AMERICAN MEAT INSTITUTE FACT SHEET

Antibiotic Use in Livestock Production: Ensuring Meat Safety

Q: Why are antibiotics used in livestock and poultry production?

A: Antibiotics are used in animals for the same reasons they are used in humans: to treat and control diseases and ensure health.

Two terms that are frequently used to describe antibiotic use in for livestock and poultry production are "therapeutic" and "sub-therapeutic." When an animal exhibits clinical signs of an illness or a condition like a respiratory infection or a skin infection, a veterinarian may prescribe an antibiotic drug to treat that condition - just as a doctor would with a human that is sick. This approach is called a "therapeutic" use of prescriptions.

"Subtherapeutic" refers to the use of antibiotics in a preventative manner. For example, veterinarians use antibiotics to prevent disease at vulnerable times, such as weaning, when animals are very susceptible to disease that can kill them quickly, sometimes in less than 24 hours. Rather than wait for a full-blown infection to manifest and spread throughout the entire herd, some producers, under the careful supervision of veterinarians, may give a group of cattle an antibiotic to prevent an outbreak. Many times it is easier to control the total herd health through the early prevention of a contagious illness.

Q: How is antibiotic use regulated?

A: The Food and Drug Administration (FDA) regulates drugs, including antibiotics administered to animals that produce food. FDA has extensive guidelines about how antibiotics must be used to ensure safety for both people and animals. All antibiotics used to keep animals healthy have been evaluated through a rigorous approval process, have been shown to be safe and effective and have been reviewed for their potential to cause increased antibiotic resistance. Consumers can be confident that this process ensures the safest meat in the world ends up on America's dinner tables.

Q: What is antibiotic resistance?

A: In nature, microorganisms define the term "survival of the fittest." For as long as we have recognized the existence of microscopic bacteria, we have also understood that in the face of any threat, bacteria must develop a resistance to the external threat. They adapt to survive.

The term "antibiotic resistance" refers to the ability of microorganisms to withstand the effects of antibiotics.

For this reason, both doctors and veterinarians tend to be cautious in prescribing antibiotics and think carefully about which antibiotic to prescribe for particular situations. In doing so, their goal is to minimize the development of organisms that are resistant to the antibiotics that are available for both humans and animals.

Q: Does antibiotic use in livestock and poultry cause antibiotic resistance in humans?

A: There is a misconception that somehow consuming meat from animals treated with antibiotics will cause humans to become resistant to those antibiotics. This is simply not the case.

When antibiotics are used in livestock and poultry production, strict withdrawal periods must be followed before the animals are processed for foods. The U.S. Department of Agriculture (USDA) monitors meat and poultry to ensure that in the unlikely event that antibiotic residues are present, they do not exceed the tolerance levels deemed unsafe by FDA and USDA. The industry has a strong record of compliance in this area.

Most informed scientists and public health professionals acknowledge that the problem of antibiotic resistance in humans is overwhelmingly an issue related to human antibiotic use.

American Meat Institute
1150 Connecticut Avenue, NW • 12th Floor • Washington, D.C. 20036
(202) 587-4200 • fax (202) 587-4300 • http://www.MeatAMI.com

Q: I've heard that an estimated 70 percent of all antibiotics in the U.S. are used in healthy pigs, poultry and beef cattle. Is that true?

A: Critics of the use of antibiotics in animals cite this statistic, but this "70 percent" is meant to shock and scare consumers. The operative word in the "fact" is "estimated". This figure comes from an unscientific report by the Union of Concerned Scientists (UCS) that *estimated* the amount of antibiotics used in human medicine. No public data are available to quantify antibiotic use in humans.

The figure also includes antibiotics used to prevent and control disease in animals, which are considered "therapeutic" by the FDA, American Veterinary Medical Association and the World Organization for Animal Health (OIE). According to the Coalition for Animal Health, which compiles the annual data from animal health makers, 87 percent of antibiotics used in animals are used for therapeutic purposes.

Q: Does antibiotic use in livestock or poultry production increase the chance that antibiotic resistant bacteria may be present on meat or poultry products in retail stores?

A: Due to the natural evolution of resistance, antibiotic resistant microorganisms can be found everywhere. Humans, plants, insects, and animals - including pets - can harbor and transfer antibiotic resistant microorganisms to others.

