

Antibiotics

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✓ Meets Patient's **editorial guidelines**

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Antibiotics are medicines that treat bacterial infections, but they don't affect viruses (like colds or flu). Using the right antibiotic correctly and completing the full course helps ensure recovery and prevent resistance.

Key points

- Antibiotics are medicines used to treat or prevent bacterial infections – they do not work against viral infections such as colds or the flu.
- They are usually prescribed for serious bacterial infections or if the immune system is weakened, though many infections can improve without them.
- Side effects can include nausea, vomiting, diarrhoea, bloating, and indigestion. Some people can also have an allergic reaction to antibiotics – especially penicillin.
- A full course of antibiotics should always be taken, even if you feel better early.

What are antibiotics?

Antibiotics are a group of medicines that are used to treat bacterial infections. Antibiotics are sometimes called antibacterials or antimicrobials.

Antibiotics can be taken by mouth as:

- Liquid.



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- Tablets.
- Capsules.

They can also be given via:

- Cream or ointment.
- Injection.

Antibiotics by injection

People who need to have an antibiotic by injection will have this started in hospital because they have a severe infection. Sometimes the hospital team will continue overseeing antibiotics by injection after leaving hospital, particularly if the course of antibiotics needs to be continued for several weeks.

How do antibiotics work?

Some antibiotics work by killing bacteria (or parasites). This is often done by interfering with the structure of the cell wall of the bacterium or parasite. Some work by stopping bacteria or the parasite from multiplying.

Do antibiotics work on viruses?

No, antibiotics do not kill viruses. This is for 2 reasons:

- Antibiotics are designed to target bacteria – either by killing them or stopping them from growing.
- Viruses are completely different from bacteria. They don't have the structures or processes that antibiotics attack.

Types of antibiotics

Antibiotics are grouped together based on how they work. Each type of antibiotic only works against certain types of bacteria or parasites. This is why different antibiotics are used to treat different types of infection.

The main types of antibiotics are:



Antibiotic type	Antibiotic name examples
Penicillins	Phenoxymethylpenicillin Flucloxacillin Amoxicillin
Cephalosporins	Cefaclor Cefadroxil Cefalexin
Tetracyclines	Tetracycline Doxycycline Lymecycline
Aminoglycosides	Gentamicin Tobramycin
Macrolides	Erythromycin Azithromycin Clarithromycin
Lincosamides	Clindamycin
Sulfonamides and trimethoprim (synthetic antibiotics)	Co-trimoxazole
Quinolones	Ciprofloxacin Levofloxacin Norfloxacin
Nitroimidazoles	Tinidazole Metronidazole
Nitrofurans	Nitrofurantoin

As well as the above main types of antibiotics, there are a number of other antibiotics that specialist doctors may prescribe for more uncommon infections such as **tuberculosis** (TB).

The rest of this leaflet only discusses antibiotics that may be prescribed in general practice.

What do antibiotics treat?

Antibiotics are normally only used to treat bacterial infections that are unlikely to clear up on their own. These include:



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- **Urine infections.**
- **Pneumonia.**
- **Acne.**
- **Tonsillitis** (sometimes known as Strep throat).
- **Whooping cough.**
- **Impetigo.**
- **Cellulitis.**
- Some **ear infections** (especially in younger children)
- Sexually transmitted infections such as **chlamydia**, **gonorrhoea** (with specific antibiotics) and **syphilis**.

Antibiotics are also used to treat more serious bacterial infections such as **meningitis** or **pneumonia**.

In the past antibiotics were also used to treat the following, but as our understanding has improved the treatment has changed:

- Most mild sinus infections (often viral or self-resolving).
- Most bronchitis cases (usually viral).
- Some ear infections (doctors may use “watchful waiting”).
- Traveller’s diarrhoea (often viral or toxin-based).
- Certain tummy bugs that improve without antibiotics.

How long do antibiotics take to work?

Antibiotics usually start working within 24–48 hours, but how quickly you *feel* better depends on the infection and the medicine. What happens usually is:

- First 24 hours: The antibiotic begins stopping bacteria from growing.
- 24–48 hours: Symptoms often start to improve (less pain, fever, or swelling).
- Several days: Most people feel much better, but bacteria may still be present.



- A few weeks: Coughs and colds will have gone completely.

The improvement time can vary due to:

- The type of infection you have, such as UTI, pneumonia, skin infection, etc.).
- The severity of the infection.
- Which antibiotic is used.
- Your immune system.

Which antibiotic is usually prescribed?

Which antibiotic is prescribed mainly depends on where the infection is and which bacteria is likely to be causing the infection. This is because each antibiotic is effective only against certain bacteria and parasites.

