Whittington Health NHS

Anaphylaxis (Adults)

Subject:	Anaphylaxis in adults
Policy Number	N/A
Ratified By:	Clinical Guidelines Committee
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Policy Executive Owner:	Clinical Director, Emergency and Urgent Care ICSU
Designation of Author:	Consultant in Acute Medicine
Name of Assurance Committee:	As above
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Review Date:	3 years hence
Target Audience:	All doctors, nurses and pharmacists
Key Words:	Anaphylaxis, allergy, allergic, adrenaline, epinephrine, auto-injector, Epi-Pen

Version Control Sheet

Version	Date	Author	Status	Comment
1.0	April 2010	Dr Richard Jennings Consultant, Infectious Diseases & Acute Medicine	Off line	New guideline approved at Clinical Guidelines Committee April 2010
2.0	Oct 2015	Dr Dorothy Ip Consultant in Acute Medicine	Live	Timing of mast cell tryptase tests has been updated (page 7). Epi-Pen education section- online video source has been updated (page 9). Allergy clinic referral has been changed to the Royal London Hospital for Integrated Medicine. Specific information is required when referring patients (page 10).

➢ Criteria for use

This guideline is to be used for **all adult patients with anaphylaxis**. Most of these will be newly presenting to the Emergency Department (ED) or the Acute Admissions Unit (AAU), but this guideline should also be used for patients who develop anaphylaxis during an inpatient admission or an outpatient attendance. Biphasic anaphylaxis is managed in the same way as anaphylaxis.

➢ Background/ introduction

Anaphylaxis is caused by an immediate (Type I) hypersensitivity reaction. It usually involves the release of inflammatory mediators from mast cells, or basophils triggered by an allergen interacting with IgE. Non IgE mediated or non-immune release of mediators can also occur (idiopathic).

Certain foods, insect venoms, some drugs and latex are common precipitants of anaphylaxis. However, a significant proportion of anaphylaxis is classified as idiopathic.

Approximately 1 in 1,300 people experience anaphylaxis at some time. The incidence is increasing. The case–fatality ratio is less than 1%, but the risk of death is greater if correct treatment is delayed or not given. About 20 people die of anaphylaxis every year in the UK.

Symptoms and Signs of Anaphylaxis

Anaphylaxis is characterised by

- rapidly developing, life-threatening problems
- involving: the airway, and/or breathing and/or circulation (see clinical features below)
- In most cases, there are associated skin and mucosal changes. Skin and mucosal changes can be subtle or absent in up to 20% of reactions.

Airway Problems (these are life-threatening)

- Tongue or throat swelling (oedema) affecting breathing or swallowing
- Stridor
- Hoarse voice

Breathing Problems (these are life-threatening)

- Shortness of breath/increased respiratory rate
- Wheeze
- Exhaustion due to work of breathing
- Hypoxic confusion
- Cyanosis
- Respiratory arrest

Circulation Problems (these are life-threatening)

- Shock
- Tachycardia
- Hypotension causing dizziness or collapse
- Decreased conscious level/Loss of consciousness
- Myocardial ischaemia
- Cardiac arrest

Neurological Problems

- Confusion
- Agitation
- Loss of consciousness

Skin and Mucosal Changes (can be subtle or absent in up to 20% of reactions)

- Erythema – localised or generalised
- Urticaria
- Angioedema – usually of lips, eyelids, pharynx or larynx

Allergens known to trigger fatal anaphylactic reactions (this list is NOT exhaustive)

- Wasp and bee stings
- Nuts
- Other foods, especially milk, fish, crustaceans, chickpeas, egg, wheat, seeds and soya
- Antibiotics
- Anaesthetic drugs, especially muscle relaxants
- Other drugs, especially NSAIDs and ACE inhibitors, gelofusin and Vitamin K
- Contrast media
- Hair dye and latex

N.B. Adrenaline and epinephrine is the same thing.

➢ Inclusion/ exclusion criteria

Inclusion Criteria

All patients with a clinical diagnosis of anaphylaxis. This is likely if all three of the followings are present:

- Symptoms are of sudden onset and rapidly progressive **AND**
- Airway, or/and breathing or/and circulation are life-threateningly compromised **AND**
- Skin flushing or urticaria or angioedema are present (it can be subtle or absent in 20% of cases)

It is important to note, however, that anaphylaxis may present with **isolated** airway angioedema and throat constriction/airway compromise and **without** skin flushing or urticaria.

