



Antibiotic Resistance

Does the use of antibiotics in animals cause resistance in humans?

Antibiotic resistance is the ability of microorganisms to withstand the effects of antibiotics. While it is possible that antibiotic resistant bacteria can develop in animals as a direct result of antibiotic use and thus cause resistant infections in humans via food, studies show it is highly improbable.

Many published studies have found that the risk to humans from resistant bacteria derived from eating meat or poultry from animals treated with antibiotics is extremely minimal. For example, a study published in *Journal of Food Protection* found that less than one in 10 million people per year will suffer some adverse effects due to resistant bacteria which resulted from animals treated with macrolides. Macrolides are a class of antibiotics.

The FDA and the United States Department of Agriculture (USDA), along with the veterinary community, animal health companies, food producers and other stakeholders, have put in place several layers of human-health protection over the past decade to reduce the resistance risks associated with antibiotic use in animals. These measures include:

- A stringent FDA approval process;
- FDA post-approval risk assessment;
- Government food-safety monitoring programs;
- Responsible-use programs for veterinarians and farmers; and
- Pathogen-reduction programs that have successfully led to documented reductions in pathogens on meat and poultry, contributing to decreased foodborne illness.

The U.S. government closely tracks antibiotic resistance through the National Antimicrobial Resistance Monitoring System (NARMS), a cooperative program among:

- **FDA** — Coordinates the program and monitors resistant bacteria in retail meats;
- **Centers for Disease Control and Prevention (CDC)** — Collects samples from public health laboratories to monitor the emergence of antibiotic-resistant foodborne pathogens in humans; and
- **USDA's Agricultural Research Service** — Collects samples from slaughter and processing facilities to monitor for antibiotic resistance trends in farm animals.