Fortunately, microbial contamination on food products in the U.S. is typically very low. The majority of research linking antibiotic resistance microorganisms in food at retail stores has found the antibiotic resistance strains were human strains, not animal strains, meaning they come from human handlers, not the animals themselves.

Q: Does cooking kill antibiotic resistant microorganisms?

A: Yes. All foodborne bacteria whether they are antibiotic resistant or not are destroyed at recommended cooking temperatures. Proper cooking of meat and poultry products ensures a safe eating experience.

Q: How do I know there are no residues in my meat products?

A: USDA's Food Safety and Inspection Service (FSIS), which regulates and inspects meat and poultry products, works with the Environmental Protection Agency (EPA) and the FDA to control veterinary drug, pesticide, and environmental contaminant residues in meat, poultry, and egg products. Residue control is a cooperative effort. The EPA and FDA establish residue tolerances, and FSIS, through the National Residue Program (NRP) tests animal tissues and egg products to verify that tolerances levels are not violated.

Regulations include a specified withdrawal time for each antibiotic used to ensure that the animal's system has been sufficiently cleared of antibiotics well before its meat enters the food supply.

Since 1967, FSIS has administered the NRP to collect data on chemical residues in domestic and imported meat, poultry, and egg products to identify violative levels of chemical residues, reduce consumers' exposure and verify that producers are adhering to withdraw requirements.

Based on 2008 data (the latest reported data), less than one percent of samples tested by FSIS exceeded antibiotic residue tolerance levels.

Q: What does it mean when meat products say "no antibiotics?"

A: The term "no antibiotics" may be used on labels if the producer sufficiently documents that the animals were raised without antibiotics. The use of antibiotics is a conventional production practice. Animals raised without antibiotics do not produce a safer or higher quality product than those raised in a conventional manner. Some consumers, however, prefer these products for personal or ethical reasons. They are one

© February 2010 American Meat Institute

of many choices in today's meat case.

Q: What are the facts surrounding Denmark's experience with antibiotics?

A: Some organizations point to Denmark's decision to ban subtherapeutic use of antibiotics as a model approach. But the facts show that the Danish experience has not had the intended results. In fact, the use of therapeutic antibiotics in livestock has increased after the sub-therapeutic ban was implemented.

According to the American Veterinary Medical Association (AVMA), "The Danish ban has not resulted in decreased antimicrobial-resistant human infections in Denmark and has not improved human health." In fact, a four-fold increase in the rate of resistance in people against other antibiotics that are used only sparingly in Danish food animals has prompted some scientists to suggest that something besides animal use is the cause.

AVMA also notes in the same report "The Netherlands has also instituted a ban on growth promoting antibiotics that has not resulted in the intended benefit of decreased resistance in humans."

Finally, a U.S. Congressional fact finding mission to Denmark in December 2009 found no scientific evidence that reducing antibiotic use in agriculture resulted in public health benefits in that country.

Q: Are there any food safety benefits from using antibiotics?

A: There is growing evidence suggesting that antibiotics may actually help prevent foodborne disease.

At the farm level, a 2008 study by The Ohio State University found that 54 percent of hogs raised on antibiotic-free operations were infected with *Salmonella*, compared to 39 percent in conventional operations.

USDA research conducted in 2002 found that cattle fed the antibiotic neomycin sulfate for 48 hours, held for the mandatory 24-hour pre-slaughter drug withdrawal period and then shipped to market for sale shed significantly fewer *E. coli* O157:H7 cells than their pen mates who did not receive the antibiotic.

An analysis by Cox also found that this issue is not so black and white as some would suggest. According to his 2005 paper in Environmental International, "While withdrawals of animal antibiotics previously used to control animal bacterial illnesses are being encouraged in many countries, the human health impacts of such withdrawals are only starting to be understood. Increases in animal and human bacterial illness rates and antibiotic resistance levels in humans in Europe despite bans on animal antibiotics there have raised questions about how animal antibiotic use affects human health." (http://www.ncbi.nlm.nih.gov/pubmed/15871160)

Additional Reading

The American Veterinary Medical Association Response to The Final Report of the Pew Commission on Industrial Farm Animal Production, November 2009, www.avma.org

© February 2010 American Meat Institute