Emergency Treatment of Anaphylaxis Policy and Guidelines

This procedural document supersedes: PAT/EC 3 v.4 – Policy and Guidelines for the Emergency Treatment of Anaphylaxis

This procedural document should be used in conjunction with:
- The Resuscitation Policy - Ref No: PAT/EC 1
- The Glove Use Policy - Ref No: CORP/HSFS 13
- Mental Capacity Act 2005 PAT/PA 19
- Privacy and Dignity Policy - PAT/PA 28

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<table>
<thead>
<tr>
<th>Author/reviewer: (this version)</th>
<th>Lisette Caygill- Lead Resuscitation Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date written/edited:</td>
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<td>Resuscitation Committee and Policy Approval and Compliance Group on behalf of the Patient Safety Review Group</td>
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</table>

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Amendment Form

Please record brief details of the changes made alongside the next version number. If the procedural document has been reviewed without change, this information will still need to be recorded although the version number will remain the same.

<table>
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<th>Date Issued</th>
<th>Brief Summary of Changes</th>
<th>Author</th>
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<tr>
<td>Version 5</td>
<td>23 July 2013</td>
<td>Changes to include NICE clinical Guideline 134 recommendations- PLEASE READ IN FULL</td>
<td>Lisette Caygill</td>
</tr>
<tr>
<td>Version 4</td>
<td>September 2011</td>
<td>Previous Appendix 1 – Patient Group Direction has been removed and the following appendices re-numbered</td>
<td>Kate Pears</td>
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| Version 3 | November 2008 | • To implement changes in treatment algorithm published by Resuscitation Council (UK) January 2008  
• The ‘Latex Policy’ has changed its name to ‘Glove Use Policy’ 
• Contents page added 
• References updated | Kate Pears |
| Version 2 | December 2006 | • Change in definition, page 2 
• The term Anaphylactoid is no longer used, page 2 | Kate Pears |
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1. INTRODUCTION

Anaphylaxis appears to be increasingly common and has been strongly associated with the increasing prevalence of allergic disease over the last two or three decades (Resuscitation Council UK, 2008).

The provision of an evidence based treatment programme remains difficult since there is a distinct lack of unequivocal research data on which to base definitive treatment guidelines and policies. There is however, a wealth of experience that can be drawn upon from organisations such as the Resuscitation Council (UK). The project team within the Council includes a wide and representative membership.

It is recognised that the treatment of anaphylaxis continues to be variable and there is a need for a consistent approach which draws together relevant and appropriate expertise as provided by the Resuscitation Council (UK) and NICE clinical Guideline 134 recommendations.

This policy will apply to all staff working within Doncaster & Bassetlaw Hospitals NHS Foundation Trust and those community based staff also employed by this Trust.

The policy is intended to provide treatment protocols for adults and children.

The policy is not intended to replace existing advice for defined groups in hospital nor to influence the essential individual advice and management provided in specialist areas (e.g. Anaesthetics).

2. PURPOSE

- To produce a comprehensive set of guidelines regarding the treatment of anaphylaxis
- To promote consistency in the emergency treatment of anaphylaxis
- To provide a framework which facilitates early recognition and diagnosis of anaphylaxis
- To outline an immediate course of action to be taken in the event of anaphylaxis
- To determine the roles and responsibilities of clinical staff
- To establish an ongoing review and audit process for the emergency treatment of anaphylaxis
3. DUTIES AND RESPONSIBILITIES

It is the responsibility of the Patient Safety Review Group to approve the policy.

It is the responsibility of the Lead Resuscitation Officer and Resuscitation Committee to review and update the policy and ensure implementation and compliance throughout the organisation.

It is the responsibility of the Policy Co-ordinator to ensure policy distribution across the organisation.

It is the responsibility of Clinical Service Unit Managers and Matrons to ensure that staff are provided with the opportunity to attend training appropriate to their role.

It is the responsibility of individual staff members to attend training appropriate to their roles.

