Anaphylaxis is a severe, life-threatening, generalised, or systemic hypersensitivity reaction. Anaphylaxis rates resulting from food allergy, requiring hospital admission, have more than tripled in the past 20 years, with recent NHS data showing that there were 26,000 admissions in 2021–22.\(^1,2\)

Anaphylaxis occurs as part of a severe allergic response. Reactions occur within minutes to hours and generally resolve within 2–4 hours.

IgE-mediated allergies can cause symptoms which include hives (urticaria), swelling (angioedema), abdominal pain, vomiting, diarrhoea, runny nose, or itchy eyes. They are also responsible for causing anaphylaxis.

### Symptoms
Anaphylaxis can present with symptoms involving ‘ABC’.
- **Airway:** coughing, voice change, tongue swelling
- **Breathing:** wheezing, difficulty in breathing, noisy breathing
- **Circulation/Conscious level:** dizziness, collapse, tachycardia, hypotension.

### Causes
In children, food is the most common cause of anaphylaxis (72% of reactions), followed by insect venom (20%) and medication (5%). In adults, the most common cause is insect venom (72% of reactions), followed by insect venom (20%) and medications (25%). Spontaneous anaphylaxis can occur in both adults and children.\(^3,4\)

### Co-factors
Significant allergic reactions are more likely to occur if a co-factor is present when the person is exposed to the allergen.

Examples include:
- Intercurrent illness
- Poorly controlled asthma
- Exercise immediately before or after exposure to the allergen
- Taking ibuprofen around the time of exposure
- Premenstrual state
- Stress
- Alcohol
- Sleep deprivation

### Important considerations
1. Reactions do not get more severe with each exposure to the allergen.
2. Allergy tests do not predict the severity of a reaction; they simply confirm the allergy in those with a history suggestive of a reaction. The larger the test, the less likely it is that a serious reaction will ensue.
3. There is no such thing as a mild IgE allergy. Anaphylaxis can occur in anyone even if they have only experienced mild symptoms previously.
4. Anaphylaxis can occur in the absence of any skin changes such as hives or swelling.
5. Antihistamines do not treat anaphylaxis or stop the progression of an allergic reaction to anaphylaxis.

### Death rates
Whilst cases of anaphylaxis are rising, death rates have remained low, with a case fatality of 0.7% in 1998 and 0.3% in 2018.\(^5\) It is, however, thought that not all deaths from anaphylaxis are recognised so these rates may be falsely low.

### Treatment
**Adrenaline Auto-Injectors (AAIs)**
Adrenaline is the first-line treatment for anyone who has anaphylaxis. Adrenaline Auto-Injectors (AAIs) are available over-the-counter in pharmacies across the UK. Two pens are needed in case there is a need for a further dose after 5 minutes (before an ambulance arrives). Incorrect administration or device failure (which is rare). A biphasic reaction may occur, but the patient should be monitored in the hospital after an anaphylactic episode.

### Key points
It is vital to ensure that patients are trained on how to use AAIs and to be aware of when their devices expire. Each manufacturer’s website will have a training video and patients can sign up for an alert to tell them when the pen needs renewing and order a training pen. Every pen has a different technique, and it is every healthcare professional’s responsibility to train patients, every time a pen is prescribed.

### Management in the community
During anaphylaxis, movement can exacerbate a reaction as standing can cause a drop in blood pressure. The patient should stay still and sit up if they are having breathing problems or lay flat and elevate their legs if not. The AAI should be given into the thigh muscle and 999 should be called after administering the pen. Health professionals should teach patients and families that if they are in doubt about whether adrenaline is needed, then they should always administer it.

