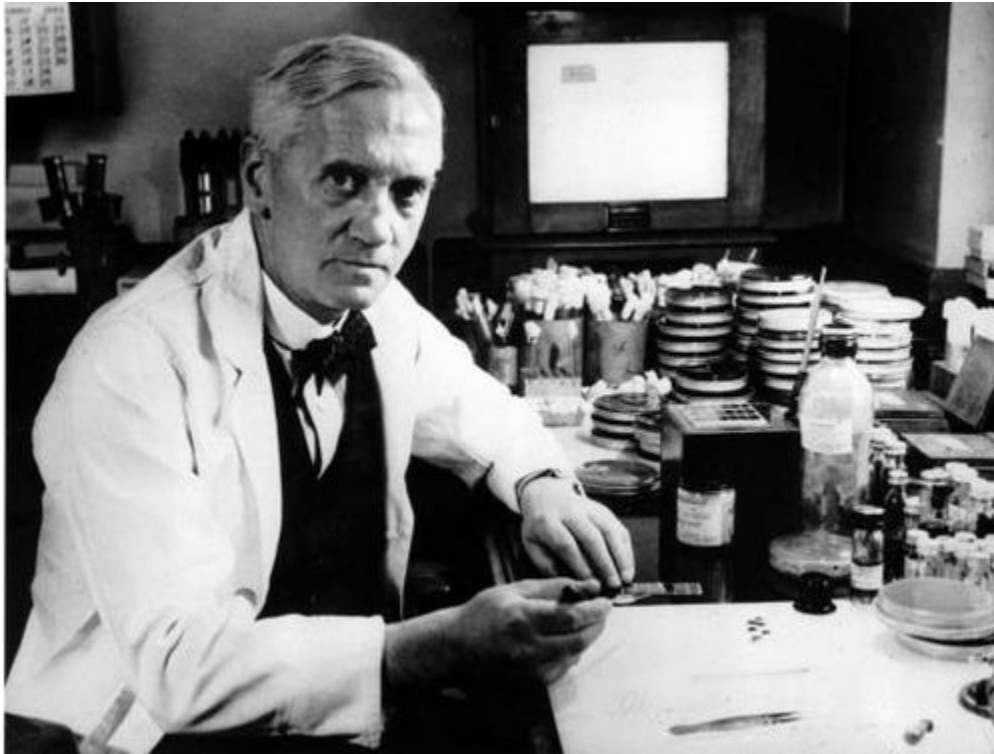


Antibiotics: Use Them Wisely



Alexander Fleming, the scientist who discovered penicillin

Antibiotics are the best drugs we have to fight deadly bacteria, but the germs are fighting back.

Ah-choo! Carmen has been feeling miserable for the last three days, sneezing and coughing. If she doesn't get well soon, she might miss an important test at school. She might even miss the holiday parties.

Carmen asked her parents to take her to the doctor. She wanted the doctor to give her antibiotics.

Carmen's sister, Silvia, had also been feeling sick, and the doctor gave her antibiotics. Silvia had started feeling better after only a couple of days.

But after the doctor checked Carmen, he said something that she found deeply disappointing. "You don't need antibiotics."

"But you gave them to Silvia, and she's better now," replied Carmen.

"Silvia had strep throat; you have a cold," the doctor said. "Bacteria caused Silvia's strep throat, but your cold is caused by a virus. Some people call antibiotics 'miracle drugs,' but they don't kill all kinds of germs. They kill bacteria, but not viruses."

Carmen learned that antibiotics wouldn't cure her cold. Antibiotics kill the germs that cause many infections. Tuberculosis, ear infections, and some types of pneumonia (a type of lung infection) are just a few. Thanks to these drugs, most people don't die of these diseases today.

What Are Antibiotics?

Some living things, like molds, make substances that can kill bacteria. These substances are called antibiotics. Others are not made by molds. Scientists make them in special laboratories.

Alexander Fleming discovered the first antibiotic in 1928. He was working with the mold *Penicillium*. Fleming discovered that *Penicillium* made a substance that killed bacteria.

He called it penicillin. Penicillin kills germs such as *Staphylococcus aureus* (STAFF-uh-low-KAH-kus AW-ree-us). These germs are very dangerous to people. When they get inside the bloodstream, they reproduce, or make many more of themselves, killing the person.

In the 1940s, everyone got very excited about penicillin. Doctors could now cure their patients of bacterial infections that threatened their lives. People all over the world thought that the drug would once and for all get rid of these deadly germs. But time proved everyone wrong. Bacteria are here to stay, and some are even stronger than before.

Take Only As Directed

When the doctor gave Silvia a prescription for penicillin to treat her strep throat, he said very seriously: "You must take all the doses of this antibiotic, one with each meal, until you finish it. This will take 10 days. You have to take all of it to get rid of the germs."

