Anaphylaxis and when to prescribe AAI

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**Introduction**

Anaphylaxis is defined by [The Resus Council](https://www.resus.org.uk/sites/default/files/2020-06/EmergencyTreatmentOfAnaphylacticReactions%20%281%29.pdf) as: “a severe, life-threatening, generalised or systemic hypersensitivity reaction” with rapidly evolving airway compromise and/or breathing and/or circulatory problems, which are generally combined with skin and mucosal effects (though 10% do not have any skin changes). Food is the most common trigger. Hospital admissions for Anaphylaxis increased by 615% from 1992 to 2012 and confusion persists regarding optimal follow up management.

**Clinical Features**

A list of clinical features is given by [NICE](https://cks.nice.org.uk/topics/angio-oedema-anaphylaxis/), [The Resus Council](https://www.resus.org.uk/sites/default/files/2020-06/G2010Poster_Anaphylaxis-Initial.pdf) and [The NEW Devon Formulary](https://northeast.devonformularyguidance.nhs.uk/referral-guidance/eastern-locality/paediatrics/anaphylaxis-in-children) as anaphylaxis is a constellation of non-specific symptoms which does not have single test to rule it out or in at the point of history.

An ABCDE approach is employed alongside urgent IM adrenaline 1:1000 administration to the thigh and ambulance transfer to the Emergency Department for all patients. In children with suspected Anaphylaxis giving IM adrenaline will not cause harm but may save a life. There are few [contra-indications](https://www.medicines.org.uk/emc/product/3449/smpc#gref) in adults, and in Anaphylaxis benefits largely outweigh risk.

Remove the stimulus, if possible, but do not delay the administration of adrenaline trying to do this. Symptoms include:

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| **System** | **Clinical Features** |
| Airway | * Swelling e.g. pharyngeal/laryngeal oedema
* Hoarse voice
* Difficulty breathing and swallowing
* Throat ‘closing up’
* Stridor
* Cough
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| Breathing | * Shortness of breath and tachypnoea
* Wheeze
* Tiring breathing
* Hypoxic confusion
* Cyanosis (late sign)
* Respiratory arrest
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| Circulation | * Signs of shock (pale, clammy)
* Tachycardia, bradycardia (late sign pre-arrest)
* Hypotension, dizziness, collapse
* Myocardial ischaemia and associated ECG changes
* Cardiac arrest
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| Disability | * Reduced consciousness due to decreased brain perfusion
* Confusion
* Agitation
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| Exposure | * Abdominal pain
* Incontinence
* Recurrent vomiting
* Skin and/or mucosal changes – often first feature, but absent in 20% cases
* Patchy or generalised erythema
* Urticaria
* Angioedema
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Up to date information on anaphylactoid reactions to Covid-19 vaccinations can be viewed through [BSACI](https://www.bsaci.org/news/) and the [MHRA](https://www.gov.uk/government/news/confirmation-of-guidance-to-vaccination-centres-on-managing-allergic-reactions-following-covid-19-vaccination-with-the-pfizer-biontech-vaccine).

**Adrenaline autoinjectors (AAIs)**

In adults AAI should be prescribed where anaphylaxis risk is deemed ‘unavoidable’, which includes most triggers with the exception of some drugs, occupational exposures and foods. [BSACI guidelines](https://www.bsaci.org/wp-content/uploads/2020/01/Ewan_et_al-2016-Clinical_26_Experimental_Allergy.pdf) provide more detail on risk assessment.

In children, the [BNFc](https://bnfc.nice.org.uk/drug/adrenalineepinephrine.html#patientAndCarerAdvice) recommends 2 AAIs be prescribed for those at risk of Anaphylaxis and carried always, [BSACI](https://www.bsaci.org/wp-content/uploads/2020/01/Ewan_et_al-2016-Clinical_26_Experimental_Allergy.pdf) recommend an additional 2 sets for school in cases including obesity or a previous life-threatening reaction where 2 doses were required. It is important to note that the AAI should follow the child, rather than the child following the AAI. Unfortunately, 33% of adolescents prescribed AAIs do not carry them on their person, they are therefore targeted by education campaigns e.g. [#TakeTheKit](https://www.anaphylaxis.org.uk/campaigning/guidance-for-young-adults/) and benefit from referral to paediatric adolescent allergy clinic. Further indications for referral are listed [here](https://www.anaphylaxis.org.uk/hcp/what-is-anaphylaxis/medication/#who), and [MedicAlert](https://www.medicalert.org.uk/) bracelets can be considered in primary care.

**Ongoing care**

All patients with Anaphylaxis should be assessed in hospital and must be seen in the allergy clinic afterwards. All patients who have had anaphylaxis should be prescribed AAIs and [educated](https://www.youtube.com/watch?v=KW3LjhRgBVE) on their use. [Medicines for Children](https://www.medicinesforchildren.org.uk/adrenaline-auto-injector-anaphylaxis-0) guidelines can be useful for carers and [Allergywise](https://www.allergywise.org.uk/) provides free e-learning for patients and children (and paid training for professionals). An [Allergy Action Plan](https://www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/) should be completed for the patient by a healthcare professional to identify the necessary first aid in case of Anaphylaxis.

**References**

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AllergyWise. Accessed online: <https://www.allergywise.org.uk>

BSACI. Paediatric allergy action plans. Accessed online: <https://www.bsaci.org/professional-resources/resources/paediatric-allergy-action-plans/>