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## Adrenaline (epinephrine)

**Clinical author's note Michael Stewart 25/05/23:** Patient-level Recall on all Emerade® auto-injector pens. Further to concerns over the risk of device failure, the manufacturer of Emerade® adrenaline auto-injector has now issued a patient-level recall on all strengths of pen (150, 300 and 500 microgram). Anyone who carries these pens should return them to their local pharmacy once they have obtained a prescription for, and been supplied with, an alternative brand. Make sure you know how to use the replacement device, links to manufacturer's training videos can be found in the MHRA alert.

**Clinical author's note Michael Stewart 11/07/19: Temporary Product Warning.** The manufacturer of Emerade® adrenaline auto-injector has warned of a small risk of device failure. The needle may become blocked and the adrenaline dose may not be delivered correctly. People at risk of anaphylaxis are advised to carry two auto-injectors at all times, in case the first dose is not sufficient. The chance of someone receiving two faulty Emerade® devices is extremely low. For more information, read the **MHRA medicine alert**.

Adrenaline pens are used for the emergency treatment of severe allergic reactions, such as anaphylaxis.

Carry two devices with you at all times and make sure you know how to use the device your doctor prescribes.

Check the expiry date so that you know when to order a new supply.

# About adrenaline for anaphylaxis

Type of medicine	Sympathomimetic
Used for	Allergic emergencies
Also called	Emerade®; EpiPen®; Jext® Adrenaline is also called epinephrine. This is the name it may be known as if you are outside the UK
Available as	Auto-injection device or 'pen'

An extreme form of an allergic reaction can cause swelling of your mouth and tongue, breathing problems, flushing, collapse and a loss of consciousness. This type of allergic reaction is called [anaphylaxis](#), and it is a medical emergency. Adrenaline is used as a treatment for anaphylaxis. People who have had a severe allergic or anaphylactic reaction in the past are advised to carry an auto-injection device containing adrenaline with them at all times. The injection device is often referred to as an adrenaline pen. It is a pre-filled syringe which is fitted with a needle so that adrenaline can be injected straightway. This means that in the event of a severe reaction occurring again, adrenaline can be self-injected, or injected by a family member or a health worker.

Triggers such as [peanuts](#), [shellfish](#), and [insect bites or stings](#) can cause these severe [allergic reactions](#) in some people. Sometimes there is no known cause. An anaphylactic reaction can start very suddenly. Typical early symptoms are breathing difficulties, an itchy skin rash, and swelling of the mouth and throat. If the reaction is not treated straightaway, it can lead to a large fall in blood pressure and to unconsciousness.

Adrenaline is a naturally occurring chemical which is produced by our bodies in response to stress. An injection of adrenaline helps to relieve the symptoms of anaphylaxis by causing blood vessels to narrow, and opening up airways. This stops the blood pressure from dropping and makes breathing easier. It provides time to allow emergency services to arrive.

# European Medicines Agency Review 2017

**Clinical pharmacist's note 26/08/17 Michael Stewart:** Following a review of adrenaline auto-injectors by the European Medicines Agency and subsequent updated advice from the Medicines and Healthcare products Regulatory Agency (MHRA), I have reviewed and updated the advice given in this leaflet to ensure it is in line with current best practice.

**The updated MHRA advice is available here.**

## Before using an adrenaline pen

- You should tell your doctor about any medical condition that you have. It is especially important that your doctor knows if you have heart disease, high blood pressure, an overactive thyroid gland, a circulation problem, increased pressure in your eye (glaucoma), diabetes, or kidney or prostate problems. You should also tell your doctor about any medicines you take.
- Your doctor or nurse will explain to you how to use the device. If you are not sure about anything, ask for this to be explained to you again.
- Read the manufacturer's printed information leaflet from inside your pack very carefully. The leaflet will give you more information about the specific brand of pen you have been given, and full instructions on how to use it. Some manufacturers may have instructional videos on their websites.
- Make sure you (and any close family or friends) know how to use the device so that, if you have to use it in an emergency, you can do it easily. It should be possible for you to practise with a dummy injection device. These are available from the manufacturers free of charge.
- Each time you collect a prescription, check to make sure it is the same brand of pen that you have had before. If it is for a child, make sure it is the same strength also.

- Carry two pens with you at all times and make sure you know how to use it quickly. Your device will be labelled so that someone else can follow the instructions in case you are unable to use it yourself. Make sure these directions remain clear.