### References
It is important that patients have access to and carry TWO Adrenaline Auto-Injectors at all times.

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PRESCRIBING INFORMATION

EpiPen® and EpiPen® Jr. (adrenaline), Please refer to Summary of Product Characteristics (SmPC) before prescribing. Indications: EpiPen® auto-injectors are automatic injection devices containing adrenaline for allergic emergencies. The auto-injector should be used only by a person with a history of an established risk of an anaphylactic reaction. The auto-injectors are indicated in the emergency treatment of allergic anaphylactic reactions. Anaphylaxis may be caused by insect stings or bites, foods, drugs and other allergens as well as idiopathic or exercise-induced anaphylaxis. Presentation: EpiPen® delivers a single dose of 0.3mg of adrenaline BP 1:1000 (0.3ml) in a sterile solution. EpiPen® Jr. delivers a single dose of 0.15mg adrenaline BP 1:2000 (0.3ml) in a sterile solution. 1.7ml of adrenaline remains in the auto-injector after activation. Dosage and administration: ADULTS: Administration of 0.3mg adrenaline EpiPen® intramuscularly, CHILDREN: The appropriate doseage may be 0.15mg (EpiPen® Jr) for children 7.5-25kg body weight and 0.3mg EpiPen® adrenaline for children >25kg body weight, or at the discretion of the physician. EpiPen® should only be injected into the anterolateral aspect of the thigh through clothing if necessary, do not dose should be administered as soon as symptoms of anaphylaxis are recognised. A second injection with an additional EpiPen® may be administered 0-15 minutes after the first injection. It is recommended that patients are prescribed two EpiPen® auto-injectors which they should carry at all times. As EpiPen® is designed for emergency treatment, the patient should always seek medical help immediately. Contra-indications: There are no absolute contra-indications to the use of adrenaline during an allergic emergency. Warning and precautions: DO NOT INJECT INTO THE BUTTOCKS. Accidental injection into the hands or feet may result in loss of blood flow to the affected area. If there is an accidental injection into these areas, advise the patient to go immediately to the nearest A & E or hospital casualty department for treatment. All patients who are prescribed EpiPen® should be thoroughly instructed to understand the indications for use and the correct method of administration. It is strongly advised to educate the patient’s parents, caregivers, teachers, for the correct usage, in case support is needed in the emergency. In case of injection performed by a caregiver, patient’s leg should be kept still to reduce risk of injection site injury. The needle should never be reinserted after use. In patients with a thick sub-cutaneous fat layer, there is a risk for adrenaline not reaching the muscle tissue resulting in a subcutaneous effect. A second injection with an additional EpiPen® may be needed. Use with extreme caution in patients with heart disease and those taking digitalis, mercurial diuretics or quinidine. Adrenaline should only be prescribed to those patients and the elderly if the potential benefit justifies the potential risk. There is a risk of adverse reactions following adrenaline administration in patients with high intravascular pressure, severe renal impairment, prasidial anaphylaxis due to renal urine, hydrocortisone and hyaluronidase. In patients with Parkinson’s disease, adrenaline may be associated with a transient worsening of Parkinson’s symptoms such as rigidity and tremor. Adrenaline should be used in pregnancy only if the potential benefit justifies any potential risk to the fetus. The patient/carer should be informed about the possibility of biphasic anaphylaxis which is characterised by initial resolution followed by recurrence of symptoms some hours later. Adrenergic agents may be at increased risk of severe anaphylactic reaction. Patients should be warned regarding related allergies and investigated to test their specific allergies and to be characteristic. Interaction with other medicinal products: Caution should be indicated to patients receiving other medications that may increase the risk of the following: 1-2 years of age may be increased by tricyclic antidepressants and mono-amine oxidase inhibitors (MAO-inhibitors) and catechol-O-methyl transferase inhibitors (COMT-inhibitors), thyroid hormones, theophylline, cyclosporin, parasympatholytics, certain antibiotics (trimethoprim, chlorpheniramine), naproxen and alcohol. Pulsor effects of adrenaline may be counteracted by rapidly acting vasodilators or alpha-adrenergic blocking drugs. Pregnancy and lactation: Adrenaline should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Effects on ability to drive and use machines: Ability to drive and use machines may be affected by the adrenaline reaction, as well as by possible adverse reactions to adrenaline. Undesirable effects: (Rare): Stress cardiomyopathy, (Frequency not known): May include injection site reactions, palpitations, tachycardia, hypertension, undesirable effects on the central nervous system, sweating, nausea and vomiting, respiratory difficulty, palor, dizziness, weakness, tachycardia, hypotension, unconsciousness, syncope and undesirable effects on the CNS. Cardiac arrhythmias may follow administration of adrenaline. Overdoses of adrenaline may cause cardiac haemorrhage or arrhythmias. For a complete list of warnings and adverse reactions, you should consult the Summary of Product Characteristics. Legal Category: POM. Marketing Authorisation Number: EpiPen® Auto-Injector PL 46302/0171, EpiPen® Jr Auto-Injector PL 46302/0172 MHR: Aylan Products Ltd., Station Close, Potters Bar, EN6 1TL, UK NHS Price: EpiPen® and EpiPen® Jr. are available as single unit doses at £33.80 each or as a pack of 2 Auto-Injectors at £67.60. Date of Revision of Prescribing Information: February 2023 VenaReference: EP-2023-0065

The SmPC for this product, including adverse reactions, precautions, contra-indications, and method of use can be found at: http://www.mhra.gov.uk/Safetyinformation/Medicinesinformation/SPCandPILs/index.htm Please continue to report suspected adverse drug reactions and device failures with any medicine or vaccine to the MHRA through the Yellow Card Scheme. Alternatively, you can report via some clinical IT systems (EMIS/SystemOne/Vision/MiDatabank) or by calling the Commission on Human Medicines (CHM) free phone line: 0800-731-6789. Adverse reactions/events and device failures should also be reported to MHRA at e-mail address: pruk@nhs.net

References: 1. EpiPen® (adrenaline) Auto-Injector 0.3mg, Available at: https://www.medicines.org.uk/emcp/product/04998/epipen Last accessed September 2023.

The identical twins

TWO PENS ONE PACK

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Legal Category:

Marketing

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