated after onset of anaphylaxis. Elevated histamine levels are too non-specific and fall too rapidly to be clinically useful. Serum tryptase (collected within three (3) hours within symptom onset) may very occasionally be tested after discussion with a specialist Immunologist / Allergist.

The use of other laboratory and radiological tests should be guided by patient co-morbidities and circumstances, including incidental trauma.¹⁰

Table 1: Definitions and presenting features of generalised allergic reaction and anaphylaxis

<table>
<thead>
<tr>
<th>Generalised allergic reaction</th>
<th>Anaphylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is characterised by one or more symptoms or signs of skin and/or gastrointestinal tract involvement without respiratory and/or cardiovascular involvement.</td>
<td>Is a rapidly evolving generalised multi-system allergic reaction characterised by one or more symptoms or signs of respiratory and/or cardiovascular involvement and may involve other systems such as the skin and/or the gastrointestinal tract.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Respiratory features may include:</th>
<th>Cardiovascular features may include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• difficulty / noisy breathing</td>
<td>• loss of consciousness</td>
</tr>
<tr>
<td>• swelling of tongue</td>
<td>• collapse</td>
</tr>
<tr>
<td>• swelling / tightness in throat</td>
<td>• pallor and floppiness (in young children)</td>
</tr>
<tr>
<td>• difficulty talking and/or hoarse voice</td>
<td>• hypotension</td>
</tr>
<tr>
<td>• wheeze or persistent cough</td>
<td></td>
</tr>
</tbody>
</table>

Source: The Australian Society of Clinical Immunology and Allergy

Differential diagnosis of anaphylaxis

The differential diagnosis considered varies depending on the clinical presentation. If swelling of the lips and tongue are the predominant symptoms, idiopathic or hereditary angioedema should be considered.

If cardiovascular compromise including hypotension is the predominant symptom, all forms of shock should be considered and investigated accordingly.² In a child presenting with stridor, drooling or respiratory distress, upper airway obstruction causes (including foreign body, epiglottitis, and croup) should be considered.

Scrombroid (histamine) poisoning is a condition that can be easily confused with severe allergic reaction or anaphylaxis. Scrombroid poisoning is caused by a build up of histadine in certain types of fish including (but not limited to) mackerel, tuna, bonito, sardines, marlin and butterfly kingfish.¹¹ After the fish are caught, bacteria within the fish begin to convert histadine to histamine. Symptoms occur due to high levels of
ingested histamine and within minutes to hours of consumption. Time course and symptoms of scombroid poisoning and anaphylaxis are very similar; especially considering seafood is a common cause of anaphylaxis.

Management

CHQ Inpatients should be managed according to the Flowchart shown in Appendix One. Stop all drug infusions and move the patient to a well lit area.

Initial emergency management includes rapid triage and clinical assessment of the patient’s airway patency, breathing (ventilation and oxygenation) and circulation. Intervention and stabilisation should occur immediately if the patient has severe symptoms. Continuous cardiac and SaO\textsubscript{2} monitoring is recommended, as patients presenting with less severe generalised allergic symptoms may initially appear stable but have the potential for rapid deterioration.\textsuperscript{10}

Localised allergic reaction

Management of localised allergic reaction includes administration of an oral antihistamine such as Cetirizine (Zyrtec) or Loratadine (Claratyne) for symptomatic treatment of itch. Children may be safely discharged after a brief period of observation in which there has been no worsening of symptoms.

Generalised allergic reaction

Children with generalised allergic reaction may benefit from administration of oral antihistamine as for localised allergic reaction. A short course of oral corticosteroids (Prednisolone 1mg/kg daily for 2 - 4 days) may help to alleviate symptoms. Children should be observed for at least four (4) hours and may be safely discharged if there is no worsening of symptoms during this period. Referral should be made to an Immunologist / Allergy Specialist.

Anaphylaxis

If anaphylaxis is suspected, call a MET.

