

# Patient information from BMJ

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## Antibiotics: what you need to know

**Antibiotics help fight bacterial infections, make some surgeries safer, and help keep wounds free of germs while they heal. But using them when they're not needed, or not using them properly, is leading to the germs becoming resistant to them so that they don't work as well.**

This leaflet explains:

- which types of infection can be treated by antibiotics and which can't
- why doctors sometimes don't prescribe antibiotics for infections that are probably viral, and
- what antibiotic resistance is, and what we need to do about it.

### What are antibiotics?

Antibiotics are drugs that kill germs called bacteria. Most bacteria are actually not harmful to people. In fact, we need many of them to stay healthy, including some that live in our intestines (guts) and help us to digest food.

But some bacteria can cause illnesses and even death. If you have a serious infection that's caused by bacteria, antibiotics can be useful, and even life saving. For example, if you have had surgery they can prevent infections developing and treat infections that do develop.

Antibiotics can be taken as tablets or as liquid medicine. They can also be given as injections, and an intravenous (IV) drip.

### Why might my doctor not prescribe antibiotics?

Not all infections can be cured with antibiotics. This is because bacteria are not the only things that cause infections. Things like viruses and fungi can also cause infections. But these can be treated with antivirals and antifungals, not with antibiotics.

- **Antibiotics only work for infections caused by bacteria.**
- **Antibiotics will not cure infections caused by viruses or fungi.**

## Antibiotics: what you need to know

Most of the common infections that make us feel ill are caused by viruses, not by bacteria. These include:

- influenza (flu)
- the common cold
- most coughs and sore throats
- many stomach bugs
- most middle-ear infections, which are common in children.

Even chest infections and bad coughs that can last for weeks (often called upper respiratory tract infections) are usually caused by viruses, not by bacteria.

But with many infections it's not clear what the cause is. For example, you may see your doctor because of infection and he or she knows it's probably caused by a virus (in which case antibiotics won't help). But there is still a chance that it could be caused by bacteria.

The doctor might not be able to tell the cause of an infection without further tests, such as blood tests or sputum samples. But it can take days for your doctor to get the results of these tests.

So, doesn't it make sense for your doctor to prescribe antibiotics, just in case your illness is caused by bacteria? After all, it can't do any harm, can it?

Actually, it can. For many years doctors have sometimes prescribed antibiotics for common illnesses such as coughs and sore throats 'just in case'. It helped patients feel that they were being treated and it helped doctors avoid refusing medicine to someone.

But this is changing. For one thing it's simply not a good idea to give someone medicine they don't need. Antibiotics, like all medicines, can cause side effects, including rashes, itching, diarrhoea, nausea, vomiting, headaches, dizziness, vaginal discharge, and, rarely, serious allergic reactions.

Also, most infections, even those caused by bacteria, are what's called 'self-limiting'. This means that they will clear up on their own without treatment. Taking antibiotics might shorten how long many of these illnesses last, but usually only by a few hours.

But there is a more serious reason why your doctor might not want to give you antibiotics for a common illness. It's called **antibiotic resistance**.

### What is antibiotic resistance?

You may have heard of the phrase 'antibiotic resistance'. And you may have seen stories in the media about how we are 'running out of antibiotics'.

Bacteria are living organisms. Like many other living organisms they adapt to changes in their world. Many bacteria have now adapted to antibiotics. This means that they are much harder to kill. One example that you might have heard of is methicillin-resistant staphylococcus aureus, better known as MRSA.

## Antibiotics: what you need to know

In the most serious cases, some bacteria are now becoming resistant to all antibiotics. Antibiotic resistance has happened for two reasons:

- **Overuse.** When antibiotics are used a lot, the strongest strains of the germs are the ones that survive. These strong strains then multiply and become dominant, making the infections harder to treat. So it's crucial that we only use antibiotics when they're really needed, and not for minor illnesses that will get better by themselves.
- **Misuse.** When someone is prescribed antibiotics and doesn't follow the instructions properly, or doesn't finish the whole course, not all the germs are killed. The surviving germs are now resistant to those antibiotics and can't be killed by them.

Antibiotic resistance is a serious problem that is getting worse. If we don't stop over-using and misusing antibiotics:

- many serious infections will become hard, if not impossible, to treat
- many operations will be much less safe
- minor wounds will become very dangerous and even life threatening
- minor illnesses that can currently be cured by antibiotics will become more serious and harder to treat.

So this is why your doctor might be reluctant to prescribe antibiotics for a simple illness that's probably caused by a virus. Your doctor is not brushing you off, or suggesting that you are faking: he or she is simply trying to stop the problem of antibiotic resistance getting worse.

And you can do your part.

- Listen to your doctor when he or she says that you probably don't need antibiotics. Just because you've been given antibiotics in the past for a minor infection doesn't mean that they did you any good.
- If you do need antibiotics, follow the instructions carefully and finish the course, even if you feel better after the first few doses.
- Suggest to your doctor the possibility of a 'delayed prescription'. This is when the doctor gives you a prescription for antibiotics that's dated a few days in the future. You give the illness a few days to clear up on its own before filling the prescription. Many people find that they never need the antibiotics.
- Spread the word. Talk to your friends and family about what you've learned about antibiotic overuse, misuse, and resistance.

## Antibiotics in the future

So are we going to 'run out' of antibiotics? If we don't change our behaviour there's a good chance that the situation could become very serious. New antibiotics are not being developed quickly enough and some diseases are already becoming much harder to treat. The good news is that if we stop over-using and misusing antibiotics the bacteria will lose their resistance and the drugs might start to work well again. But we all have to play our part.

## Antibiotics: what you need to know

- Doctors need to say no to patients who don't really need antibiotics, and to explain why they are saying no.
- Patients need to understand why they might not be given antibiotics, and why they should take them properly when they are prescribed them.
- Everyone needs to spread the message about using antibiotics responsibly.

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