



ANTIBIOTIC RESISTANCE

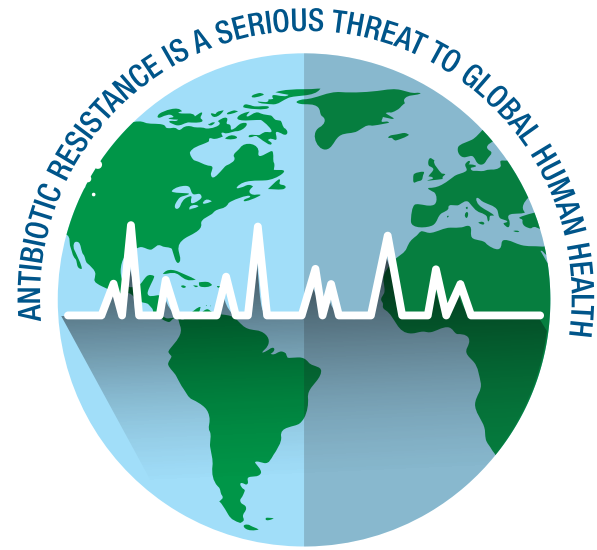
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WHAT is antibiotic resistance?

Bacteria continuously change to find ways to grow even when an antibiotic is present. This process is known as **antibiotic resistance**.

Every time a new antibiotic is created, bacteria eventually find a way to defeat it. This is just the nature of bacteria.

The existence of antibiotic resistance means that more illnesses are becoming harder to treat. Antibiotic resistance is a serious threat to global human health.



Humans are part of the **PROBLEM**

Every use of antibiotics contributes to the development of antibiotic resistance.

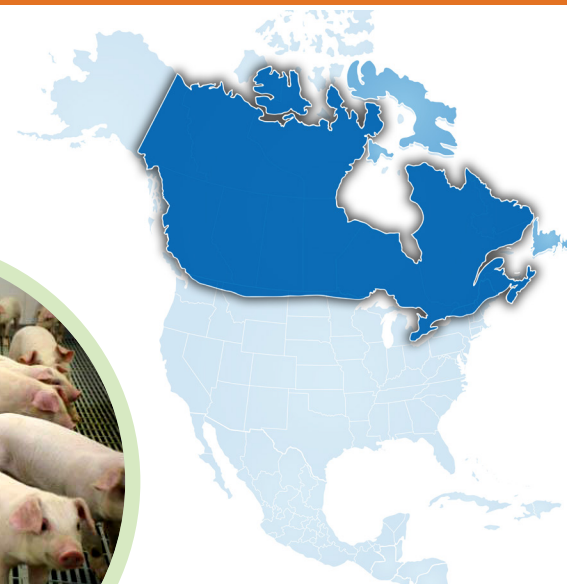
However, resistance occurs more quickly when we overuse antibiotics or use them when they are unnecessary. Examples of misusing antibiotics include giving antibiotics to treat viruses such as the common cold or the "flu" and not taking prescribed drugs as directed. These situations occur with both humans and animals.

ANTIBIOTIC RESISTANCE OCCURS NATURALLY

The Lechuguilla Cave in New Mexico contains bacteria that have lived in complete isolation for more than four million years. Even after all that time, some of these bacteria were found to be naturally resistant to many of the antibiotics we use today.¹

Canada operates programs that monitor antibiotic resistance:

The Canadian Integrated Program for Antimicrobial Resistance,² FoodNet Canada³ and the Canadian Antimicrobial Resistance Surveillance System⁴ protect Canadian consumers by closely monitoring antibiotic resistance.



Are all antibiotics the same?

No. Some antibiotics are more powerful than others. Some of the most powerful ones are not approved for use in animals.

70% of antibiotics are used in both human and animal medicine, but agriculture uses more of certain kinds, e.g., tetracyclines.⁵





Can antibiotic resistance in farm animals affect humans?

Yes. Antibiotic resistant bacteria in animals may be able to pass their resistance on to human bacteria. This would result in antibiotics becoming less effective for treating human infections. As well, resistant bacteria originating in animals may cause infections in people that are difficult to treat. The reverse is true: animals are also at risk of being affected by antibiotic resistance in humans.

