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Key recommendations for clinical practice

- Anaphylaxis is a potentially life-threatening allergic reaction.
- Recognise anaphylaxis based on:
    - sudden onset and rapid progression of symptoms
    - **A**irway and/or **B**reathing and/or **C**irculation problems
    - skin and/or mucosal changes (flushing, urticaria, angioedema) – but these may be absent in up to 20% of cases.

  The diagnosis is supported if a patient has been exposed to an allergen known to affect them.
- Treat life-threatening features, using the **A**irway, **B**reathing, **C**irculation, **D**isability, **E**xposure (**ABCDE**) approach.
- Adrenaline is the first-line treatment for anaphylaxis. Give intramuscular (IM) adrenaline early (in the anterolateral thigh) for **A**irway/**B**reathing/**C**irculation problems.
    - A single dose of IM adrenaline is well-tolerated and poses minimal risk to an individual having an allergic reaction. If in doubt, give IM adrenaline.
    - Repeat IM adrenaline after 5 minutes if **A**irway/**B**reathing/**C**irculation problems persist.
- Intravenous (IV) adrenaline must be used only in certain specialist settings, and only by those skilled and experienced in its use.
    - IV adrenaline infusions form the basis of treatment for refractory anaphylaxis: seek expert help early in patients whose respiratory and/or cardiovascular problems persist despite 2 doses of IM adrenaline.
- Follow the National Institute for Health and Care Excellence (NICE) guideline for the assessment and referral of patients suspected to have had anaphylaxis. Specifically:
    - All patients should be referred to a specialist clinic for allergy assessment.
    - Offer patients (or, if appropriate, their parent and/or carer) an appropriate adrenaline injector as an interim measure before the specialist allergy assessment (unless the reaction was drug-induced).
    - Patients prescribed adrenaline auto-injectors (and/or their parents/carers) must receive training in their use, and have an emergency management or action plan
- Further research is needed to better identify and treat patients at greatest risk of severe anaphylaxis.

- Anaphylaxis reactions should be reported to the UK Anaphylaxis Registry at www.anaphylaxie.net (to register, email anaphylaxis.registry@ic.ac.uk).
- Follow guidance for reporting and debriefing of adverse events.

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Summary of changes from previous guideline

This guideline replaces the previous guideline from Resuscitation Council UK (RCUK): Emergency treatment of anaphylactic reactions – Guidelines for healthcare providers (originally published January 2008, annotated July 2012 with links to NICE guidance).[1]

- Greater emphasis on intramuscular adrenaline to treat anaphylaxis, and repeated after 5 minutes if **A**irway/**B**reathing/**C**irculation problems persist.
- A specific dose of adrenaline is now included for children below 6 months of age.
- Increased emphasis on the importance of avoiding sudden changes in posture and maintaining a supine position (or semi-recumbent position if that makes breathing easier for the patient) during treatment.
- There are 2 algorithms:
    - Initial treatment of **anaphylaxis,** with emphasis on repeating the dose of adrenaline after 5 minutes and giving an IV fluid bolus if **A**irway/**B**reathing/**C**irculation problems persist.
    - Treatment of **refractory anaphylaxis,** defined as anaphylaxis where there is no improvement in respiratory or cardiovascular symptoms despite two appropriate doses of IM adrenaline.
- IV fluids are recommended for refractory anaphylaxis, and must be given early if hypotension or shock is present.
- Antihistamines are considered a third-line intervention and should not be used to treat **A**irway/**B**reathing/**C**irculation problems during initial emergency treatment.
    - Non-sedating oral antihistamines, in preference to chlorphenamine, may be given following initial stabilisation especially in patients with persisting skin symptoms (urticaria and/or angioedema).
- Corticosteroids (e.g. hydrocortisone) are no longer advised for the routine emergency treatment of anaphylaxis.
- New guidance is offered relating to the duration of observation following anaphylaxis, and timing of discharge.

This updated guideline has been developed according to the GRADE Evidence to Decision (EtD) frameworks for adoption, adaptation, and de novo development of trustworthy recommendations (GRADE-ADOLOPMENT).[2] The evidence tables and conclusions have been peer-reviewed and published.[3]

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GUIDELINES 2021

Anaphylaxis

Anaphylaxis?

A = Airway **B** = Breathing **C** = Circulation **D** = Disability **E** = Exposure

Diagnosis – look for:

- Sudden onset of Airway and/or Breathing and/or Circulation problems[1]
- And usually skin changes (e.g. itchy rash)

Call for HELP
Call resuscitation team or ambulance

- Remove trigger if possible (e.g. stop any infusion)
- Lie patient flat (with or without legs elevated)
  - A sitting position may make breathing easier
  - If pregnant, lie on left side

Give intramuscular (IM) adrenaline[2]

Inject at **anterolateral aspect** – middle third of the thigh

- Establish airway
- Give high flow oxygen
- Apply monitoring: pulse oximetry, ECG, blood pressure

If no response:

- Repeat IM adrenaline after 5 minutes
- IV fluid bolus[3]

If no improvement in Breathing or Circulation problems[1] despite TWO doses of IM adrenaline:

- Confirm resuscitation team or ambulance has been called
- Follow REFRACTORY ANAPHYLAXIS ALGORITHM

1. Life-threatening problems

Airway
Hoarse voice, stridor

Breathing
↑work of breathing, wheeze, fatigue, cyanosis, SpO_2 <94%

Circulation
Low blood pressure, signs of shock, confusion, reduced consciousness

2. Intramuscular (IM) adrenaline
Use adrenaline at 1 mg/mL (1:1000) concentration

Adult and child >12 years:	500 micrograms IM (0.5 mL)
Child 6–12 years:	300 micrograms IM (0.3 mL)
Child 6 months to 6 years:	150 micrograms IM (0.15 mL)
Child <6 months:	100–150 micrograms IM (0.1–0.15 mL)

The above doses are for IM injection **only**.
Intravenous adrenaline for anaphylaxis to be given **only by experienced specialists** in an appropriate setting.

3. IV fluid challenge
Use crystalloid

Adults:	500–1000 mL
Children:	10 mL/kg

Download this algorithm:
https://www.resus.org.uk/sites/default/files/2021-04/Anaphylaxis%20algorithm%202021.pdf

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Download this algorithm:
https://www.resus.org.uk/sites/default/files/2021-04/Refractory%20anaphylaxis%20algorithm%202021.pdf