Adrenaline

Adrenaline remains the accepted and recommended first line treatment for anaphylaxis.\textsuperscript{2} Prompt administration of adrenaline is associated with a decreased fatality rate from anaphylaxis.\textsuperscript{12}

Administration of IM Adrenaline is the first step in the treatment of anaphylaxis. Studies have demonstrated that peak plasma levels are achieved significantly faster after IM injection into the thigh compared to SC injection into the arm.\textsuperscript{13,14}

Nebulised Adrenaline may help relieve upper airway obstruction and/or bronchospasm but should only be administered in addition to IM Adrenaline.

---

**ALERT**

Intravenous administration of adrenaline for the treatment of anaphylaxis should be reserved for patients with immediately life threatening profound shock or where the patient continues to deteriorate despite administration of IM adrenaline and is circulatory compromised.\textsuperscript{15,16}

A continuous low dose adrenaline infusion (see Table 2) is the safest and most effective
form of IV administration. Adrenaline infusions should only be commenced upon PICU advice, with the patient transferred to PICU as soon as possible for ongoing monitoring.

Significant adverse events including fatal cardiac arrhythmia and cardiac infarction have been reported when IV adrenaline is administered too rapidly, inadequately diluted or in excessive dose. This procedure does not support the administration of an IV adrenaline bolus.

Table 2: Adrenaline dosages and preparations for the management of anaphylaxis

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DOSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline (IM)</td>
<td>0.01 mg/kg (max. 0.5 mg) of 1:1000 solution (undiluted) - this equates to approximately 0.01 mL/kg of 1:1000 solution (undiluted)</td>
</tr>
<tr>
<td>Adrenaline (NEB)</td>
<td>5 mL of 1:1000 solution (undiluted) nebulised with oxygen</td>
</tr>
<tr>
<td>Adrenaline (IV infusion)</td>
<td>1 mL of 1:1000 solution in 1000 mL of 0.9% Sodium Chloride</td>
</tr>
</tbody>
</table>

**Note:** start infusion at 5 mL/kg/hour (~ 0.1 microgram/kg/min)

**Source:** The Australian Society of Clinical Immunology and Allergy and Therapeutic Guidelines

Airway

Upper airway swelling may occur rapidly. Preparation for early intubation should be made in case of rapid airway deterioration. The senior doctor / consultant (emergency and/or paediatrician), anaesthetic and ENT teams (if available), should be notified early and involved in decision making regarding intubation. A range of ETT sizes (with several sizes smaller than usual) should be available. In anaphylaxis, the airway should always be considered potentially “difficult” and caution should be exercised when opting for heavy sedation or long-acting paralytic agents. Laryngeal mask airway (LMA) may not be effective due to oropharyngeal angioedema and bronchospasm.

Breathing

High flow supplemental oxygen via mask is recommended.

Circulation

Intravenous access ideally with two (2) (age-appropriate) large-bore cannula is recommended for children with severe symptoms at risk of circulatory compromise. Signs of circulatory compromise and/or hypotension should be treated with 20 mL/kg 0.9% Sodium Chloride, repeated if necessary.

Corticosteroids

Administration of corticosteroids (Table 3) is a common second-line treatment recommendation in current guidelines worldwide. However, little evidence supports their use in the treatment of acute anaphylaxis.

A Cochrane Systematic Review of glucocorticoids for the treatment of anaphylaxis did not identify any randomised controlled trials in adults or children. The primary action of glucocorticoids is down-regulation of the late-phase eosinophilic inflammatory response, as opposed to the early-phase response. Short-term glucocorticoid treatment is seldom associated with adverse effects. Santillanes & Davidson suggest the
reason for corticosteroid administration is to prevent biphasic or protracted reactions. However, in two paediatric studies of biphasic reactions; the administration of steroids did not appear to be preventative.

To reduce the risk of symptom recurrence after a severe reaction or reaction with marked or persistent wheeze, a 2 - 4 day course of oral prednisolone is recommended. Oral steroids are preferred in view of their better adverse event profile.

**Table 3: Corticosteroid dosages for the management of allergic reaction**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DOSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prednisolone (PO)</td>
<td>1 mg/kg (up to 50mg) daily for 2-4 days</td>
</tr>
<tr>
<td>Hydrocortisone (IV)</td>
<td>4 mg/kg (up to 200mg), 6 hourly</td>
</tr>
</tbody>
</table>

**Source:** Australian prescriber

**Antihistamines**

Antihistamines (H₁ antagonists) are useful adjuncts for treating associated urticaria, angioedema and itchiness (Table 4).

