

ANAPHYLAXIS GUIDELINE

TREATMENT AND MANAGEMENT OF INDIVIDUALS WHO PRESENT WITH SUSPECTED ANAPHYLACTIC REACTIONS

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CHANGE RECORD

Version	Date	Change details
1.0	6/8/12	<i>New guideline</i>
1.1	29/11/12	<i>Updated to replace Anapen with Epipen due to product availability</i>
2.0	25/02/2016	<i>Major update to change from autoinjectors to generic injections and update of Resus Council flow chart</i>
3.0	28/01/2019	<i>Major update to include the ABCDE approach and more comprehensive explanation medications. Removed sections on blood sampling and observation of patients post reaction as all anaphylaxis patients should be transferred to ED via a 999 Ambulance.</i>
3.1	30/09/2021	<i>Updated due to new national guidance</i>
3.2	15/08/2024	<i>Reviewed and updated throughout. Approved at DTG (15 August 2024).</i>

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1. INTRODUCTION

The World Allergy Organisation Anaphylaxis Committee defines anaphylaxis as: "A serious systemic hypersensitivity reaction that is usually rapid in onset and may cause death. Severe anaphylaxis is characterized by potentially life-threatening compromise in airway, breathing and/or the circulation, and may occur without typical skin features or circulatory shock being present."

Anaphylaxis is a clinical diagnosis; a precise definition is not important for treatment.

Anaphylaxis is characterised by: A sudden onset and rapid progression of symptoms.

There will be Airway and/or Breathing and/or Circulation problems usually accompanied by, skin and/or mucosal changes (flushing, urticaria, angioedema).

The diagnosis is supported if a patient has been exposed to an allergen known to affect them. However, in some cases there may be no obvious trigger.

The UK Resuscitation Council 2021 has issued a guideline for the initial treatment of anaphylactic reactions which includes the administration of intramuscular adrenaline.

NICE guidance CG134 'Anaphylaxis: assessment to confirm an anaphylactic episode and the decision to refer after emergency treatment for a suspected anaphylactic episode' offers best practice advice on the care of adults, young people and children following emergency treatment for suspected anaphylaxis however, within Humber Teaching Foundation Trust any patient suffering from an acute anaphylactic reaction should be conveyed by 999 ambulance to the nearest emergency department.

2. SCOPE

This document is for all staff that care for people with suspected anaphylaxis. It outlines the use of intramuscular adrenaline in such individuals and the appropriate management of individuals who present with suspected anaphylactic reactions.

This also includes the management of anaphylaxis in staff within a mass vaccination setting.

3. COMMON CAUSES OF ANAPHYLAXIS

Anaphylaxis can be triggered by a wide range of things, these may include:

- Foods
- Medications
- Insect stings and bites
- Latex

This list is not exhaustive

4. RECOGNITION OF ANAPHYLAXIS

Anaphylaxis is an unexpected event. Usually within minutes of exposure to an allergen the patient will develop a sudden illness characterised by rapidly progressing skin changes and /or life-threatening airway/breathing/circulation problems.

There is no single set of signs and symptoms which will identify an anaphylactic reaction but a range of signs and symptoms, which in combination make a diagnosis more likely.

An ABCDE approach must be followed when assessing an acutely unwell patient.

Patients can have either an A or B or C problem, or any combination.

Criteria	Signs/Symptoms
Airway	Airway swelling Difficulty breathing, speaking and swallowing Hoarse voice Stridor (High pitched inspiratory noise caused by upper airway obstruction) Patients may feel their throat is closing
Breathing	Shortness of breath, increased respiratory rate Increased work of breathing Bronchospasm – wheezing Hypoxaemia (SpO ₂ < 94% which may cause confusion and/or central cyanosis) Respiratory arrest
Circulation	Signs of shock – pale, clammy Tachycardia Hypotension Cardiac arrest
Disability	Confusion Agitation Sense of impending doom Loss of consciousness
Exposure	Angioedema (swelling of the face, neck and tongue) Diffuse Erythema Urticaria (itchy weals) Alterations in skin colour

Skin and mucosal changes may be subtle or dramatic and are often the first distinguishing feature. They are present in over 80% of anaphylactic reactions.

Skin or mucosal changes alone do not constitute anaphylaxis. In 20% of cases skin and/or mucosal changes are subtle or absent.

