

Adrenaline (Epinephrine) Injectors Frequently Asked Questions (FAQ)

Updated September 2022

Q 1: What adrenaline injectors are available in Australia and New Zealand?

ASCIA recommends the use of adrenaline (epinephrine) as the first line emergency/first aid treatment for severe allergic reactions (anaphylaxis) using either of the following two brands of adrenaline injectors:

- **EpiPen® - TGA approved, available in Australia on the PBS, and available in New Zealand.**
- **Anapen® - TGA approved and available in Australia on the PBS.**

Neither brand is currently rebated by Pharmac in New Zealand.

Q 2: Why are multiple brands of adrenaline injectors required?

Both EpiPen® and Anapen® devices are widely used in other countries.

Most countries have multiple brands of adrenaline injector devices available, and this is important for the following reasons:

- To ensure continued supply of life saving adrenaline, particularly if one brand has stock shortages.
- To provide doctors with a choice of dose, who may prefer to prescribe a higher dose (500 microgram device) for people over 50kg.
- A 500 microgram device can potentially prevent the need for further doses of adrenaline (which is important due to increasing ambulance delays and many people carrying only one device).
- To encourage suppliers to provide devices with longer shelf life.
- To provide choice for consumers to access devices with points of difference to best suit their needs.

ASCIA Action Plans for Anaphylaxis that are specific for both EpiPen® and Anapen® are available.

Updated ASCIA Action Plans for Anaphylaxis, e-training courses and other resources which include EpiPen® and Anapen® instructions are available on the ASCIA website www.allergy.org.au/anaphylaxis

Q 3: What doses of adrenaline injectors are prescribed in Australia and New Zealand?

ASCIA Guidelines recommend the doses listed below, based on expert consensus and standard practice by ASCIA members, which are slightly different to the product information.

ASCIA Guidelines are consistent with the Acute Anaphylaxis Clinical Care Standard for Australia, Australian Prescriber Anaphylaxis wallchart, Australian Immunisation Handbook and recommendations from the World Allergy Organisation (WAO), Canada and the UK (see weblinks below).

Children 7.5-20 kg (aged around one to five years):

- **EpiPen® Junior** (150 microgram) or
- **Anapen® 150 (Jr)** (150 microgram)

Adults and children over 20kg (aged around five years or over):

- **EpiPen®** (300 microgram) or
- **Anapen® 300** (300 microgram)

Adults and children over 50kg (aged around twelve years or over):

- **New *Anapen® 500** (500 microgram) or
- **Anapen® 300** (300 microgram) or
- **EpiPen®** (300 microgram).

*The dose of adrenaline in Anapen 500 is consistent with the intramuscular injection (IMI) dose recommendations for people who weigh more than 50kg in the following publications:

www.safetyandquality.gov.au/standards/clinical-care-standards/acute-anaphylaxis-clinical-care-standard

www.nps.org.au/australian-prescriber/articles/anaphylaxis-emergency-management-for-health-professionals

<https://immunisationhandbook.health.gov.au/resources/handbook-tables/doses-of-intramuscular-11000-adrenaline-for-anaphylaxis>

[www.worldallergyorganizationjournal.org/article/S1939-4551\(20\)30375-6/fulltext](http://www.worldallergyorganizationjournal.org/article/S1939-4551(20)30375-6/fulltext)

[www.resuscitationjournal.com/article/S0300-9572\(21\)00150-7/fulltext](http://www.resuscitationjournal.com/article/S0300-9572(21)00150-7/fulltext)

www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-2-vaccine-safety/page-4-early-vaccine-reactions-including-anaphylaxis.html#shr-pg0

Q 4: Can a higher dose be given to a young child if no lower dose device is available?

Yes. In children 7.5-20kg (around one to five years of age) a device containing 150 micrograms of adrenaline should be used. However, if only a higher dose device is available (containing 300 micrograms of adrenaline) this should be used in preference to not using one at all. Under-treatment of anaphylaxis is more harmful (and potentially life threatening) than over-treatment of a mild or moderate allergic reaction.

An injector containing 500 micrograms of adrenaline is not recommended in children under 50kg. However, if an injector containing 300 micrograms of adrenaline is not available, then a 500 microgram device can be given to a child over 20kg. Call emergency services regarding management if no adrenaline injector is available.

Q 5: If you are unsure if it is anaphylaxis should you use an adrenaline injector?