Exclusion Criteria

This guideline should not be used for patients in whom allergy is manifested as skin or mucosal changes **only**. Such patients may still be referred to the allergy clinic (see below) at the discretion of their team, but this guideline does not apply to them.

Resuscitation Council (UK)

Anaphylaxis algorithm

Anaphylactic reaction?

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Airway, Breathing, Circulation, Disability, Exposure

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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

↓

Adrenaline [2]

↓

When skills and equipment available:
- Establish airway
- High flow oxygen
- IV fluid challenge [3]
- Chlorphenamine [4]
- Hydrocortisone [5]

Monitor:
- Pulse oximetry
- ECG
- Blood pressure

1 Life-threatening problems:

Airway:	swelling, hoarseness, stridor
Breathing:	rapid breathing, wheeze, fatigue, cyanosis, SpO_2 < 92%, confusion
Circulation:	pale, clammy, low blood pressure, faintness, drowsy/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 6 -12 years:	300 micrograms IM (0.3 mL)
• Child less than 6 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 - crystalloid 20 mL/kg

Stop IV colloid
if this might be the cause
of anaphylaxis

	4 Chlorphenamine (IM or slow IV)	5 Hydrocortisone (IM or slow IV)
Adult or child more than 12 years	10 mg	200 mg
Child 6 - 12 years	5 mg	100 mg
Child 6 months to 6 years	2.5 mg	50 mg
Child less than 6 months	250 micrograms/kg	25 mg

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Additional notes regarding treatment within Whittington Health

- Treatment must be immediate (see algorithm above).

- Patients presenting to ED must be treated in ED resuscitation area. Immediately inform a senior clinician: this should be the ED SpR or Duty Medical Registrar, or ED consultant or Acute Medicine Consultant.

- Patients on the wards or outpatient clinics - Call 2222 for the resuscitation team. Obtain resuscitation trolley.

- If evidence of bronchospasm, give bronchodilator – salbutamol is the first-line bronchodilator. It may be inhaled or given IV. (Refer to the British National Formulary)

- Ensure any suspected drug trigger has been crossed off the drug chart and recorded in the allergy section on the front of the drug chart, as well as in the patient notes.

- If cardiac arrest occurs, resuscitate as normal, according to the standard Resuscitation Council (UK) ALS guideline.

Investigations

Timed Mast cell tryptase (yellow blood sample bottle for biochemistry) should be measured in a suspected anaphylactic reaction

- 1st sample, as soon as possible after emergency treatment has started. **DO NOT DELAY TREATMENT.**
- 2nd sample, ideally within 1–2 hours (but no later than 4 hours) from the onset of symptoms.

Tryptase results should always be passed on to the allergy clinic (details below)

When to admit to hospital

All patients with anaphylaxis that includes the following features must be admitted to hospital for at least 24 hours:

- Any clinical evidence or history of asthma
- Previous history of biphasic allergic reactions
- Possibility of continuing absorption of allergen
- Presentation at night, i.e. after 20.00 hours
- Slow onset of severe symptoms with unknown trigger

From ED resus or majors they should normally be admitted on AAU, to an open bay. Admission to ITU or CCU may be indicated. Patients should not be admitted to any other ward environment in the first 24 hours of their care. They should not be kept on the Clinical Decision Unit (CDU).

When to discharge patients

There is a risk of biphasic reaction (a second reaction with the same trigger as the initial anaphylactic episode) in those treated for suspected anaphylaxis. This necessitates a period of observation, usually between 6-12 hours from the onset of symptoms, depending on the patient's response to emergency treatment.

Biphasic reactions are less likely in those who respond quickly to initial treatment following an anaphylactic episode, so shorter observation times may be considered, provided that they receive appropriate post-reaction care prior to discharge.

Patients with suspected anaphylaxis who do not display features requiring hospital admission and have been reviewed by ED SpR, DMR or Consultant may be considered for discharge directly from ED or AAU wards.

Discharge medications

Patients should be discharged with **five days of oral prednisolone 30 mg o.d. and five days of oral cetirizine 10 mg o.d.** (but note cetirizine dose is reduced in renal impairment) **if any of the following apply**:

- Life-threatening airway, breathing or circulation problems at presentation
- Any clinical evidence or history of asthma
- Possibility of continuing absorption of allergen
- Slow onset of severe symptoms with unknown trigger

Patients must be warned about the potentially sedating effect of antihistamines, and be advised to be cautious with driving or heavy machinery.