The time of onset of a reaction may vary depending on the type of trigger. For example an intravenous trigger will cause a more rapid onset of reaction.

5. TREATMENT

As soon as an anaphylactic reaction is suspected an ambulance should be called using 999

Remove the trigger if possible.

- Stop any drug suspected of causing anaphylaxis (e.g. drug infusion, blood products).
- Remove the stinger after a bee sting. Early removal is more important than the method of removal.
- Do not try to make a patient vomit.
- Do not delay definitive treatment if removing the trigger is not feasible

All patients should be placed in a comfortable position. The following factors should be considered:

- Fatality can occur within minutes if a patient stands, walks or sits up suddenly. Patients must not walk or stand during acute reactions. Use caution when transferring patients who have been stabilised.
- Patients with Airway and Breathing problems may prefer to be in a semi-recumbent position, as this will make breathing easier.
- Lying flat, with or without leg elevation, is helpful for patients with low blood pressure (Circulation problem).
- Patients who are breathing normally and unconscious should be placed on their side (recovery position). Monitor breathing continuously and prepare to intervene if this changes.
- Pregnant patients should lie on their left side to prevent aortocaval compression.

Where available, oxygen should be administered at 15litres per minute via a non-rebreathe mask.

Anaphylaxis during pregnancy.

The treatment of anaphylaxis during pregnancy is similar to that for the non-pregnant patient. If the mother is supine, manoeuvres are required from around 20 weeks gestation (when the uterus is palpable at or above the umbilicus) to reduce compression of the inferior vena cava and abdominal aorta by the pregnant uterus.

- Pregnant patients should lie on their left side to prevent aortocaval compression
- If the mother is breathing normally and has a cardiac output maximal venous return is achieved in the full lateral (recovery) position. She can be then be placed in a head-down position instead of lifting the legs.
- If she is placed supine in order to treat the airway or perform CPR then the uterus must be displaced manually to the left with one or two hands. A head-down tilt can be performed if she is on a firm surface.

5.1. Adrenaline injection 1:1000

Adrenaline 1:1000 is a prescription only medicine (POM) to be used for the treatment of anaphylaxis. It may be administered by any person to another person who is experiencing the life threatening condition of anaphylaxis. It should be given as Intramuscular injection.

Adrenaline (Epinephrine) is the most important drug in anaphylaxis. As an alpha receptor agonist it reverses peripheral vasodilation and reverses peripheral vasodilation and reduces oedema. Its beta receptor activity dilates the airways, increases the force of myocardial contraction and supresses' histamine and leukotriene release. Adrenaline works best when given early after the onset of a reaction. Adverse effects are extremely rare with appropriate doses administered intramuscularly.

Within Humber Teaching Foundation Trust Adrenaline 1:1000 is supplied in ampoules of 1mg/1ml and all emergency kits contain the relevant syringes and needles required for administration as well as a copy of the anaphylaxis guideline.

Adrenaline 1:1000 should be stored at room temperature. The expiry date should be checked periodically and before use.

Adrenaline 1:1000 can be given in an emergency situation without the necessity of a patient group direction.

Staff administering medications such as long-acting antipsychotic medications SHOULD ensure that an anaphylaxis kit is Immediately available. Staff administering Insulin injections or venous thromboembolism injections are NOT required to carry an Anaphylaxis pack routinely.

5.2. Dosage

The recommended dosages of adrenaline 1:1000 are:

- Adults:
Adrenaline 500micrograms IM (0.5mL) 1:1000
- Children over 12 years:
Adrenaline 500micrograms IM (0.5mL) 1:1000
- Children 6 to 12 years:
Adrenaline 300micrograms IM (0.3ml) 1:1000
- Children less than 6 years:
Adrenaline 150microgram (0.15mL) 1:1000
- Children less than 6 months
Adrenaline 100-150microgram (0.1-0.15mL) 1:1000
 - For Intramuscular injection the needle needs to be of sufficient length to ensure that the drug is injected into the muscle. A 16mm (orange) needle is suitable in preterm or very small infants
 - A 30mm (blue) needle is suitable for all ages
 - A 38mm (green) needle may be required in some adults
 - A second dose may be given after a five-minute interval **where the patient's condition has not improved and medical assistance has not arrived.**

Auto-injectors are often prescribed to patients at risk of anaphylaxis for early self-administration or injection by a carer or family member in the event of an anaphylactic reaction. Depending on the brand, they are available in three doses of Adrenaline: 150 micrograms (0.15 mg), 300 micrograms (0.3 mg) and 500 micrograms (0.5 mg). Healthcare professionals should be familiar with their use.