There are currently no randomised or quasi-randomised controlled trials supporting the effectiveness of H₁ antagonists and H₂ antagonists in the acute emergency management of anaphylaxis. In conventional doses, antihistamines fail to prevent the massive release of histamine observed in anaphylaxis. However, antihistamines are widely recommended in guidelines worldwide as second line pharmacological therapy.

To help alleviate persistent symptoms after a severe allergic reaction, a 2 - 4 day course of oral antihistamines is recommended.

---

**ALERT: Use of sedating antihistamines e.g. Phenergan / Polaramine – NOT RECOMMENDED**

The use of sedating antihistamines such as Promethazine (Phenergan) or Dexchlorpheniramine maleate (Polaramine) is NOT recommended as these agents may cause significant side effects such as respiratory depression, especially in younger children.

**Table 4: Anti-histamine dosages for management of allergic reaction**

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DOSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetirizine (PO)</td>
<td>1 to 2 years of age: 0.25 mg/kg (up to 5mg), twice daily</td>
</tr>
<tr>
<td>(Zyrtec)</td>
<td>2 to 5 years of age: 5 mg, daily (can divide into 2 doses)</td>
</tr>
<tr>
<td></td>
<td>6 to 12 years of age: 10 mg, daily (can divide into 2 doses)</td>
</tr>
<tr>
<td>Loratadine (PO)</td>
<td>1 to 2 years of age: 2.5 mg, daily</td>
</tr>
<tr>
<td>(Claratyne)</td>
<td>2 to 12 years of age (less than 30 kg): 5 mg, daily</td>
</tr>
<tr>
<td></td>
<td>2 to 12 years of age (more than 30 kg): 10 mg, daily</td>
</tr>
</tbody>
</table>

**Source:** Therapeutic Guidelines
Bronchodilators

Inhaled short acting beta2 agonists (salbutamol) may help relieve bronchospasm if lower airway obstruction (wheeze) is a concern. However, they should only be used as an adjunct to first line treatment for anaphylaxis.

See flow chart Appendix 1: Emergency management of children with an allergic reaction.

Disposition

Children diagnosed with a localised allergic reaction or generalised allergic reaction not requiring adrenaline may be safely discharged following the resolution of symptoms. Parents / carers should be instructed to return immediately if there are any recurrent symptoms.

Children requiring treatment with adrenaline should be observed for at least four (4) hours after the last dose. Any child who requires more than one dose of adrenaline should be admitted because of the possibility of recurrent symptoms. For anaphylaxis symptoms related to a drug infusion, the consultant must document a plan for any ongoing therapy with the same agent in the patient’s notes. Full information on the reaction must be provided on discharge to the GP.

See Flowchart Appendix 2: Admission/discharge criteria for children presenting with an allergic reaction.

Abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>Greater than</td>
</tr>
<tr>
<td>&lt;</td>
<td>Less than</td>
</tr>
<tr>
<td>CHS</td>
<td>Children's Health Services</td>
</tr>
<tr>
<td>CSCF</td>
<td>Clinical Services Capability Framework</td>
</tr>
<tr>
<td>ENT</td>
<td>Ears, nose and throat team</td>
</tr>
<tr>
<td>ETT</td>
<td>Endotracheal tube</td>
</tr>
<tr>
<td>GP</td>
<td>General practitioner</td>
</tr>
<tr>
<td>IgE</td>
<td>Immunoglobulin E</td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>LMA</td>
<td>Laryngeal mask airway</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>Sodium chloride</td>
</tr>
<tr>
<td>NEB</td>
<td>Nebuliser</td>
</tr>
<tr>
<td>PICU</td>
<td>Paediatric Intensive Care Unit</td>
</tr>
<tr>
<td>PO</td>
<td>Orally (per oral)</td>
</tr>
<tr>
<td>RSQ</td>
<td>Retrieval Services Queensland</td>
</tr>
<tr>
<td>SaO2</td>
<td>Oxygen saturations</td>
</tr>
<tr>
<td>SC</td>
<td>Subcutaneous</td>
</tr>
</tbody>
</table>

