

Antibiotic Resistance

Antibiotics are used to treat infections caused by bacteria, such as those that cause strep throat, gonorrhea, and tuberculosis.

Well-known antibiotics include amoxicillin, cephalexin, azithromycin, and levofloxacin. Antibiotics kill bacteria that once routinely caused fatal illnesses. Since the 1940s, antibiotic use has reduced death and disease related to infections around the world. However, some bacteria have become resistant to the antibiotics that were previously used to treat them. They can continue to grow and make people sick even when exposed to a drug that killed the bacteria in the past. As a result, different and stronger drugs are constantly needed to fight bacterial infections. The November 27, 2013, issue of *JAMA* includes an article about use of fluoroquinolone antibiotics.

Widespread Use of Antibiotics

There are many reasons antibiotic use is so widespread. Antibiotics are relatively low cost; are easy to take as a pill, liquid, or injection; and have been very effective in controlling diseases related to bacteria such as pneumonia, ear infections, and skin infections.

Until recently, both doctors and patients underestimated the dangers of using too many antibiotics. Antibiotics result in complications such as rashes and other allergic complications. Using too many antibiotics can increase resistance to the drugs by the bacteria targeted by the antibiotic.

Reasons for increasing drug resistance in bacteria

When one strain of bacteria develops resistance to an antibiotic, it becomes the dominant organism because bacteria multiply quickly.



Large amounts of antibiotics have been used over the past 70 years.



Feeding antibiotics to animals raised for food may increase resistance in organisms that cause human disease.



Antibiotics have been inappropriately used to treat viral infections such as the common cold.



Current Situation

In September 2013, the Centers for Disease Control and Prevention released a report about antibiotic resistance. Overall, antibiotic resistance causes 2 million bacterial and fungal illnesses and 23 000 deaths yearly. It also causes an annual increase in direct health care costs of \$20 billion plus \$35 billion in lost productivity.

Antibiotic resistance could have a serious effect on recent medical advances. Procedures like organ transplants or cancer treatments are often associated with infections. As bacteria become more resistant to antibiotics, these infections become more difficult to treat.

There are very few new antibacterial drugs ready for the market. The best approach to decrease antibiotic resistance is to use antibiotics only when they are absolutely needed and to use them for as short a time as possible.

What You Can Do

- Be aware that sometimes antibiotics will not help you get better if your problem is caused by viruses or fungi.
- Discuss your treatment with your doctor to feel comfortable about his or her prescribing—or not prescribing—an antibiotic.
- If you are prescribed an antibiotic, make sure to take it until it is finished. Do not share it with anyone else or save it for a future illness.
- If you have leftover antibiotics, dispose of them safely. See the US Food and Drug Administration's website at <http://www.fda.gov/forconsumers/consumerupdates/ucm101653.htm>.
- Practice a healthy lifestyle to help stay well. Also, washing your hands regularly is a good way to help protect against getting sick.

FOR MORE INFORMATION

- National Institute of Allergy and Infectious Diseases
<http://www.niaid.nih.gov/topics/antimicrobialResistance/Understanding/Pages/quickFacts.aspx>
- Centers for Disease Control and Prevention
<http://cdc.gov/media/releases/2013/p0916-untreatable.html>

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