



Patient education: What you should know about antibiotics (The Basics)

Written by the doctors and editors at UpToDate

What are antibiotics? — Antibiotics are medicines that help people fight infections caused by bacteria. They work by killing bacteria that are in the body. These medicines come in many different forms, including pills, ointments, and liquids that are given by injection.

Antibiotics can do a lot of good. For people with serious bacterial infections, antibiotics can save lives. But people use them far too often, even when they're not needed. This is causing a very serious problem called antibiotic resistance. Antibiotic resistance happens when bacteria that have been exposed to an antibiotic change so that the antibiotic can no longer kill them. In those bacteria, the antibiotic has no effect. Because of this problem, doctors are having a harder and harder time treating infections. Experts worry that there will soon be infections that don't respond to any antibiotics.

When are antibiotics helpful? — Antibiotics can help people fight off infections caused by bacteria. They **DO NOT** work on infections caused by viruses.

Some common bacterial infections that are treated with antibiotics include:

- Strep throat
- Pneumonia (an infection of the lungs)
- Bladder infections
- Infections you catch through sex, such as gonorrhea and chlamydia

When are antibiotics NOT helpful? — Antibiotics do not work on infections caused by viruses.

- Antibiotics are **NOT** helpful for the common cold, because the common cold is caused by a virus.
- Antibiotics are **NOT** helpful for the flu, because the flu is caused by a virus. (People with the flu can be treated with medicines called antiviral medicines, which are different from antibiotics.)
- Antibiotics are **NOT** helpful for most cases of sore throat, because sore throat is usually caused by a virus. (Strep throat is an exception.)
- Antibiotics are **NOT** helpful for most cases of sinusitis, because sinusitis is usually caused by a virus. Sinusitis that starts out as a viral infection can turn into a bacterial infection, but that takes time. If you have had sinusitis symptoms for less than 10 days, you should not take antibiotics unless you also have a high fever.
- Antibiotics are **NOT** helpful for most cases of acute bronchitis (an infection in the airways leading to the lungs), because bronchitis is usually caused by a virus. If you have bronchitis and cough up green mucus, that does NOT mean you have a bacterial infection.

Even though antibiotics don't work on infections caused by viruses, people sometimes believe that they do. That's because they took antibiotics for a viral infection before and then got better. The problem is that those people would have gotten better with or without an antibiotic. When they get better with the antibiotic, they think that's what cured them, when in reality the antibiotic had nothing to do with it.

What's the harm in taking antibiotics even if they might not help? — There are many reasons you should not take antibiotics unless you absolutely need them:

- **Antibiotics cause side effects**, such as nausea, vomiting, and diarrhea. They can even make it more likely that you will get a different kind of infection, such as yeast infection (if you are woman).
- **Allergies to antibiotics are common**. You can develop an allergy to an antibiotic, even if you have not had a problem with it before. Some allergies are just unpleasant, causing rashes and itching. But some can be very serious and even life-threatening. It is better to avoid any risk of an allergy, if the antibiotic wouldn't help you anyway.
- **Overuse of antibiotics leads to antibiotic resistance**. Using antibiotics when they are not needed gives bacteria a chance to change, so that the antibiotics cannot hurt them later on. People who have infections caused by antibiotic-resistant bacteria often have to be treated in the hospital with many different antibiotics. People can even die from these infections, because there is no antibiotic that will cure them.

When should I take antibiotics? — You should take antibiotics only when a doctor or nurse prescribes them to you. You should never take antibiotics prescribed to someone else, and you should not take antibiotics that were prescribed to you for a previous illness. When prescribing an antibiotic, doctors and nurses have to carefully pick the right antibiotic for a particular infection. Not all antibiotics work on all bacteria.

If you do have an infection caused by a bacteria, your doctor or nurse might want to find out what that bacteria is, and which antibiotics can kill it. They do this by taking a "culture" of the bacteria and growing it in the lab. But it's not possible to do a culture on someone who has already started an antibiotic. So if you start an antibiotic without input from a doctor or nurse it will be impossible to know if you have taken the right one.

What can I do to reduce antibiotic resistance? — Here are some things that can help:

- Do not pressure your doctor or nurse for antibiotics when he or she does not think you need them.
- If you are prescribed antibiotics, finish all of the medicine and take it exactly as directed. Never skip doses or stop taking the medicine without talking to your doctor or nurse.
- Do not give antibiotics that were prescribed to you to anyone else.
- Do not use antibacterial soaps or cleaning products. (Alcohol-based hand gels are fine to use.)

What if my doctor prescribes an antibiotic that did not work for me before? — If an antibiotic did not work for you before, that does not mean it will never work for you. If you have used an antibiotic before and it did not work, tell your doctor. But keep in mind that the infection you had before might not have been caused by the same bacteria that you have now. The "best" antibiotic is the right one for the bacteria causing the infection, not for the person with the infection.

What if I am allergic to an antibiotic? — If you had a bad reaction to an antibiotic, tell your doctor or nurse about it. But do not assume you are allergic unless your doctor or nurse tells you that you are.

Many people who think they are allergic to an antibiotic are wrong. If you get nauseous after taking an antibiotic, that does NOT mean you are allergic to it. Nausea is a common side effect of many antibiotics. If you are a

woman and you get a yeast infection after taking an antibiotic, that does **NOT** mean you are allergic to it. Yeast infections are a common side effect of antibiotics.

Symptoms of antibiotic allergy can be mild and include a flat rash and itching. They can also be more serious and include:

- Hives – Hives are raised, red patches of skin that are usually very itchy ([picture 1](#)).
- Lip or tongue swelling
- Trouble swallowing or breathing

Serious allergy symptoms can start right after you start taking an antibiotic if you are very sensitive. Less serious symptoms, on the other hand, often start a day or more later.

If you think you are allergic to antibiotics, tell your doctor or nurse why you think so. Then trust him or her to know whether what you describe is a true allergy.

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GRAPHICS

Hives



Hives are raised, red patches of skin that are usually very itchy. They usually come and go within a few hours, but they can show up again and again in some people.

Courtesy of Andrew Samel, MD.

Graphic 79242 Version 6.0