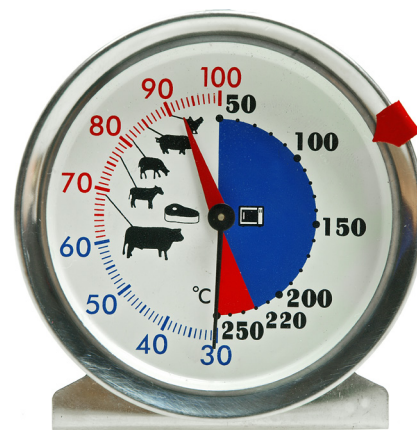
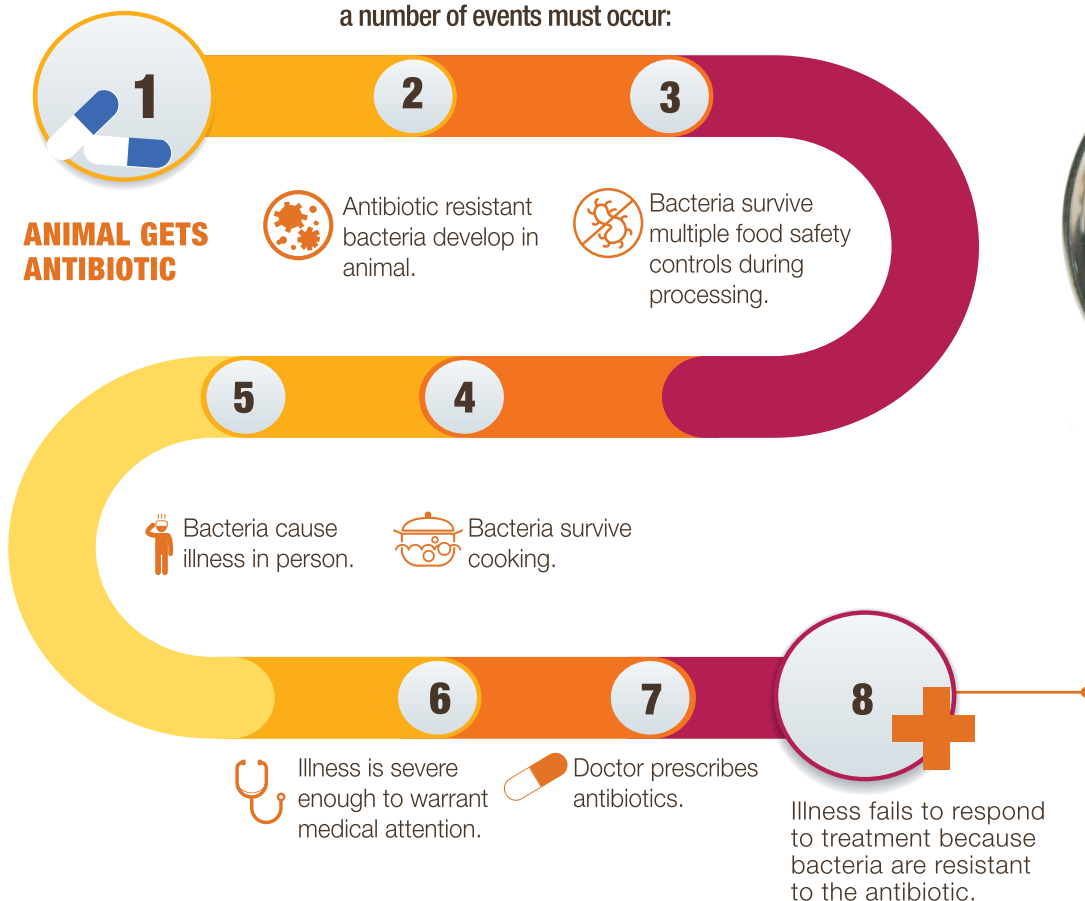
Researchers and medical and agricultural communities continue to investigate the use of antibiotics in animals. They also look for alternatives. Awareness of antibiotic resistance has led to changes in how farmers and ranchers use antibiotics and the types of antibiotics they use.



WHERE DOES ANTIBIOTIC RESISTANCE COME FROM?

When antibiotics are used, non-resistant bacteria are destroyed. Often, though, a few bacteria aren't killed; rather, they survive and reproduce to create a population of bacteria that are now "antibiotic resistant." Resistance is developed through changes in the genetic material of bacteria or when the bacteria obtain DNA resistance from other bacteria.

For a person to get an antibiotic resistant infection from eating meat, poultry, fish or eggs, a number of events must occur:



The occurrence of this sequence of events is **extremely unlikely**. If food is cooked properly, then antibiotic resistant bacteria die, thus preventing the incidence of an antibiotic resistant infection.⁶

