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2. Epinephrine

# Epinephrine injection

**Generic name:** epinephrine injection [ *EP-i-NEF-rin* ]

**Brand names:** [Adrenalin](#), [Auvi-Q](#), [EpiPen](#), [Symjepi](#)

**Dosage form:** Injection vials, Auto-Injector

**Drug classes:** [Adrenergic bronchodilators](#), [Catecholamines](#), [Vasopressors](#)

Medically reviewed by [Melisa Puckey, BPharm](#). Last updated on Dec 11, 2024.

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## What is epinephrine injection?

Epinephrine injection is used to treat severe [allergic reactions](#) ([anaphylaxis](#)) to insect stings or bites, foods, drugs, and other allergens. Epinephrine is also used to treat [low blood pressure](#) that is caused by septic [shock](#).

Epinephrine injection works to reverse wheezing, severe skin itching, hives, and other symptoms of an allergic reaction and also helps with severely low blood pressure. Epinephrine is a hormone and neurotransmitter that acts on alpha and beta receptors to cause the muscles in the airways to relax, and it causes the blood vessels to narrow. Epinephrine is from the drug class of medicine called sympathomimetics.

Epinephrine auto-injectors may be kept on hand for self-injection by a person with a history of severe allergic reactions. An Auto-Injector is a hand-held device that automatically injects a measured dose of medicine, it is easier to use in an emergency compared to using vials and needles.

Epinephrine is also known as adrenaline and adrenalin.

## Warnings

**Seek emergency medical attention** after any use of epinephrine to treat a severe allergic reaction. After the injection, you will need to receive further treatment and observation.

## Before taking this medicine

Before using epinephrine auto injector or injection, tell your doctor if any past use of epinephrine injection caused an allergic reaction to get worse.

Tell your doctor if you have ever had:

- heart disease or [high blood pressure](#);
- [asthma](#);

- [Parkinson's disease](#);
- [depression](#) or mental illness;
- a thyroid disorder; or
- diabetes.

Having an allergic reaction while pregnant or nursing could harm both mother and baby. You may need to use epinephrine during pregnancy or while you are breastfeeding. Seek emergency medical attention right away after using the injection.

If possible, during an emergency, tell your medical caregivers if you are pregnant or breastfeeding.

 [Epinephrine pregnancy and breastfeeding warnings](#) (more detail)

## How should I use epinephrine injection?

Follow all directions on your prescription label and read all medication guides or instruction sheets before you need to use it. Ask your doctor or pharmacist if you need help. Use the medicine exactly as directed.

Epinephrine is usually injected as needed at the first sign of a serious allergic reaction.

Epinephrine is injected into the skin or muscle of your outer thigh. In an emergency, this injection can be given through your clothing.

This medicine may come with a "trainer pen." The trainer pen **contains no medicine** and no needle. It is only for non-emergency use to practice giving yourself an epinephrine injection.

**Seek emergency medical attention after any use of epinephrine.** The effects of epinephrine may wear off after 10 or 20 minutes. You will need to receive further treatment and observation.

**Also seek emergency medical attention** if you accidentally inject yourself while giving epinephrine to another person.

Do not give this medicine to a child without medical advice.

The auto-injector device is a disposable single-use system. Use an auto-injector only one time.

Do not try to reinsert an auto-injector a second time. If the needle is bent from the first use, it may cause serious injury to your skin.

Do not use the injection if the [expiration date](#) on the label has passed. Call your pharmacist for a new prescription.

Do not reuse a needle or syringe. Place them in a puncture-proof "sharps" container and dispose of it following state or local laws. Keep out of the reach of children and pets.

## What should I avoid while using epinephrine injection?

Do not inject epinephrine into a vein or into the muscles of your buttocks, or it may not work as well. Inject it only into the fleshy outer portion of the thigh.

Accidentally injecting epinephrine into your hands or feet may result in a loss of blood flow to those areas, and resulting numbness. **You should seek emergency help immediately.**

# Dosing Information

## Usual Adult Dose for Anaphylaxis

### Auto-Injector:

30 kg or greater: 0.3 mg IM or subcutaneously into the outer thigh (upper leg), repeat as needed.

#### Comments:

- The manufacturer's product information for the specific auto-injector being used should be consulted for administration instructions.
- More than 2 sequential doses should only be administered under direct medical supervision.
- The auto-injectors are intended for immediate administration as emergency supportive therapy only and not as a replacement or substitute for immediate medical care.

### Injectable Solution of 1 mg/mL (1:1000):

30 kg or greater: 0.3 to 0.5 mg (0.3 to 0.5 mL) of undiluted drug IM or subcutaneously into the outer thigh (upper leg), repeat every 5 to 10 minutes as needed.

- Maximum dose per injection: 0.5 mg (0.5 mL).

