

Antibiotics: Abuse them and lose them

It's more than treating infections. Every time we reach for a bottle, we are involved in food safety and public health issues.

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PENICILLIN became a “wonder drug” when it first began to be used back in the 1940s. Since then, scientists have developed more than 150 antimicrobial drugs to help treat infectious disease.

While antibiotics have saved millions of lives, they also have a negative side. Frequent use and overuse is giving rise to some bacteria that are resistant to many commonly used antibiotics. This makes treatment of relatively controllable animal and human disease outbreaks more difficult and more expensive because the bacteria do not respond to traditional antibiotics.

Many types of antibiotics are used to protect both human and animal health. In recent years, concerns have been raised about the use of certain types of antibiotics and antimicrobial products that select for antibiotic resistant bacteria in food-producing animals. These resistant bacteria may be present in meat and milk products, transferring to humans. As a result, foodborne bacterial diseases may not respond as well to antibiotic treatment. This has set the stage for debate between human and animal health experts as to what constitutes appropriate use and what should be done to manage the risk.

Two bugs of concern are *Salmonella* and *Campylobacter jejuni*. Both of these diarrhea-causing bacteria are common causes of foodborne illness, responsible for millions of cases of food poisoning each year. If a significant percent of *Salmonella* or *Campylobacter* became resistant to the antibiotics used to treat those infections in humans, there could be a significant impact on human health.

Who's at fault?

Antibiotic use has set the stage for debate between human and animal health experts. There has been considerable “finger pointing” from both sides. Special interest groups and “niche marketers” of animal products have helped intensify the controversy. Credible health organizations such as the World Health Organization and the American Medical Association have called for a limit or ban on antibiotic use in food animals. These same groups acknowledge that human overuse of antibiotics makes a greater contribution to human resistance than animal use. The Centers for Disease Control estimate that as many as half of the 133 million doses of antibiotics people take daily outside of hospitals are not necessary because they're prescribed against virus-caused diseases like common colds that don't respond to antibiotics.

On the farm, there are some controversies about extra-label use of antibiotics. Extra-label drug use (ELDU) is defined as any use which is not listed on the FDA-approved label. Legally, ELDU must be by or on the order of a licensed veterinarian within a valid veterinary-client-patient relationship. In other words, extra-label use by a layperson is not permitted except under the supervision of a licensed veterinarian.

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Another practice that has been the source of debate is when low level amounts of antibiotics are added to animal feeds to prevent infections and to improve growth and production. Some propose these practices can raise the incidence of antibiotic-resistant bacteria.

In the midst of these current issues, it is critical that all dairy producers and veterinarians be mindful about the safety of food they produce. Healthy animals are the foundation of a safe and wholesome food supply. When cows get sick and antibiotic treatment is necessary, producers and veterinarians must use these drugs responsibly.

Our challenge . . .

As dairy producers, we should all follow the Responsible Antibiotic Use Guidelines (as described here) in order to protect public health, ensure food safety, and be good stewards of the environment. Misuse of antibiotics is a bad animal health decision, a bad public health decision, and a bad business decision. (See page 715 for a list of prohibited drugs.)

Treatment and culling decisions are not just about producing milk any more but are rapidly becoming human health issues, too . . . both in public perception and reality. Producers are accountable for ensuring the safety of their product. While milk is most often discussed as the dairy industry's food product, ultimately, the final product of the dairy cow is beef. Before sending the cow to market, ask yourself, “Would I be confident in serving the beef from that cow on my family's dinner table?,” and “Can I comfortably say that this cow is free of antibiotics?”

The American Veterinary Medical Association, in conjunction with the FDA Center for Veterinary Medicine and producer organizations, has developed a set of general principles of judicious antibiotic use. This article is based on information included in those guidelines.

Every time an antibiotic is given to a dairy cow to treat an infection, there are important considerations to keep in mind. All people involved in treating dairy cattle should understand the consequences of antibiotic use.

Remember, antibiotic use cannot replace sound care. Focus first on preventive practices such as vaccinations, parasite control, reducing stress, proper nutrition, sanitation, ventilation, cow comfort, and animal handling. Sick animals indicate a breakdown in preventive herd health practices.

Work with your veterinarian to use lab tests whenever possible to help confirm an infection and determine which drug would be most effective. Select antibiotic treatment only if you suspect an infection. Pay attention to treatment dosage (how much drug per weight of the animal?). Double check route of administration . . . intravenous (IV), intramuscular (IM), subcutaneous (SQ), intramammary (IMM), or oral. How many times should the drug be administered? What are the meat and milk holdout times?

Develop written treatment protocols with your veterinarian. They can help you determine

whether a cow needs treatment and which antibiotic to use. Treat the fewest number of animals possible. Withhold treated animals or milk for the recommended length of time. If you are unsure of whether a cow has cleared the drug, use a test for meat or milk residues.

Giving an antibiotic in a different way than described on the label is an extra-label drug use. Also, using an antibiotic dose that is lower than the label recommendation always is discouraged.

You should have a good record system. Record identification of all animals treated individually or by group. Include antibiotic and other medications used. Note dates treated. If more than once, include number of treatments and last day of drug being given.

Don't forget to record dosage given, route, and location of administration. It also may be useful to write down who gave the drug, how the treatment worked (outcome), and if the animal was sold, the day of leaving the farm, and destination.

Review treatment records carefully to ensure proper meat and milk withdrawals are met. FDA encourages all people handling food-producing animals to have a record keeping system in place to ensure that animal drugs are used properly and to prevent drug residues in edible animal products. **Record keeping is required** for any extra-label drug use.

Work with your vet . . .

You must have a valid veterinarian-client-patient relationship for the use of **any prescription drug or any extra-label drug** on the farm.

That relationship is defined as follows:

- A veterinarian agrees to be responsible for making decisions about diagnosing and treating animals on the farm, and the client (owner or caretaker of the animal) agrees to follow the veterinarian's instructions.

- The veterinarian is familiar enough with the farm to be able to make a diagnosis of medical conditions of the animals on that farm.

- The practicing veterinarian is available for follow-up in case of a drug reaction or the therapy does not work.

Routine visits and discussions with your veterinarian are key elements in maintaining this relationship. A veterinarian is responsible for deciding to give an extra-label drug and must be able to provide directions for that drug's use.

Continued access to effective drugs for treating animal diseases depends on our responsible use of these drugs. Use drugs judiciously, and follow BOTH milk and meat withholding times.