4. RECOGNITION AND DIAGNOSIS

A reaction may occur following exposure to a variety of different agents such as peanuts, vaccinations and contrast media. Latex allergy should also be considered due to increased prevalence - Glove Use Policy (CORP/HSFS 13).

Anaphylactic reactions vary in severity and progress; they may be rapid or slow in onset.

In rare events manifestations may be delayed by a few hours (adding to diagnostic difficulty), or persist for more than 24 hours.

The patient may show one or several of the following signs:-

- Hypotension
- Dyspnoea and wheezing
- Urticaria (rash) skin or mucosal changes alone are not a sign of anaphylaxis.
- Laryngeal oedema

Other symptoms include rhinitis, conjunctivitis, abdominal pain, vomiting diarrhoea, and a sense of impending doom.

Cardiovascular collapse is a common manifestation, especially in response to intravenous drugs or stings, and is caused by vasodilatation and loss of plasma from the blood compartment.
4.1 Cautions and Considerations for Treatment

All who treat anaphylaxis should be aware of the potential for confusion between anaphylaxis and a panic attack. Victims of previous anaphylaxis may be particularly prone to panic attacks if they think they have been re-exposed to the allergen that caused a previous problem. The sense of impending doom and breathlessness leading to hyperventilation are symptoms that resemble anaphylaxis in some ways. Whilst there is no hypotension, pallor, wheeze, or urticarial rash/swelling, there may sometimes be an erythematous rash associated with anxiety which adds to the diagnostic difficulty. A mild anaphylactic reaction which triggers panic causes particular diagnostic difficulty. Problems can also arise with vasovagal attacks after immunisation procedures, but the absence of rash, breathing difficulties, and swelling is a useful distinguishing feature as is the slow pulse of a vasovagal attack compared with the rapid pulse of an anaphylactic episode.

5. IMMEDIATE ACTION

- The guidelines for initial treatment are summarised in the algorithm shown in Appendix 1 (for adults and children).

- Summon help – call 2222 or 999 if required.

- Initiate patient assessment based on ABCDE approach.

- Remove suspected allergen where possible.

- All victims should recline in a position of comfort. Lying flat with or without leg elevation may be helpful for hypotension but unhelpful for breathing difficulties. Pregnant patients should lie on their left side to prevent caval compression. If available, oxygen should be administered at high flow rates (10-15 L per minute). Cardiopulmonary resuscitation must be performed in the event of cardiopulmonary arrest.

- Adrenaline should be administered intramuscularly (preferably in the midpoint of the thigh, anterolateral aspect) to all patients with clinical signs of shock, airway swelling, or definite breathing difficulty, and will be rapidly absorbed. This can be administered without a prior prescription for suspected life threatening anaphylaxis.

- Manifestations such as inspiratory stridor, wheeze, cyanosis, pronounced tachycardia, and decreased capillary filling alerts the responder to the likelihood of a severe reaction.
5.1 Administration of Intra Muscular (I.M) Adrenaline (Epinephrine)

**Adults**
A dose of 500 micrograms adrenaline 1:1000 solution (0.5 ml) should be administered intramuscularly, and repeated after about 5 minutes in the absence of clinical improvement or if deterioration occurs after the initial treatment, especially if consciousness becomes, or remains impaired as a result of hypotension. In some cases several doses may be required.

**Children**
- The dose of adrenaline administered in children is determined by age, see table below:

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose Description</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 12 years</td>
<td>up to 500 micrograms IM</td>
<td>0.5 mL 1:1000 solution</td>
</tr>
<tr>
<td></td>
<td>300 micrograms if child is small or pre pubertal</td>
<td>0.3 mL 1:1000 solution</td>
</tr>
<tr>
<td>6 - 12 years</td>
<td>300 micrograms IM</td>
<td>0.3 mL 1:1000 solution</td>
</tr>
<tr>
<td>Child &lt; 6 years</td>
<td>150 micrograms IM</td>
<td>0.15 mL 1:1000 solution</td>
</tr>
</tbody>
</table>

As for adults, doses may be repeated after 5 minutes if necessary.