Yes. If in doubt, it is better to use an adrenaline injector than not use it:

- Under-treatment of anaphylaxis is more harmful (and potentially life threatening) than over-treatment of a mild or moderate allergic reaction.
- Further adrenaline may be given if there is no response after 5 minutes.

Temporary side effects of adrenaline can include increased heart rate, trembling and paleness. Therefore, someone may still look unwell even after the adrenaline injector has been given.

Q 6: Why is adrenaline needed to treat anaphylaxis?

Anaphylaxis is a medical emergency and adrenaline is a life saving treatment.

Adrenaline:

- Reverses a severe allergic reaction by treating signs and symptoms of anaphylaxis.
- Assists breathing, maintains heart function and blood pressure.
- Works within minutes and the effects last around 10 to 20 minutes.
- Is a hormone produced naturally in the body and is safe when given using an adrenaline injector.

Q 7: What are adrenaline injectors?

Adrenaline injectors are devices that:

- Contain a single fixed dose of adrenaline.
- Are designed to be used by people who do not have medical training.
- Are given by injecting into the outer mid-thigh (around half way between hip and knee).
- Can be given through a single layer of clothing (not thick jeans, seams or pockets).
- Can be self-administered if the person having anaphylaxis has the ability and is not too unwell.
- Include instructions and an expiry date on the label.

Q 8: Why are adrenaline injectors recommended in non-medical settings?

ASCIA recommends that adrenaline injectors are used to treat anaphylaxis in schools, children's education/care (CEC) centres, and any other non-medical settings to avoid delay in adrenaline administration and ensure that the correct dose of adrenaline is given.

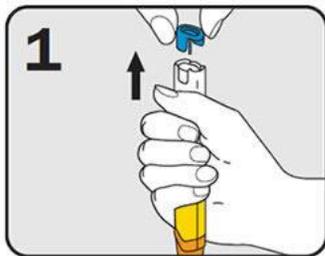
Whilst adrenaline ampoules, needles and syringes are suitable for use by trained health professionals in medical settings to treat anaphylaxis, they are unsuitable for use in non-medical settings such as schools, CEC centres, and workplaces.

It is not feasible for school and CEC educators to be trained in the use of ampoules, needles and syringes. This is a health professional (medical/nursing) skill that is beyond the parameters of first aid care.

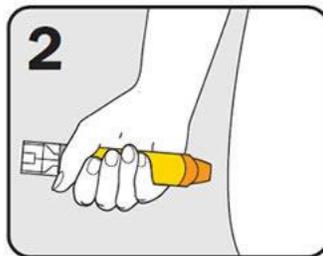
Students and children may be prescribed EpiPen® or Anapen® devices, and schools and CEC services need to accept both devices. Therefore, staff in schools and CEC services should be trained on both device brands.

Q 9: How do you give an EpiPen®?

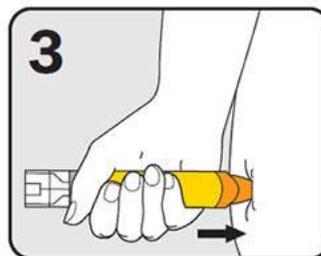
There are three steps to give EpiPen® as shown below:



Form fist around EpiPen® and PULL OFF BLUE SAFETY RELEASE



Hold leg still and PLACE ORANGE END against outer mid-thigh (with or without clothing)



PUSH DOWN HARD until a click is heard or felt and hold in place for 3 seconds
REMOVE EpiPen®

Provide ambulance staff with used EpiPen® and the time it was given.

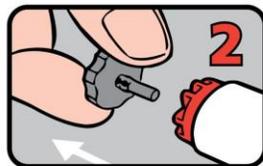
EpiPen® is available in Australia on the PBS (since 2003), and in New Zealand.

Q 10: How do you give an Anapen®?

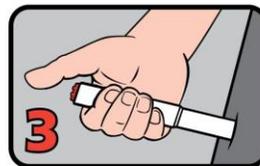
There are four steps to give Anapen® as shown below:



PULL OFF BLACK NEEDLE SHIELD



PULL OFF GREY SAFETY CAP from red button



PLACE NEEDLE END FIRMLY against outer mid-thigh at 90° angle (with or without clothing)



PRESS RED BUTTON so it clicks and hold for 3 seconds.
REMOVE Anapen®

After phoning ambulance, place the used Anapen® in a hard plastic container (where possible) or place needle into wide end of the black needle shield. Provide ambulance staff with used Anapen® and the time it was given.