There are other factors that influence the choice of an antibiotic. These include:

- How severe the infection is.
- How well the kidneys and liver are working.
- The dosing schedule (that is, how often you take the medication).
- Other medications being taken.
- Common side-effects.
- A history of having an allergy to a certain type of antibiotic.
- Being pregnant or breastfeeding.
- Pattern of infection in the local community.
- Pattern of resistance to antibiotics by bacteria in the local community.

There are a number of antibiotics that are safe to take whilst pregnant or breastfeeding.

Side effects of antibiotics

Common side effects of antibiotics are:



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- Soft poo.
- **Diarrhoea.**
- Feeling sick (**nausea**).
- Being sick (vomiting).

Antibiotic allergic reaction

Some people can have an **allergic reaction** to an antibiotic, most cases are often mild and can be treated by taking **antihistamines**.

In rare cases, some people can experience a severe allergic reaction, called **anaphylaxis**, which can be fatal.

Call 999 or seek urgent medical help if you:

- Have shortness of breath.
- Have swelling of the lips, face, or tongue.
- Have hives or a rash.
- Feel faint or have fainted.

Other side effects

Some other significant side effects are:

- Severe watery diarrhoea and tummy (abdominal) cramps: signs of **Clostridium difficile infection** – a serious bacterial infection of the gut .
- White patches on the tongue: **signs of oral thrush**.

Do antibiotics make you tired?

Antibiotics don't usually cause tiredness, but some people feel tired due to the infection itself or from side effects such as stomach upset. If tiredness is severe or persistent, contact a doctor.



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Can antibiotics cause swelling?

Some people can develop swelling as an allergic reaction to antibiotics. Mild cases affect the face or lips, but **sudden or severe swelling needs urgent medical help.**

How to take antibiotics

It is important to take antibiotics in the correct way.

- Failing to do this may reduce how well they work. For example, some antibiotics need to be taken with food and others should be taken on an empty stomach.
- Taking antibiotics incorrectly will affect how much of them get into the body (their absorption) and therefore they may not work as well.
- It is important always to follow the instructions given by the doctor or pharmacist, and on the leaflet that comes with the antibiotic prescribed.
- It is also important always to take the entire course of antibiotics as prescribed. Even though it is common to feel better before the medicine is entirely finished, it is necessary to follow through and take the entire course.
- This is important for healing as, if an antibiotic is stopped in mid-course, germs (bacteria) may be partially treated and not completely killed. Bacteria may then become resistant to that antibiotic.

Antibiotic resistance

Antibiotic resistance is when bacteria change in ways that make antibiotics stop working against them.

In simple terms: the bacteria survive the medicine that used to kill them.

How does antibiotic use lead to resistance?

Antibiotic use can lead to resistance when bacteria adapt in ways – through mutation – that help them survive the medicine. While antibiotics kill most bacteria, a few with natural mutations may survive and multiply, becoming the dominant strain.

Overuse or unnecessary use gives bacteria more chances to adapt, while incorrect use – such as not finishing a course or taking the wrong antibiotic – also allows



treat because the antibiotics no longer work against these resistant bacteria.

Antibiotic resistance is far more common in countries where they are available over the counter without prescription.

Interactions

Some antibiotics may interact with other medications. This may cause reactions, or reduce the effectiveness of one or other of the treatments.

Oral contraceptive pill

Most antibiotics **do not** interfere with the effectiveness of **the pill**. The pill should be continued as normal.

The exceptions are rifampicin and rifabutin which are antibiotics used for tuberculosis or leprosy. They are known to affect the effectiveness of the pill.

Anticoagulants (such as warfarin)

- Certain antibiotics can increase bleeding risk.
- Doctors often monitor blood levels closely.

Pain relievers and anti-inflammatory drugs

- NSAIDs (like ibuprofen) can increase side effects with some antibiotics.
- Usually safe when used correctly, but should be taken as advised.

Heart and blood pressure medicines

- Some antibiotics can affect heart rhythm or drug levels.
- Examples include interactions with medicines for irregular heartbeat.

Seizure (epilepsy) medications

- Some antibiotics can change how seizure medicines work.
- Dose adjustments may be needed.



Antacids and supplements

These can **block absorption** of some antibiotics if taken together:

- Calcium.
- Iron.
- Magnesium.
- Zinc.
- Antacids (like those for heartburn).

The problem is usually solved by spacing doses a few hours apart.

Alcohol

- Alcohol can increase side effects (nausea, dizziness).
- A few antibiotics (like metronidazole) can cause a strong reaction with alcohol.
- Best advice: avoid alcohol while on antibiotics.

Herbal supplements

- St. John's wort can reduce effectiveness of some antibiotics.
- Always tell a healthcare provider about supplements.

How to get antibiotics

In the UK antibiotics are generally only available from a pharmacy, with a doctor's prescription. In some other parts of the world they are freely available over the counter.

However, to reduce the problem of resistance due to inappropriate use of antibiotics, it is best to always obtain medical advice before buying antibiotics.

Can a pharmacist prescribe antibiotics?

