

## Antibiotic Resistance—An Emerging Public Health Crisis

**Throughout America, infectious diseases are emerging that we may not be able to cure because bacteria have become resistant to antibiotics.**

**F**or the past sixty years, the use of antibiotic drugs has turned bacterial infections into treatable conditions, rather than the life-threatening scourges they once were. Physicians depend on antibiotics such as penicillin, tetracycline, and erythromycin to treat many illnesses caused by bacteria, from ear and skin infections to pneumonia, food poisoning, meningitis, and other life-threatening infections. Antibiotics are crucial in treating infections that may result from medical procedures such as surgery, chemotherapy and transplants.

Today, however, doctors report increasing numbers of bacterial infections that fail to respond to antibiotic treatment. A federal government task force recently noted that antibiotic resistance is “a growing menace to all people,” cautioning that continued spread of resistance means that treatments for common infections “will become increasingly limited and expensive—and, in some cases, non-existent.”

### The overuse of antibiotics is to blame.

Although even the most careful use of antibiotics can result in the emergence of antibiotic-resistant bacteria, widespread and inappropriate use of these precious drugs greatly accelerates the process. The more often bacteria are exposed to antibiotics, the more likely that resistance will develop. Because bacteria reproduce rapidly, sometimes in as little as 20 minutes, it does not take long for antibiotic-resistant bacteria to spread.

A major source of antibiotic overuse is livestock producers unnecessarily feeding antibiotics to healthy farm animals to promote growth and compensate for unsanitary conditions found in industrial animal agriculture. The Union of Concerned Scientists estimates that 70% of all antibiotics in the U.S. are used in healthy pigs, poultry, and beef cattle.



People can become infected with antibiotic-resistant bacteria by eating undercooked contaminated meat.

Those antibiotics routinely given to healthy livestock and poultry include many that are identical, or nearly so, to drugs used in treating humans. Antibiotics have long been fed to animals because they allow the animals to grow slightly faster on the same amount of feed, thereby increasing profits for meat producers. The exact mechanism by which antibiotics promote growth is not known.

Human medical practices also contribute to the overuse of antibiotics. Often antibiotics are prescribed for patients with illnesses—like the flu or the common cold—that can't be treated or cured with antibiotics. In 1995 the U.S. Office of Technology Assessment estimated that up to half of all antibiotics prescribed by doctors were prescribed inappropriately. And in hospitals, antibiotic overuse has been a major factor in causing drug-resistant infections to skyrocket. Patients also contribute to the problem, by requesting antibiotics when they're not needed and by not completing the entire course of antibiotics when prescribed, which kills off the susceptible bacteria and leaves the more resistant bacteria to reproduce.

## We're all at risk.

The spread of this new generation of infections resistant to antibiotic treatments has serious consequences for public health. Antibiotic-resistant bacteria may keep people sicker longer, and sometimes people are unable to recover at all. Children, the elderly, and those with weakened immune systems (including cancer, HIV/AIDS, and transplant patients) are particularly vulnerable because their immune systems are not as vigorous as those of healthy adults.

## Antibiotic Resistance is On the Rise

- ▶ Resistant bacterial infections increase health care costs by at least \$4 billion per year in the U.S.
- ▶ One out of six cases of *Campylobacter* infection, the most common cause of food poisoning, is resistant to fluoroquinolones, the drugs most often used to treat severe food-borne illness. Just six years ago, before fluoroquinolones were approved for use in poultry, such resistance was negligible. *Campylobacter* accounts for 2.4 million illnesses and over 120 deaths each year in the U.S.
- ▶ One out of three cases of human infection by a particular strain of *Salmonella* bacteria is resistant to more than five different antibiotics. *Salmonella* causes 1.4 million illnesses and 580 deaths annually in the U.S.
- ▶ Nearly all strains of *Staphylococcus* infections in the U.S. are resistant to penicillin, and many are resistant to newer drugs.

## Because of the growing health crisis of antibiotic resistance, the American Medical Association now opposes the use of antibiotics in healthy farm animals.

In addition, the American College of Preventive Medicine, the American Public Health Association, the Council of State and Territorial Epidemiologists, and the World Health Organization have taken similar positions.

## How are Drug-Resistant Bacteria Transmitted from Animals to Humans?

People can become infected by eating undercooked contaminated meat, or by eating other foods or using utensils that have come in contact with meat juices. In addition, farmers, farm families, and slaughterhouse workers are routinely exposed to antibiotics or antibiotic-resistant bacteria, or both. Finally, significant quantities of antibiotics and antibiotic-resistant bacteria enter the environment through the nearly two trillion pounds of animal wastes produced annually in the U.S. by animal agriculture operations. Farm waste run-off can enter rivers, lakes, and ground water, and these wastes are sometimes spread on agricultural fields as fertilizer as well.



Important antibiotics are losing their effectiveness, due to unnecessary use in animal agriculture, and overuse by humans.

## What Should Be Done?

A recent study from Denmark, where the use of antibiotics in healthy farm animals was banned, demonstrates that ending this practice dramatically reduces the levels of resistant bacteria present in those animals. To keep antibiotics working for people who need them, we must stop the overuse of antibiotics in healthy pigs, poultry, and cattle, especially antibiotics that are also used in human medicine. Four steps must be taken:

- 1 Congress or the U.S. Food and Drug Administration (FDA) should phase out the use of medically important antibiotics in healthy livestock and poultry.
- 2 Companies involved in the production and marketing of meat and poultry (meat producers, supermarkets, restaurants, factory farms, etc.) should voluntarily agree to stop buying or selling meat produced with antibiotics for purposes other than treating sick animals. (A 1999 National Academy of Sciences report estimated that the elimination of all such uses of antibiotics in poultry, cattle, and swine production would cost consumers only \$5 to \$10 per person annually).
- 3 Congress or FDA should require the collection of accurate data on the production and use of antibiotics in both human medicine and animal agriculture, and make that information available to the public.
- 4 Talk with your doctor to make sure that antibiotics, which work against bacterial infections, are not prescribed for viral infections such as the cold or flu. Also, take the full course of any antibiotic, as prescribed.

**Keep Antibiotics Working: The Campaign to End Antibiotic Overuse, is a coalition of concerned health, consumer, agricultural, and environmental organizations working to reduce the growing public health threat of antibiotic resistance. For more information, including an annotated version of this fact sheet, please visit [www.KeepAntibioticsWorking.com](http://www.KeepAntibioticsWorking.com).**