CHQ-PROC-19004 – Management of CHQ Inpatients with a Suspected Anaphylactic Reaction
Supporting documents

- Management of CHQ inpatients with a suspected anaphylaxis.
- Admission / discharge criteria for children presenting with an allergic reaction
- Action plans for allergic reactions and anaphylaxis
- Parent / carer information sheet

Consultation

Key stakeholders who reviewed this version:

- Director of Paediatric Emergency Medicine, Children’s Health Queensland
- Medication Procedure Working Group of Medicines Advisory Committee
- Members – Medicines Advisory Committee

References


Acknowledgements

Children’s Health Services would like to acknowledge the contribution made by:

- Dr Jason Acworth - Director of Paediatric Emergency Medicine, Children’s Health Queensland

Audit/evaluation strategy

<table>
<thead>
<tr>
<th>Level of risk</th>
<th>High</th>
</tr>
</thead>
</table>
| Strategy       | 1. Regular Review of PRIME incidents relating to medication for issues related to suspected anaphylaxis.  
2. Review documentation, i.e. chart audit, to evaluate compliance with procedure |
| Audit(review) attached tool(s) | Nil |
| Audit/Review date | 1. Monthly  
2. When a patient is identified |
| Review responsibility | Medicines Advisory Committee |
| Key elements / Indicators / Outcomes | 100% of CHQ inpatients have suspected anaphylaxis managed appropriately |

Procedure revision and approval history

<table>
<thead>
<tr>
<th>Version No.</th>
<th>Modified by</th>
<th>Amendments authorised by</th>
<th>Approved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>• QUM Pharmacist (on behalf of MPWG, MAC)</td>
<td>• Chair, MAC</td>
<td>General Manager Operations.</td>
</tr>
</tbody>
</table>
Appendix 1: Emergency management of children with an allergic reaction

Appendix 2: Admission / discharge criteria for children presenting with an allergic reaction
Appendix 1  Emergency management of children with an allergic reaction

Suspected Anaphylaxis flowchart for inpatients
RCH Brisbane

Child presents with clinical features suggesting an acute allergic reaction

Remove allergen where possible and assess severity. Stop all drug infusions and move patient to a well lit area.

Consider differential diagnosis:
- Idiopathic or hereditary angioedema
- Shock
- Sepsis
- Upper airway obstruction eg croup, foreign body, epiglottitis
- Histamine poisoning

Localised Allergic Reaction
- Localised skin redness, oedema and itching

Consider:
- Antihistamine (PO) for symptomatic treatment of itch

Generalised Allergic Reaction
One or more skin or gastrointestinal signs/symptoms (below) but no respiratory or cardiovascular signs/symptoms.
- Urticaria
- Generalised rash or pruritus
- Rhinitis/conjunctivitis
- Localised oedema
- Vomiting
- Loose stools

Treatment:
- Antihistamine (PO)
- Corticosteroid (PO)

Symptoms Progress to Anaphylaxis:

Yes
- Give Adrenaline (IM)
- Call a MET (Dial “444”)
- Emergency Management
  (Resuscitate using ABC)
  Call consultant and consider most senior resources available eg PICU/anaesthetics.
  - Provide high flow oxygen
  - Support ventilation (BVM)
  - Consider ETT intubation if not responding
  - Obtain IV or IO access as needed to facilitate the delivery of fluid bolus and medication.
  - Give IV fluid bolus of sodium chloride 0.9% 20mL/kg as required.
  - Repet adrenalin (IM) as necessary – every 5 minutes.
  - Consider:
    - Ensure allergen removed
    - Adrenaline (IV infusion)
    - Corticosteroids (PO or IV)
    - Adrenaline (NEB)
    - Antihistamine (PO)

No
- Observe for at least one hour.
- Observe for at least four hours.