#### Comments:

- For IM administration, use a long enough needle (at least 1/2 inch to 5/8 inch) to ensure injection into the muscle.
- Repeated injections should not be administered at the same site as resulting vasoconstriction may cause tissue necrosis.
- The patient should be monitored clinically for reaction severity and cardiac effects with repeat doses titrated to effect.

### Injectable Solution of 0.1 mg/mL (1:10,000):

0.1 to 0.25 mg (1 to 2.5 mL) IV slowly once.

### Convenience Kit 1 mg/mL (1:1000):

0.2 to 1 mg IM or subcutaneous.

## Usual Pediatric Dose for Anaphylaxis

### Auto-Injector:

7.5 to 15 kg: 0.1 mg IM or subcutaneously into the outer thigh (upper leg), repeat as needed.

15 to 30 kg: 0.15 mg IM or subcutaneously into the outer thigh (upper leg), repeat as needed.

30 kg or greater: 0.3 mg IM or subcutaneously into the outer thigh (upper leg), repeat as needed.

#### Comments:

- Since the lowest dose of the auto-injector is 0.1 mg, consider using other injectable forms of this drug if doses lower than 0.1 mg are necessary.
- More than 2 sequential doses should only be administered under direct medical supervision.

- The manufacturer product information for the specific auto-injector being used should be consulted for administration instructions.

### **Injectable Solution of 1 mg/mL (1:1000):**

Less than 30 kg: 0.01 mg/kg (0.01 mL/kg) of undiluted drug IM or subcutaneously into the outer thigh (upper leg); repeat every 5 to 10 minutes as needed

- Maximum dose per injection: 0.3 mg (0.3 mL)

30 kg or greater: 0.3 to 0.5 mg (0.3 to 0.5 mL) of undiluted drug IM or subcutaneously into the outer thigh (upper leg), repeat every 5 to 10 minutes as needed

- Maximum dose per injection: 0.5 mg (0.5 mL)

#### **Comments:**

- For IM administration, use a long enough needle (at least 1/2 inch to 5/8 inch) to ensure injection into the muscle.
- Repeated injections should not be administered at the same site as resulting vasoconstriction may cause tissue necrosis.
- The patient should be monitored clinically for reaction severity and cardiac effects with repeat doses titrated to effect.

### **Injectable Solution of 0.1 mg/mL (1:10,000):**

- Neonate: 0.01 mg/kg IV slowly once
- Infant: 0.05 mg IV slowly once; may repeat at 20 to 30 minute intervals as needed

**Uses:** For the emergency treatment of allergic reactions (Type I) including anaphylaxis to stinging or biting insects, allergen immunotherapy, foods, drugs, diagnostic testing substances, and other allergens, as well as idiopathic anaphylaxis or exercise-induced anaphylaxis; and for immediate administration in patients who are determined to be at increased risk for anaphylaxis, including those with a history of anaphylactic reactions.

 [Detailed Epinephrine dosage information](#)

## **What happens if I miss a dose?**

Since epinephrine is used when needed, it does not have a daily dosing schedule.

## **What happens if I overdose?**

Seek emergency medical attention or call the Poison Help line at 1-800-222-1222.

Overdose symptoms may include numbness or weakness, severe [headache](#), blurred vision, pounding in your neck or ears, sweating, chills, chest [pain](#), fast or slow heartbeats, severe shortness of breath, or [cough](#) with foamy mucus.

## **Epinephrine injection side effects**

Before using epinephrine, tell your doctor if any past use of epinephrine injection caused an allergic reaction to get

worse.

Call your doctor at once if you notice pain, swelling, warmth, redness, or other signs of [infection](#) around the area where you gave an injection.

Side effects may be more likely in older adults.

Common side effects of epinephrine injection may include:

- breathing problems;
- fast, irregular, or pounding heartbeats;
- pale skin, sweating;
- nausea and vomiting;
- [dizziness](#);
- weakness or tremors;
- headache; or
- feeling restless, fearful, nervous, anxious, or excited.

This is not a complete list of side effects, and others may occur. Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

 [Epinephrine side effects](#) (more detail)

## Related/similar drugs

### Diphenhydramine

Diphenhydramine is an antihistamine used to treat sneezing, runny nose, itching, hives and other ...

#### Reviews & ratings

5.5 / 10

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#### FEATURED

### Xolair

Xolair injection (omalizumab) is used to reduce the risk of severe food allergy reactions ...

#### Reviews & ratings

7.5 / 10

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## Prednisone

Prednisone is used to treat allergic disorders, ulcerative colitis, psoriasis and arthritis. Learn ...

### Reviews & ratings

7.5 / 10

[867 Reviews](#)

[View more](#)

## Zyrtec

Zyrtec (cetirizine) is used to treat allergy symptoms such as sneezing, itching, watery eyes, or ...

### Reviews & ratings

5.8 / 10

[197 Reviews](#)

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## Benadryl

Benadryl is an antihistamine and is used to treat sneezing, runny nose, itching and other ...