In all healthcare settings, giving adrenaline from an ampoule by syringe and needle is preferred in an emergency, since auto-injectors will not allow delivery of an age/weight appropriate dose in most patients. In addition, concerns have been raised as to whether auto-injectors will deliver an IM dose in some patients.

If the only available adrenaline preparation is an auto-injector, this may be used in the first instance. Some settings (e.g. allergy challenge clinics) may recommend a patient to self-administer Adrenaline using an auto-injector under supervision, to train them in its use, which is associated with significant patient benefit. Auto-injectors are not recommended in healthcare settings for administration of adrenaline in patients needing more than one dose of adrenaline. If further doses of Adrenaline are needed, give these from an ampoule by syringe and needle.

Oxygen (give as soon as available)

Initially, give the highest concentration of oxygen possible, using a mask with an oxygen reservoir. As soon as is feasible, adjust the inspired oxygen concentration to achieve an oxygen saturation of 94 – 98% (in patients at risk of hypercapnic respiratory failure, consider a target range of 88 – 92%).

Intravenous fluids

In the presence of hypotension/shock, or poor response to an initial dose of Adrenaline:

- Secure IV access and give a rapid IV fluid bolus (10 mL/kg in a child or 500 – 1 000 mL in an adult) and monitor the response. Use 0.9% Sodium Chloride for initial resuscitation
- Give further fluids as necessary.

Ensure a further dose of IM Adrenaline is administered after 5 minutes if breathing or circulation symptoms persist and while attempting to secure IV access.

Antihistamines

- Antihistamines are no longer recommended as part of the initial emergency treatment for anaphylaxis. Antihistamines have no role in treating respiratory or cardiovascular symptoms of anaphylaxis.
- Antihistamines can be used to treat skin symptoms that often occur as part of allergic reactions including anaphylaxis. Their use must not delay treatment of respiratory or cardiovascular symptoms of anaphylaxis (using Adrenaline and IV fluids). Once a patient has been stabilised, use a non-sedating oral antihistamine (e.g. Cetirizine) in preference to Chlorphenamine which causes sedation.

Steroids

The routine use of corticosteroids to treat anaphylaxis is **NOT ADVISED**

Bronchodilators

The presenting symptoms and signs of severe anaphylaxis and life-threatening asthma can be the same. Individuals presenting with asthma in the context of possible exposure to a known allergen (so that anaphylaxis is a differential diagnosis) should receive treatment with intramuscular adrenaline. In addition to the drugs listed above, consider further inhaled bronchodilator therapy with salbutamol and/or ipratropium. Further guidance on treatment of bronchospasm in severe asthma can be found in the asthma guidelines published by the British Thoracic Society and Scottish Intercollegiate Guideline Network (SIGN) (www.brit-thoracic.org.uk)

5.3. Records

After administration of any medicines, the following should be recorded in the patient's nursing record and medicines administration record (MAR) chart:

- Name and dosage of drug.
- Date and time given.
- Route of administration.
- Signature of Nurse administering drug.
- Document the acute clinical features of the suspected anaphylactic reaction.
- Record the time of onset of the reaction.
- Record the circumstances immediately before the onset of symptoms to help to identify the possible trigger.

It is imperative that ambulance personnel are made aware of the drugs given

5.4. Blood sampling

In order for blood samples to be taken after cases of suspected anaphylaxis, all patients should be transferred to acute care via 999.

5.5. Training Requirements

Any Health Practitioner wishing to administer adrenaline 1:1000 will ensure that they have familiarised themselves with the product and is competent in all aspects of administration, including cautions and side effects.

The Health Practitioner will have due regard for their respective professional code, standards of conduct performance and ethics.