5.2 Intravenous Administration of Adrenaline

Intravenous adrenaline should only be administered by those who have been trained in its use for the management of anaphylaxis.

Intravenous administration of adrenaline is hazardous and should be given in a dilution of at least 1:10 000 (**never** 1:1000). Intravenous injection of adrenaline must be reserved for patients with profound shock that is immediately life threatening and for special indications, e.g. during anaesthesia. *This should only be administered by a doctor who has received training in the use of intravenous adrenaline.* The injection should be given as slowly (e.g. increments of 1-2 mls 1:10,000) as seems reasonable while monitoring heart rate and the electrocardiogram.
6. SUBSEQUENT MANAGEMENT

6.1 Administration of Antihistamines and Corticosteroids

**Chlorphenamine**
An antihistamine (chlorphenamine) should be administered. Caution is needed to avoid "drug induced" hypotension: administer either by careful slow intravenous injection or by intramuscular injection. Its use may be helpful and is unlikely to be harmful.

The dose for children and adults is determined by age as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 12 years</td>
<td>10 mg IM or IV slowly</td>
</tr>
<tr>
<td>6 - 12 years</td>
<td>5 mg IM or IV slowly</td>
</tr>
<tr>
<td>6 mths – 6 years</td>
<td>2.5 mg IM or IV slowly</td>
</tr>
<tr>
<td>Child les&lt; 6mths</td>
<td>250 micrograms/kg</td>
</tr>
</tbody>
</table>

**Hydrocortisone**
Hydrocortisone (as sodium succinate) should be administered after severe attacks to help avert late sequelae. This is of particular importance for asthmatics (who are at increased risk of severe or fatal anaphylaxis) if they have been treated with corticosteroids previously. The dose of hydrocortisone should be given by slow intravenous or intramuscular injection - care being taken to avoid inducing further hypotension. First medical responders should be aware that although corticosteroids form an essential part of the management of severe anaphylaxis, they may take up to 4-6 hours to have an effect even if administered intravenously.

The dose for adults and children is determined by age as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 12 years</td>
<td>200 mg IM</td>
</tr>
<tr>
<td>6 - 12 years</td>
<td>100 mg IM</td>
</tr>
<tr>
<td>6 mths – 6 years</td>
<td>50 mg IM</td>
</tr>
<tr>
<td>Child less 6 mths</td>
<td>25 mg IM</td>
</tr>
</tbody>
</table>
6.2 Intravenous Fluid Administration by First Medical Responders

If severe hypotension does not respond rapidly to drug treatment, fluid should be infused. A crystalloid may be safer than a colloid (Colloid infusion may be considered to be the cause of the anaphylactic reaction if the patient is receiving a colloid at that time) A rapid infusion of 500 – 1000 mL of 0.9% normal saline may be needed. Children should receive 20 ml/kg of 0.9% normal saline rapidly, followed by another similar dose if there is no clinical response.

6.3 Beta 2 Agonist Administration by First Medical Responders

An inhaled beta_2 agonist such as salbutamol is useful as an adjunctive measure if bronchospasm is a major feature that does not respond rapidly to other treatment.

6.4 Investigations in Adults and Young People (16 Years or Older) & Children

After a suspected anaphylactic reaction in adults or young people aged 16 years or older, take timed blood samples for mast cell tryptase testing as follows:

- a sample as soon as possible after emergency treatment has started
- a second sample ideally within 1-2 hours (but no later than 4 hours) from the onset of symptoms.

Inform the patient (or, as appropriate, their parent and/or carer) that a blood sample may be required at follow up with the specialist allergy service to measure baseline mast cell tryptase.