Anapen® is available in Australia on the PBS (since September 2021).

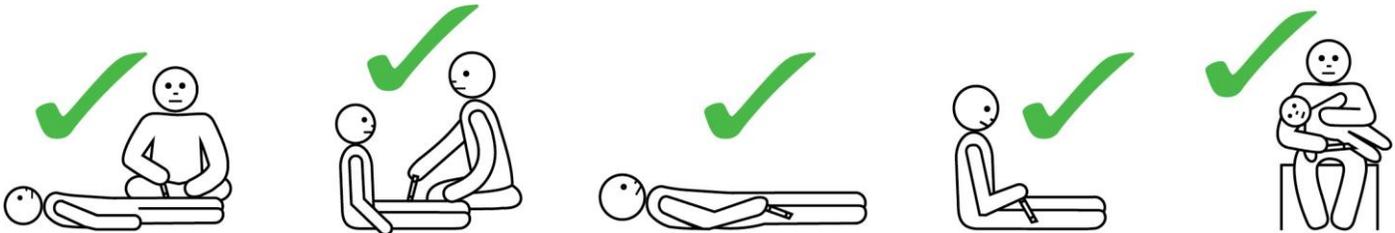
Q 11: Who can give an adrenaline injector?

Adrenaline injectors can be given by non-medically trained people:

- Adrenaline injectors have been designed for use by anyone in an emergency, including people who are not medically trained, such as a friend, teacher, children's education/care (CEC) centre worker, parent, other relative or the person with anaphylaxis themselves (if they are well and old enough).
- Instructions are shown on the label of each device and on the ASCIA Action Plan for Anaphylaxis.
- To give the adrenaline injector you may need to kneel beside the person and hold their leg still, then give the adrenaline injector.
- If another person is present they can assist, for example, by phoning the ambulance.

Some older children or adults can self administer adrenaline injectors if they are not too unwell or unconscious:

- They should lay flat once it has been given, or sit with legs outstretched if breathing is difficult, or in the recovery position if they are vomiting or pregnant.
- If a person who knows how to self-administer is too unwell, they will need another person to give the adrenaline injector.



Q 12: If you are unsure if it is asthma or anaphylaxis, when should an adrenaline injector be used?

In a person with asthma, who is also at risk of anaphylaxis, the adrenaline injector should be used first, followed by asthma reliever medication, calling an ambulance, continuing asthma first aid and following the ASCIA Action Plan for Anaphylaxis.

If someone with known food or insect allergy suddenly develops severe asthma-like symptoms, give adrenaline injector FIRST, then asthma reliever medication.

Q 13: Why do adrenaline injectors need to be administered into the outer mid-thigh?

Injecting adrenaline into the muscle of the outer mid-thigh:

- Will make sure that the adrenaline is most rapidly absorbed and works quickly.
- Makes it very unlikely that damage to nerves and tendons will occur, or that it will be accidentally injected into an artery or vein.

This is shown in the diagrams on the adrenaline injector labels and the ASCIA Action Plans for Anaphylaxis.

Adrenaline injectors can be given through a single layer of clothing, but not through seams, or pockets.

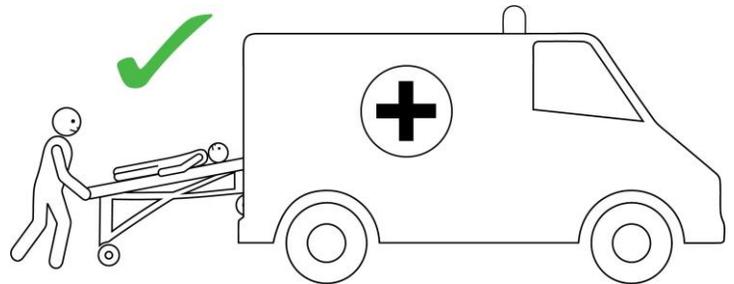
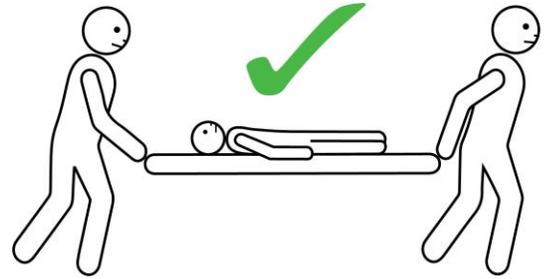
Another adrenaline injector (if available) may be given if there is no response after 5 minutes.