Respiratory and CVS signs

Yes
- Transfer to PICU

No

Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>1-2 years of age:</th>
<th>2-5 years of age:</th>
<th>6-12 years of age:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetirizine (PO)</td>
<td>6.25mg/kg/dose (up to 2.5mg/dose) twice daily</td>
<td>5mg daily (may be given as 2.5mg bd)</td>
<td>10mg daily (may be given as 5mg bd)</td>
</tr>
<tr>
<td>Loratadine (PO)</td>
<td>1-2 years of age: 2.5mg daily</td>
<td>2-5 years of age: (less than 30kg) 5mg daily</td>
<td>6-12 years of age: (more than 30kg) 10mg daily</td>
</tr>
<tr>
<td>Prednisolone (PO)</td>
<td>1mg/kg (up to 50mg) daily for 2-4 days</td>
<td>1mg/kg (up to 50mg) daily for 2-4 days</td>
<td>10mg daily</td>
</tr>
<tr>
<td>Hydrocortisone (IV)</td>
<td>4mg/kg (up to 200mg) every six hours</td>
<td>(PO prednisolone preferred)</td>
<td></td>
</tr>
<tr>
<td>Adrenaline (IM)</td>
<td>0.01mg/kg (maximum 0.5mg)</td>
<td>Use 1:1000 solution – equivalent to 0.01mL/kg (undiluted)</td>
<td></td>
</tr>
<tr>
<td>Adrenaline (NEB)</td>
<td>5mL of 1:1000 solution (undiluted) nebulised with oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adrenaline (IV infusion)</td>
<td>1mL of 1:1000 solution in 1000mL Sodium Chloride 0.9%. Start infusion at 5mL/kg/hour (equivalent to 0.1microgram/kg/minute)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 2  Admission / discharge criteria for children presenting with an allergic reaction

### High risk factors for fatal anaphylaxis
- Risk factors for fatal anaphylaxis in children include:
  - history of asthma
  - delayed administration of adrenaline
  - age - teenagers are at greater risk
  - specific allergic triggers - nut allergy
  - limited access to emergency medical care

### Criteria for discharge from the emergency service
Criteria for discharging a child with an allergic reaction from the emergency service includes:
- Identification of the anaphylactic trigger to avoid (if possible)
- Parent/carer information sheet given and discussed
- Allergic reaction or anaphylaxis plan given and discussed

As well as for the following:

<table>
<thead>
<tr>
<th>Localised allergic reaction</th>
<th>Generalised allergic reaction</th>
<th>Anaphylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>- no progression of symptoms during period of observation</td>
<td>- observed for ≥ 1 hour</td>
<td>- observed ≥ 4 hrs after last Adrenaline</td>
</tr>
<tr>
<td></td>
<td>- symptoms improving</td>
<td>- no progression of symptoms during period of observation</td>
</tr>
<tr>
<td></td>
<td>- referral made to immunologist / allergy specialist</td>
<td>- symptoms improving</td>
</tr>
<tr>
<td></td>
<td>- letter to GP</td>
<td>- individualised anaphylaxis action plan (available at <a href="http://www.allergy.org.au">www.allergy.org.au</a>) and prescription for adrenaline (auto-injector) and prednisolone (2-4 days)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- referral made to Immunologist / Allergy Specialist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- letter to GP</td>
</tr>
</tbody>
</table>

When discharging a child with an allergic reaction, their social circumstances should be considered and appropriately addressed after the initial assessment and observation period, including:
- Time of day
- Parents/carers comprehension and compliance
- Access to transport should return be required
- Distance to local hospital

### Criteria for admission to children’s inpatient service
Criteria for admission to the children’s inpatient service for a child with an allergic reaction include:
- Persistence of symptoms despite treatment
- Had a severe reaction (hypotension or hypoxia) or required repeated doses of adrenaline
- Unable to immediately fill auto-injector/epipen script
- Presence of any high risk factors

### Criteria for admission to Level 6 emergency or PICU service
Consultation with the paediatric specialty team in the current facility and/or discussion with a Level 6 children’s health service via RSQ is required when:
- Presents with symptoms and/or signs of shock that is not responding to treatment
- Requirement for respiratory support (intubation and ventilation) as indicated by failure to maintain saturations despite supplemental oxygen or severe respiratory distress
- >2 doses of IM Adrenaline required to improve symptoms or need for IV Adrenaline infusion