5.6. Further information

Further information regarding treatment guidelines is available from:

<https://www.resus.org.uk/anaphylaxis/emergency-treatment-of-anaphylactic-reactions/>

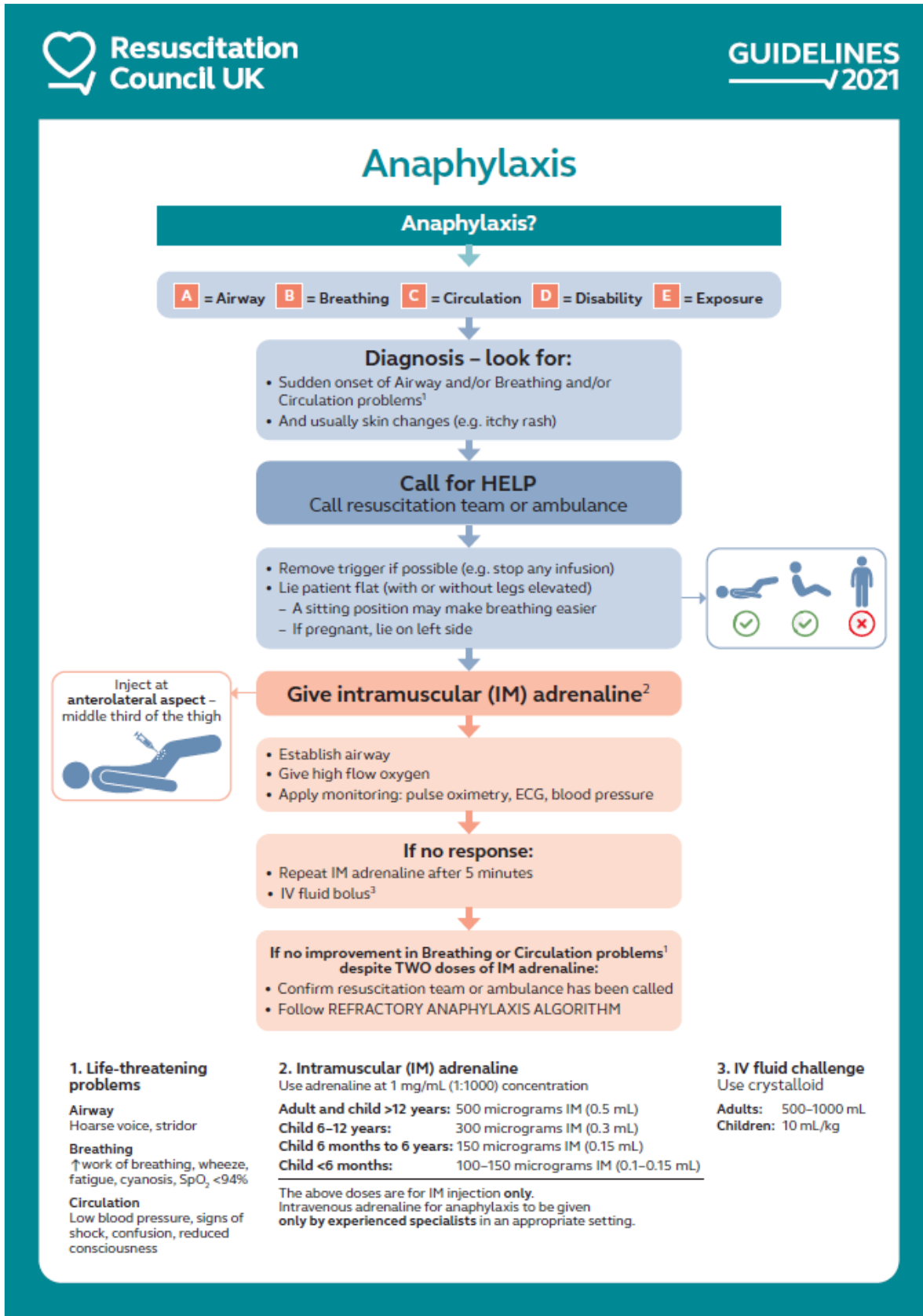
Further information and the NICE pathway are available on the following site:
<http://pathways.nice.org.uk/pathways/anaphylaxis>

6. REFERENCES

References

- British National Formulary current edition
- Health & care professions council Standards of conduct, performance and ethics.
- Nursing & Midwifery Council (NMC) Standards of conduct, performance and ethics for nurses and midwives.
- Resuscitation Council (UK) Guidelines 2021
- NICE CG 134 Anaphylaxis

Appendix 1: Management of Anaphylaxis



Appendix 2: Management of Anaphylaxis in the Vaccination Setting

MANAGEMENT OF ANAPHYLAXIS IN THE VACCINATION SETTING