6.5 Assessment after the Suspected Anaphylactic Reaction

Document the acute clinical features of the suspected anaphylactic reaction
Which may include rapidly developing life threatening problems involving the:

- airway [pharyngeal or laryngeal oedema]
- breathing [bronchospasm with tachypnea]
- circulation [hypotension and/or tachycardia]
- associated skin and mucosal changes
Record the onset of the reaction.

Record the circumstances immediately before the onset of symptoms to help to identify the possible trigger.

7. OBSERVATION & ADMISSION

7.1 Observation for Adults & Young People (16 Years or Older)

Adults and young people aged 16 years or older who have emergency treatment for suspected anaphylaxis should be observed for 6-12 hours from the onset of symptoms, depending on their response to emergency treatment. In people with reactions that are controlled promptly and easily, a shorter observation period may be considered provided that they receive appropriate post-reaction care prior to discharge.

7.2 Admission for Children (Younger than 16 Years)

Children younger than 16 years who have emergency treatment for suspected anaphylaxis should be admitted to hospital under the care of a paediatric medical team.

8. DISCHARGE REQUIREMENTS

8.1 Referral

After emergency treatment for suspected anaphylaxis, offer the patient a referral to a specialist allergy service. Advice on referral and investigations can be obtained through the Duty Immunologist at Northern General Hospital (via switchboard).

8.2 Adrenaline Injector

After emergency treatment for a suspected anaphylaxis, offer the patient (or, as appropriate, their parent and/or carer) an appropriate adrenaline injector as an interim measure before the specialist allergy service appointment.

8.3 Patient Information and Support before Discharge

Before discharge a healthcare professional with the appropriate skills and competencies should offer the patient (or, as appropriate, their parent and/or carer) the following:
• information about anaphylaxis, including signs and symptoms of an anaphylactic reaction
• information about the risk of a biphasic reaction
• information on what to do if an anaphylactic reaction occurs (use the adrenaline injector and call emergency services)
• a demonstration of the correct use of the adrenaline injector and when to use it
• advice about how to avoid the suspected trigger (if known)
• information about the need for referral to a specialist allergy service and the referral process
• information about patient support groups

Further advice can be obtained from the duty immunologist at the Northern General Hospital Sheffield via switchboard.

9. STORAGE AND HANDLING OF MEDICINES

All staff should be aware of the location and availability of drugs and equipment required for the emergency treatment of anaphylaxis.

10. TRAINING/ SUPPORT

All clinical staff who may be expected to recognise and treat anaphylaxis must attend training every 2 years. Training can be accessed via Resuscitation Services and this will be recorded on OLM.

11. MONITORING COMPLIANCE WITH THE PROCEDURAL DOCUMENT

An adverse incident report should be completed in the instance of anaphylaxis and a copy sent to Resuscitation Services for compliance monitoring.

<table>
<thead>
<tr>
<th>What is being Monitored</th>
<th>Who will carry out the Monitoring</th>
<th>How often</th>
<th>How Reviewed/ Where Reported to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance with APD</td>
<td>Resuscitation Services</td>
<td>Quarterly</td>
<td>Case notes will be reviewed following receipt of an adverse incident form. Failure to comply with policy will be reported to CSU and Resuscitation Committee/PSRG as part of the quarterly report.</td>
</tr>
</tbody>
</table>
12. DEFINITIONS

Anaphylaxis
Anaphylaxis is a severe life-threatening, generalised or systemic hypersensitivity reaction. It is characterised by rapidly developing, life-threatening problems involving; the airway (pharyngeal or laryngeal oedema) and/or breathing (bronchospasm with tachypnoea) and/or circulation (hypotension and/or tachycardia). In most cases, there are associated skin and mucosal changes. Investigations will show whether the reaction is allergic (immunoglobulin E (IgE) or non-IgE mediated) or non-allergic anaphylaxis.

The term Anaphylactoid is no longer used.

The term anaphylaxis will be used throughout this policy in reference to both reactions for simplicity.

13. EQUALITY IMPACT ASSESSMENT

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment For All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment was identified.