There is no evidence that injecting the second dose of adrenaline into the same thigh is a problem.

The most important thing is to give another dose of adrenaline (after 5 minutes) if symptoms persist, and phone an ambulance.

Q 14: What needs to be done after using an adrenaline injector?

- Phone ambulance - 000 (AU) or 111 (NZ).
- Phone family/emergency contact.
- Further adrenaline may be given if no response after 5 minutes.
- Transfer person to hospital (or other medical facility) for at least 4 hours of observation.
- If in doubt give adrenaline autoinjector.
- Commence CPR at any time if person is unresponsive and not breathing normally.
- Provide ambulance with the used device and the time it was given.
- The person having anaphylaxis should not be allowed to stand, sit up suddenly or walk, even if they look like they have recovered. They should be carried on a stretcher or trolley bed to the ambulance.



Q 15: Before, during and after using adrenaline, how should a person with anaphylaxis be positioned?

When a person has anaphylaxis their blood pressure can drop rapidly, which reduces blood flow to the heart. Laying the person flat will help blood flow to the heart which improves blood pressure, whilst standing can make anaphylaxis worse by causing blood pressure to drop.

Therefore, it is important to LAY PERSON FLAT - do NOT allow them to stand or walk.

If unconscious or pregnant, place in recovery position - on left side if pregnant, as shown below

- If breathing is difficult allow them to sit with legs outstretched
- Hold young children flat, not upright
- The person should **NOT** stand, walk, or be held upright, even if they appear to have recovered.



The person experiencing anaphylaxis should not walk to their medication, and the adrenaline injector should be brought to them as quickly as possible.

Q 16: What should people avoid doing when they have anaphylaxis?

Under no circumstances should a person with anaphylaxis take a shower, even if they feel very hot, for the following reasons:

- Standing can cause a further drop in blood pressure.
- Warm showers promote vasodilation (widening of the blood vessels), which can also lower blood pressure.
- Bathroom floors are hard, so there is a greater risk of injury if the person faints and falls.

They should also not eat or drink anything, as this can cause them to vomit, which may be inhaled (aspirated).

Q 17: If you pull the adrenaline injector out too quickly, can the device be reused?

No. Each adrenaline injector only releases a single, fixed dose of adrenaline once the device is triggered. The adrenaline is expelled quickly once the device is activated, which can only be done once.

Q 18: What precautions should be taken when using an adrenaline injector?

There are no absolute contraindications (factors which make it unwise to give treatment) for use of an adrenaline injector in a person who is experiencing anaphylaxis.

However, it is important to follow the instructions, ensure that the needle end of the adrenaline injector is on the person's outer mid-thigh and that the needle is not touched after administration, to avoid needle stick injury.

Q 19: Why are two adrenaline injectors usually prescribed for people at risk of anaphylaxis?

- For children in CEC centres or school, having two adrenaline injectors allows you to keep one with your child at all times (whilst in or out of the home), and another at the CEC centre or school.
- For older children or adults weighing 50 kg or more, this allows people to keep two adrenaline injectors with them at all times, in case more than one dose of adrenaline is required.
- Ideally, people at risk of anaphylaxis should have two devices available in case of ambulance delays in an emergency, when a second dose of adrenaline is required. As stated on the ASCIA Action Plan for Anaphylaxis: **Further adrenaline may be given if there is no response after 5 minutes.**

Q 20: Are adrenaline injectors available at a subsidised rate?

In Australia, two adrenaline injectors are available on the Pharmaceutical Benefits Scheme (PBS), for patients diagnosed to be at high risk of anaphylaxis.

Repeat approvals for PBS subsidised devices are not issued unless the device is about to expire or is used.

In New Zealand adrenaline injectors are not currently subsidised by Pharmac.

Q 21: Are adrenaline injectors available without a prescription?

Yes. Adrenaline injectors are available from pharmacies without a prescription at full retail price (not PBS subsidised).

If they are purchased directly from pharmacies without a prescription, you should request training from the pharmacist on how to use the adrenaline injector.

Q 22: Can an adrenaline injector be purchased for general use?

Yes. Many schools and some CEC centres, workplaces and restaurants purchase adrenaline injectors for general use (which can be included in a first aid kit).

These general use devices should:

- Be given, if available, when a person having anaphylaxis does not have a prescribed device.
- Be considered as being additional to the prescribed adrenaline injectors.
- Not be a substitute for people at high risk of anaphylaxis having their own prescribed adrenaline injector/s.
- Be stored with device specific ORANGE ASCIA First Aid Plan for Anaphylaxis.