Silvia started taking the antibiotic, but after a few days, she felt better and stopped taking it. She felt fine for a week or so, but then her throat started to hurt again. It got worse than the first time. Her parents took her to the doctor again. The doctor asked Silvia if she had finished all her medicine. She told him she forgot about it when she felt better.

"That's why you got sick again," the doctor said. "Most of the germs that were making your throat hurt were killed easily by a few doses of antibiotics. That's why you felt better after a few days. But some germs are tougher, and you need more doses of the drug to kill them. When you stopped taking the antibiotic, you left the toughest germs alive. These bacteria reproduced, and now you have many of the toughest kind causing your sore throat."

The medicine Silvia took the first time will not kill these tougher germs. They are "resistant" to the drug. The doctor had to kill the bacteria using a different medicine. This time the doctor gave Silvia medicine to take for only five days. Each dose had more medicine in it. And the medicine lasted longer inside her body. Silvia took all her medicine this time. She didn't want to get sick again.

Bacteria Fight Back

Silvia and Carmen wanted to know why germs fight back. The doctor explained that some germs make substances that destroy the drugs before they can reach them. Other bugs can pump the drugs out before they hurt them. Resistance to these drugs allows germs to stay alive and make people sick.

Some germs, such as deadly *Staphylococcus aureus*, are now resistant to some of the medicines. Doctors are afraid that someday many bacteria will fight back many or all of the antibiotics. If this happens, doctors will not be able to cure deadly diseases like tuberculosis or pneumonia.

The Good News

There are ways to help stop bacteria from becoming resistant. Take antibiotics just as the doctor ordered. Take antibiotics only when you have an illness caused by bacteria. Remember, these drugs kill only bacteria and not other germs.

Also, if people take antibiotics when they don't need them, they will kill off the "friendly" bacteria too. The friendly bacteria help keep the bad bugs from growing as quickly. When the good germs die, the bad germs grow faster.

Bacteria are here to stay. But by taking antibiotics responsibly, you can stop them from becoming a deadly enemy.

Name: _____ Date: _____

1. What do antibiotics kill?

- A. the germs that cause many viruses
- B. the germs that cause many infections
- C. the germs that cause colds
- D. the germs that cause mold

2. The text provides a description of antibiotics and how they work. The text also provides a story about two sisters who become sick. How does the story relate to the description?

- A. The story contradicts the description.
- B. The story disproves the description.
- C. The story supports the description.
- D. The story weakens the description.

3. The toughest germs are usually killed in the prescription's last doses of an antibiotic.

What evidence from the text supports this conclusion?

- A. Doctors are afraid that someday many bacteria will fight back many or all of the antibiotics. If this happens, doctors will not be able to cure deadly diseases like tuberculosis or pneumonia.
- B. The doctor said very seriously, "You must take all the doses of this antibiotic, one with each meal, until you finish it. This will take 10 days. You have to take all of it to get rid of the germs."
- C. The doctor explained that some germs make substances that destroy the drugs before they can reach them. Other bugs can pump the drugs out before they hurt them.
- D. Silvia started taking the antibiotic, but after a few days, she felt better and stopped taking it. When she stopped taking the antibiotic, she left the toughest germs alive.

4. What might happen if people take antibiotics when they don't need them?

- A. These people might get a virus.
- B. These people might get a bacterial infection.
- C. These people might become resistant to antibiotics.
- D. These people might get better more quickly.

5. What is the main idea of this text?

- A. It is important to take antibiotics responsibly.
- B. Some germs are resistant to antibiotics.
- C. Viruses cannot be killed with antibiotics.
- D. Penicillin can cure bacterial infections.

6. Read these sentences from the text.

Also, if people take antibiotics when they don't need them, they will kill off the "friendly" bacteria too. The friendly bacteria help keep the bad bugs from growing as quickly. When the good germs die, the bad germs grow faster.

Why does the author use the word "friendly" to describe some bacteria?

- A. to suggest these bacteria are the same as bad bacteria
- B. to suggest these bacteria are helpful to bad bacteria
- C. to suggest these bacteria are bad for your body
- D. to suggest these bacteria are good for your body

7. Choose the answer that best completes the sentence.

Silvia needed antibiotics because she had an infection caused by bacteria. _____, Carmen did not need antibiotics because she had an infection caused by a virus.

- A. Previously
- B. However
- C. Specifically
- D. Therefore

8. What explanation did the doctor give Silvia about why she got sick again?

Support your answer with evidence from the text.

9. What could happen if people take antibiotics when they do not need them?

Support your answer with evidence from the text.

10. Why is it important to take antibiotics responsibly?

Support your answer with evidence from the text.