A copy of the EIA is available on request from the HR Department.

14. ASSOCIATED TRUST PROCEDURAL DOCUMENTS

This procedural document supersedes: PAT/EC 3 v.4 – Policy and Guidelines for the Emergency Treatment of Anaphylaxis

This procedural document should be used in conjunction with:
- The Resuscitation Policy - PAT/EC 1
- The Glove Use Policy - CORP/HSFS 13
- Mental Capacity Act 2005 - PAT/PA 19
- Privacy and Dignity Policy - PAT/PA 28
15. REFERENCES


- Anaphylaxis: assessment to confirm an anaphylactic episode and the decision to refer after emergency treatment for a suspected anaphylactic episode. NICE Clinical Guideline 134 December 2011.
APPENDIX 1

Resuscitation Council (UK)

Anaphylactic reactions – Initial treatment

Anaphylactic reaction?

Airway, Breathing, Circulation, Disability, Exposure

Diagnosis - look for:
- Acute onset of illness
- Life-threatening Airway and/or Breathing and/or Circulation problems ¹
- And usually skin changes

- Call for help
- Lie patient flat
- Raise patient’s legs (if breathing not impaired)

Intramuscular Adrenaline ²

¹ Life-threatening problems:
Airway: swelling, hoarseness, stridor
Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO₂ < 92%, confusion
Circulation: pale, clammy, low blood pressure, faintness, drowsy/coma

² Intramuscular Adrenaline
IM doses of 1:1000 adrenaline (repeat after 5 min if no better)
- Adult: 500 micrograms IM (0.5 mL)
- Child more than 12 years: 500 micrograms IM (0.5 mL)
- Child 6-12 years: 300 micrograms IM (0.3 mL)
- Child less than 6 years: 150 micrograms IM (0.15 mL)

See also:
- Anaphylaxis algorithm
Resuscitation Council (UK)

Anaphylaxis algorithm

Anaphylactic reaction?

Airway, Breathing, Circulation, Disability, Exposure

Diagnosis - look for:
- Acute onset of illness
- Life-threatening Airway and/or Breathing and/or Circulation problems
- And usually skin changes

- Call for help
- Lie patient flat
- Raise patient’s legs

Adrenaline

When skills and equipment available:
- Establish airway
- High flow oxygen
- IV fluid challenge
- Chlorphenamine
- Hydrocortisone

Monitor:
- Pulse oximetry
- ECG
- Blood pressure

1. Life-threatening problems:
   Airway: swelling, hoarseness, stridor
   Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO2 < 92%, confusion
   Circulation: pallor, clamminess, low blood pressure, faintness, drowsiness/coma

2. Adrenaline (give IM unless experienced with IV adrenaline)
   IM doses of 1:1000 adrenaline (repeat after 5 min if no better)
   - Adult: 500 micrograms IM (0.5 mL)
   - Child more than 12 years: 500 micrograms IM (0.5 mL)
   - Child 8-12 years: 300 micrograms IM (0.3 mL)
   - Child less than 8 years: 150 micrograms IM (0.15 mL)

Adrenaline IV to be given only by experienced specialists
   Titrate: Adults 50 micrograms; Children 1 microgram/kg

3. IV fluid challenge:
   Adult: 500–1000 mL
   Child - crystallloid 20 mL/kg
   Stop IV colloid if this might be the cause of anaphylaxis

4. Chlorphenamine (IM or slow IV)
   - Adult or child more than 12 years: 10 mg
   - Child 8-12 years: 6 mg
   - Child 3 months to 6 years: 2.5 mg
   - Child less than 3 months: 250 micrograms/kg

5. Hydrocortisone (IM or slow IV)
   - Adult or child more than 12 years: 200 mg
   - Child 8-12 years: 100 mg
   - Child 3 months to 6 years: 50 mg
   - Child less than 3 months: 25 mg

See also: Anaphylactic reactions – Initial treatment