When to prescribe an adrenaline auto-injector (Epi-pen 300 microgram)

Epi-pens should be prescribed and supplied before discharge if:

- The trigger allergen is either not definitely avoidable (food allergy or insect sting) or unknown, AND

- Airway, breathing or circulation problems were present in this or a previous episode, AND

- The patient is able to understand the instructions about Epi-pen use

Asthmatic patients, especially if poorly controlled, may be particularly likely to benefit from an Epi-pen.

Epi-pens should NOT be prescribed before discharge if:

- No airway, breathing or circulation problems were present in this or any previous episode, OR
- The patient is NOT able to understand the instructions about Epi-pen use (but every effort MUST be made to overcome a simple language barrier), OR
- The trigger allergen is known to be a drug that can be avoided in future.

Instruction before discharge

Before discharge, patient should be informed of the followings and the advice documented in the medical notes:

- Symptoms and signs of anaphylaxis
- If an anaphylactic reaction occurs, use the adrenaline injector and call emergency services
- Given a practical demonstration and information leaflet by an appropriately trained doctor or nurse using a trainer Epi-pen. A family member or carer (if present) must also be given the same demonstration and instructions. http://www.epipen.co.uk/patients is a useful online video for patients and their carers on how to use EpiPen® in the event of a medical emergency.
- Risk of a biphasic reaction. If an anaphylactic reaction occurs, use the adrenaline injector and call emergency services
- how to avoid the suspected trigger (if known)
- the need for referral to a specialist allergy service and the referral process
- Information about patient support groups.

Specialist Allergy Clinic Referral

All patients with anaphylaxis must be referred to the specialist allergy clinic:

- by the doctor attending the patient
- before the patient's discharge
- the patient's GP should be informed on the discharge summary that the referral has been made, but the GP must not be asked to make the referral.
- on Whittington Trust email, and include the duty ED or medical consultant
- the allergy clinic has asked that we provide a copy of the discharge summary, paramedic sheet, evidence of airway involvement, bronchospasm or hypotension, copies of blood test results (especially mast cell tryptase on arrival and 2-4h later if they get done) and treatment given with the referral.

Our closest adult allergy clinic is:

Adult Allergy Clinic, The Royal London Hospital for Integrated Medicine
60 Great Ormond Street, London, WC1N 3HR

Direct Line: 0203 448 8873 **Fax**: 0203 448 2004
Email: rlhimpatients@uclh.nhs.uk **Web-site:** www.uclh.nhs.uk/rlhim

If the patient lives outside London, they should still be referred directly to their local allergy clinic. A list of these clinics can be found on the British Society for Allergy and Clinical Immunology website. http://www.bsaci.org/find-a-clinic/index.htm

➢ Further information

Anaphylaxis: assessment to confirm an anaphylactic episode and the decision to refer after emergency treatment for a suspected anaphylactic episode. *NICE guidelines [CG134]* Published date: December 2011 (accessed October 2015)

➢ Contacts (inside and outside the Trust including out-of-hours contacts)

ED Consultant

Acute Medicine Consultant

ITU Consultant

Duty Medical Registrar Bleep 3300

- **References (evidence upon which the guideline is based)**

Anaphylaxis: assessment to confirm an anaphylactic episode and the decision to refer after emergency treatment for a suspected anaphylactic episode. *NICE guidelines [CG134]* Published date: December 2011

- **Compliance with this guideline (how and when the guideline will be monitored e.g. audit and which committee the results will be reported to)**

Compliance and standard of care will be monitored using incidents and information identified from DATIX, case note reviews or serious incidents.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	

	Title of document being reviewed:	Yes/No	Comments
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?	Yes	
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Tool to Develop Monitoring Arrangements for Policies and guidelines (see page 11)

What key element(s) need(s) monitoring as per local approved policy or guidance?	*Who will lead on this aspect of monitoring?* *Name the lead and what is the role of the multidisciplinary team or others if any.*	*What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?*	*How often is the need to monitor each element?* *How often is the need complete a report ?* *How often is the need to share the report?*	*What committee will the completed report go to?*
Element to be monitored	***Lead***	***Tool***	***Frequency***	***Reporting arrangements***