Follow the instructions on the device label or ASCIA First Aid Plan for Anaphylaxis.

Advice and training from the local education and/or health authorities should be sought regarding adrenaline injectors for general use.

Q 23: Where should adrenaline injectors be stored?

Adrenaline injector devices should be stored:

- In a cool dark place at room temperature, between 15-25°C, but not refrigerated, as temperatures below 15°C may damage the injector mechanism.
- In an insulated wallet if a person carrying a device is outside for an extended time in the heat (such as hiking or at the beach).
- Where they are readily available and not in a locked cupboard.
- With a **RED** ASCIA Action Plan for Anaphylaxis, clearly labelled with the name of the person who has been prescribed the device, including if the device is carried by the person.
- With an **ORANGE** ASCIA First Aid Plan for Anaphylaxis if they are for general use (not prescribed for a person).

Q 24: At what age can students carry their own adrenaline injector whilst at school?

The decision as to whether a student can carry their own adrenaline injector should be made when developing the student's anaphylaxis management plan, in consultation with the student, their parents/guardians and their medical practitioner. This decision is generally based on a combination of factors, including age, maturity and ability to use the device.

If a student carries their own adrenaline injector device they:

- May not physically be able to self-administer due to the effects of anaphylaxis.
- Should be educated that if they self-administer, they should immediately alert a staff member and an ambulance must be called.
- Need to have a second adrenaline injector (provided by the parent/guardian) kept on site at the school in an easily accessible, unlocked location that is known to all staff.

Q 25: When do adrenaline injectors expire?

The shelf life of adrenaline injectors is normally one to two years from date of manufacture.

The expiry date on the side of the device needs to be marked on a calendar and the device must be replaced prior to this date. Registration with a reminder service may assist, to provide reminders about expiry dates.

Q 26: Can an expired, cloudy or discoloured adrenaline injector be used if it is the only one available?

Yes. Adrenaline injectors with discoloured adrenaline or expired adrenaline injectors are not as effective when used for treating anaphylaxis and should therefore not be relied upon to treat anaphylaxis. However, the most recently expired adrenaline injector available should be used if no in-date device is available.

Q 27: What documents are required to take an adrenaline injector in airline flight hand luggage?

ASCIA has developed a Travel Plan for people at risk of anaphylaxis which needs to be completed and signed by the person's treating doctor and attached to the ASCIA Action Plan for Anaphylaxis.

The patient support organisation Allergy & Anaphylaxis Australia, also has information on travelling with severe food allergies: www.allergyfacts.org.au

It is prudent for people to carry their adrenaline injector in a container which includes a pharmacy label (particularly if travelling in the USA).

They should notify their travel agent, insurer and airline of their allergy and the need to carry an adrenaline injector, in case additional documentation or preparation is required.

Further information about travelling with allergies including a checklist, is available from the ASCIA website.

Q 28: Why are adrenaline injector training devices used?

It is important to have regular practice using both brands of adrenaline injector trainer devices (EpiPen® and Anapen®).

Trainer devices:

- Do not contain adrenaline and do not have a needle, so they do not expire and can be reused.
- Should be stored in a different location than the real devices and clearly labelled as trainer devices.
- Can be purchased from the device supplier, pharmacies or patient organisations.
- Should be used for regular* practice to ensure that you use the device correctly in an emergency.

*Best practice recommendations are at least twice each year.

EpiPen® trainer devices have a grey label.

Anapen® trainer devices have a white label.

Q 29: Where can online training be accessed?

ASCIA anaphylaxis e-training is available on the ASCIA website and is free of charge:

www.allergy.org.au/about-ascia/about-ascia-e-training

ASCIA is a professional medical society and does not conduct face-to-face anaphylaxis training.

The ASCIA website includes links to government and relevant patient organisation websites and most of these include information on how to access face to face training in different regions.

Q 30: Where can other information be obtained?

Anaphylaxis resources section of the ASCIA website:

www.allergy.org.au/anaphylaxis

Patient support organisations:

- Allergy & Anaphylaxis Australia www.allergyfacts.org.au
- Allergy New Zealand www.allergy.org.nz

Adrenaline injector suppliers for Australia and New Zealand:

- Viartis - EpiPen® www.myepipen.com.au
- Allergy Concepts - Anapen® www.anapen.com.au

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