## How to use an adrenaline pen

- If you need to use the device, inject it into the muscle on your outer thigh. It can be done through light clothing if necessary. It is normal for some liquid to be left in the device after it has been used – don't be concerned that you have not received your full dose. Each device is designed to be used only once.
- For some people, one dose of adrenaline may not be enough to control a severe reaction. Always carry two adrenaline pens so that you can give a second dose 5-15 minutes after the first if needed.
- After using the injection:
  - Call 999, ask for an ambulance and state 'anaphylaxis'.
  - While you are waiting for the ambulance to arrive, lie down with your legs raised and have someone stay with you if at all possible.
  - If you are having breathing difficulties you may need to sit upright.
  - If you do not start to feel better, use the second injection 5-15 minutes after the first one.
  - Take the used device(s) with you in the packaging provided.

## How to use Emerade®

1. Remove the cap protecting the needle.
2. Hold Emerade® against the outer side of your thigh and press it against your leg. You will hear a click when the adrenaline is injected.
3. **Important:** press the pen very firmly against the thigh. If the pen does not activate, use your second pen immediately.
4. Keep holding the pen against your leg for about 5 seconds. This allows the full dose of adrenaline to be injected.

5. Massage the area for 10 seconds. This helps the adrenaline to work more quickly.
6. Make sure you tell the paramedics that you have used an adrenaline pen.

### **How to use EpiPen®**

1. Pull off the blue safety release cap at the end.
2. Hold the pen firmly and swing your arm from about 10 cm (4 inches) away, pushing the orange tip against your outer thigh.
3. The adrenaline will be released automatically into your thigh muscle.
4. Hold the pen in place for 3 seconds.
5. As soon as you release pressure, a protective cover will extend over the needle tip.
6. Make sure you tell the paramedics that you have used an adrenaline pen.

### **How to use Jext®**

1. Grasp the pen in your writing hand, with your thumb closest to the yellow cap.
2. Pull off the yellow cap.
3. Push the black tip firmly against your outer thigh. You will hear a click which means the injection has started.
4. Hold the injector in place against your thigh for 10 seconds, then remove it.
5. The needle shield will automatically cover the needle when you remove the pen.
6. Massage the area for 10 seconds.
7. Make sure you tell the paramedics that you have used an adrenaline pen.

## Getting the most from your treatment

- If you know what triggers your allergy, be careful to avoid it. You can do this by checking the ingredients in new foods, or by being especially careful outdoors when there are insects around - whichever is appropriate for you.
- If the pen has been prescribed for your child, explain to them what they need to do, and what triggers they need to avoid. Discuss it with their teacher so that they can act quickly in an emergency. It is a good idea for their teachers to know how and when to use the pen.
- Make sure you check from time to time to make sure that the adrenaline is in date and the solution is clear and colourless. Some manufacturers run a reminder scheme to let you know when you need to order a new device.
- It might be a good idea to purchase a MedicAlert® bracelet or necklace (or similar). Any medically trained person, including paramedics, checks to see if a collapsed patient is wearing such an item.
- If you are due to have an operation or dental treatment, tell the person carrying out the treatment about your allergy.
- If you accidentally inject adrenaline into yourself (and especially if it is into your hands or feet), you should go to the nearest hospital casualty department straightaway for treatment.

## Can adrenaline cause problems?

Along with their useful effects, most medicines can cause unwanted side-effects although not everyone experiences them. Your doctor will discuss with you the possibility of side-effects occurring. These include sweating, feeling sick (nausea), feeling faint or dizzy, irregular heartbeats, feeling short of breath, and feeling shaky or weak.

## How to store adrenaline pens

- Store in a cool, dry place, away from direct heat and light.
- Make a note of the expiry date of each pen and make sure you replace it with a new one before this date.

# Important information about all medicines

Never take more than the prescribed dose. If you suspect that you or someone else might have received an overdose of this medicine, go to the accident and emergency department of your local hospital at once. Take the container with you, even if it is empty.

This medicine is for you. Never give it to other people even if their condition appears to be the same as yours.

If you buy any medicines, check with a pharmacist that they are safe to take with your other medicines.

Do not keep out-of-date or unwanted medicines. Take them to your local pharmacy which will dispose of them for you.

If you have any questions about this medicine ask your pharmacist.

If you experience side effects, you can report them online through the [Yellow Card website](#).

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## Further reading

- [Manufacturer's PIL, EpiPen® Adrenaline \(Epinephrine\) Auto-Injector 0.3 mg](#); Mylan Products Ltd, The electronic Medicines Compendium. Dated May 2021.
- [Manufacturer's PIL, Jext® 150 and 300 micrograms Solution for Injection in pre-filled pen](#); ALK-Abello Ltd, The electronic Medicines Compendium. Dated March 2021.
- [PIL Emerade® 150, 300 and 500 micrograms, solution for injection in pre-filled pen: adrenaline auto-injector](#); Bausch & Lomb U.K Limited, the electronic Medicines Compendium. Dated July 2022.
- [Medicines Complete BNF 88th Edition](#); British Medical Association and Royal Pharmaceutical Society of Great Britain, London.

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