Some antibiotics can be prescribed by your pharmacist, for example to treat a urinary tract infection in certain age groups.



How long do you take antibiotics for?

The length of treatment varies a lot. It depends on the type of infection, how severe it is and how quickly the symptoms resolve after starting treatment. Treatment can be:

- For three days ('water' infection – urinary tract infection (UTI)).
- For one or two weeks (pneumonia).
- For a few months (bone infections).
- For many months (acne).

Who cannot take antibiotics?

Most people can take antibiotics, but some people cannot take certain antibiotics or need special caution. It depends on the person and the type of antibiotic.

People with antibiotic allergies

- Some people are allergic to antibiotics like:
 - Penicillin.
 - Amoxicillin.
 - Cephalosporins.
- Reactions can range from rashes to serious allergic reactions.
- These people must avoid those antibiotics and use alternatives.

Pregnant women (some antibiotics)

- Some antibiotics are not safe during pregnancy because they can affect the baby.
- Doctors choose pregnancy-safe options when needed.

Babies and young children (some antibiotics)

- Certain antibiotics can affect:
 - Teeth colour.



- Bone growth.
- Doctors prescribe age-appropriate antibiotics.

People with certain medical conditions

People with the following conditions may not be able to take some antibiotics or need dose adjustments:

- Kidney disease.
- Liver disease.
- **Myasthenia gravis.**
- Seizure disorders.

People taking specific medications

- Some antibiotics interact with:
 - Anticoagulants.
 - Heart rhythm medications.
 - Epilepsy (seizure) medications.
- These people may need different antibiotics or monitoring.

Frequently asked questions

How long do antibiotics stay in the system?

Most antibiotics leave the body through your pee or poo within 24 hours, but their effects on the gut bacteria can last for weeks or even months.

Can you feel better after one dose of antibiotics?

Antibiotics rarely work after just one dose. Quick relief may happen with urine or skin infections, but in most cases, feeling better that fast means antibiotics weren't needed.



Can you take paracetamol with antibiotics?

It is usually safe to take paracetamol with most common antibiotics, it can help reduce pain or fever while the antibiotic treats the infection. However, always follow the recommended doses and check with a doctor or pharmacist.

Can you take antibiotics during pregnancy?

Some antibiotics, like penicillin and cephalosporins, are usually safe to take during pregnancy. Others, such as tetracyclines or ciprofloxacin, aren't recommended.

If you're pregnant and need antibiotics, it's always best to check with your doctor or midwife first.

Can you take antibiotics and drink alcohol?

It's best to avoid alcohol whilst taking antibiotics. Some antibiotics, such as metronidazole, can cause severe nausea and vomiting if mixed with alcohol. Others, like trimethoprim or erythromycin, may also be affected.

Most antibiotics don't directly interact with alcohol, but drinking whilst you're unwell can slow recovery and make side effects worse.

Further reading and references



- **Sore throat (acute): antimicrobial prescribing** [↗](https://www.nice.org.uk/guidance/ng84)
(<https://www.nice.org.uk/guidance/ng84>); NICE Guideline (January 2018)
- **Cough (acute): antimicrobial prescribing** [↗](https://www.nice.org.uk/guidance/ng120)
(<https://www.nice.org.uk/guidance/ng120>); NICE Guidance (February 2019)
- **Reveiz L, Cardona AF** [↗](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=26002823) (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Abstract&list_uids=26002823); Antibiotics for acute laryngitis in adults. Cochrane Database Syst Rev. 2015 May 23;2015(5):CD004783. doi: 10.1002/14651858.CD004783.pub5.
- **Antimicrobial Resistance (AMR): information and resources** [↗](https://www.gov.uk/government/collections/antimicrobial-resistance-amr-information-and-resources)
(<https://www.gov.uk/government/collections/antimicrobial-resistance-amr-information-and-resources>); GOV.UK, updated September 2025



- **Fluoroquinolone antibiotics: must now only be prescribed when other commonly recommended antibiotics are inappropriate** [\[1\]](https://www.gov.uk/drug-safety-update/fluoroquinolone-antibiotics-must-now-only-be-prescribed-when-other-commonly-recommended-antibiotics-are-inappropriate)
(<https://www.gov.uk/drug-safety-update/fluoroquinolone-antibiotics-must-now-only-be-prescribed-when-other-commonly-recommended-antibiotics-are-inappropriate>); Medicines & Healthcare products Regulatory Agency, GOV.UK (January 2024)

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(<https://it.patient.info/infections/antibiotics-leaflet>), **Portuguese**

(<https://pt.patient.info/infections/antibiotics-leaflet>), **Hindi** (<https://hi.patient.info/infections/antibiotics-leaflet>), **Hebrew** (<https://he.patient.info/infections/antibiotics-leaflet>), **Arabic**

(<https://ar.patient.info/infections/antibiotics-leaflet>), and **Swedish**

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