### Reviews & ratings

7.0 / 10

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## Loratadine

Loratadine is a non-drowsy antihistamine used to relieve allergy symptoms like sneezing, runny ...

### Reviews & ratings

4.7 / 10

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## Methylprednisolone

### **Methylprednisolone**

Methylprednisolone is used to treat conditions such as allergies, arthritis, lupus and ulcerative ...

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7.1 / 10

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### **Cetirizine**

Cetirizine treats cold or allergy symptoms such as sneezing, itching, watery eyes, or runny nose ...

#### **Reviews & ratings**

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### **Montelukast**

Montelukast is a daily oral medication used to prevent asthma attacks, exercise-induced ...

#### **Reviews & ratings**

5.6 / 10

[571 Reviews](#)

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## **What other drugs will affect epinephrine injection?**

Tell your doctor about all your other medicines, especially:

- asthma medicine;
- an antidepressant;
- cold or allergy medicine ([Benadryl](#) and others);
- heart or blood pressure medicine;
- thyroid medication; or
- ergot medicine--[dihydroergotamine](#), [ergotamine](#), [ergonovine](#), [methylergonovine](#).

This list is not complete. Other drugs may affect epinephrine, including prescription and over-the-counter medicines,

[vitamins](#), and [herbal products](#). Not all possible drug interactions are listed here.

 [Epinephrine drug interactions](#) (more detail)

## Does epinephrine interact with my other drugs?

Enter medications to view a detailed interaction report using our [Drug Interaction Checker](#).







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**Add**

## Storage

Store at room temperature away from moisture, heat, and light. Do not refrigerate this medication, and do not store it in a car.

## Popular FAQ

- Can you use an expired EpiPen in an emergency? 
- Can you bring an EpiPen on a plane? 
- What's the mechanism of action for epinephrine? 
- Does epinephrine cause vasoconstriction? 
- How does neffy work? 
- How much does Auvi-Q cost compared to EpiPen? 

## More FAQ

- [Norepinephrine vs epinephrine: what's the difference?](#)

[View more FAQ...](#)

## References

1. [Food and Drug Administration \(FDA\) EpiPen Product Label](#)
2. [Epinephrine](#)

## More about epinephrine



- [Check interactions](#)
- [Compare alternatives](#)
- [Pricing & coupons](#)
- [Reviews \(59\)](#)
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- [Side effects](#)
- [Dosage information](#)
- [During pregnancy](#)
- [Support group](#)
- [Drug class: adrenergic bronchodilators](#)
- [Breastfeeding](#)

## Patient resources

- [Epinephrine \(Inhalation\) advanced reading](#)
- [Epinephrine Auto-Injector and Prefilled Syringe](#)
- [Epinephrine Inhalation Aerosol](#)
- [Epinephrine Injection Solution](#)

## Other brands

[EpiPen](#), [Adrenalin](#), [Primatene Mist](#), [neffy](#), ... +5 more

## Professional resources

- [EPINEPHrine Bitartrate, EPINEPHrine Hydrochloride, Epinephryl Borate \(Mydriatic\) \(EENT\) monograph](#)
- [EPINEPHrine Hydrochloride \(Vasoconstrictor\) \(EENT\) \(AHFS Monograph\)](#)
- [Epinephrine \(AHFS Monograph\)](#)
- [Epinephrine Concentrate Injection \(FDA\)](#)
- [Epinephrine Injection \(FDA\)](#)

## Other brands

[EpiPen](#), [Adrenalin](#), [Primatene Mist](#), [neffy](#), ... +5 more

## Related treatment guides

- [Anaphylaxis](#)
- [Adams-Stokes Syndrome](#)
- [Allergic Reactions](#)
- [AV Heart Block](#)

# Further information

Remember, keep this and all other medicines out of the reach of children, never share your medicines with others, and use this medication only for the indication prescribed.

Always consult your healthcare provider to ensure the information displayed on this page applies to your personal circumstances.

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## DRUG STATUS

<b>Availability</b>	
	Rx and/or OTC
<b>Pregnancy &amp; Lactation</b>	
	Risk data available
<b>CSA Schedule*</b>	
N/A	Not a controlled drug
<b>Approval History</b>	
	Drug history at FDA
<b>WADA Class</b>	
	Anti-Doping Classification

## User Reviews & Ratings

7.4 / 10

[59 Reviews](#)

## Related News

[ARS Pharmaceuticals Announces FDA Approval of neffy 1 mg \(epinephrine nasal spray\) for Type I Allergic Reactions in Pediatric Patients](#)

**Alert:** [FDA Warns Health Care Professionals Not to Use Epinephrine Nasal Solutions from BPI Labs and Endo USA](#)

## Images

[EpiPen \(epinephrine\) multiple strengths](#)



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