

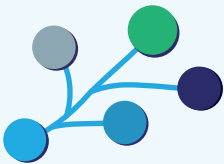


Navigating Antimicrobial Use, Resistance, and Stewardship

Antimicrobial is a term that describes substances that kill or stop the growth of harmful bacteria, fungi, and viruses.

Antibiotics are commonly used to treat animals with an ongoing bacterial infection, or in some cases, to prevent an infection from developing.

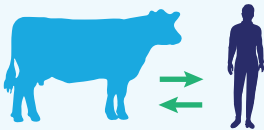
Antimicrobial resistance (AMR) occurs when germs (like bacteria) no longer respond to the substances that were once able to kill them. Development of resistance can occur several ways:



Evolution of germs: Over time, bacteria and other germs evolve. The process of evolution can result in changes that help germs survive antimicrobial treatments that would have previously killed them.



Overuse and misuse: When antimicrobials are used too often or are not used according to the label or prescribed instructions, germs can become resistant. For example, using antibiotics when they are not needed, or using them at a lower rate than prescribed can help bacteria to develop resistance.



Spread of resistant germs: Once a resistant germ develops and infects an animal, it could spread **between animals and from animals to humans**. Spread can occur through direct contact with the animal, or through contact with contaminated feed, water, or environments.

Concerns Around AMR and the Urgency of One Health

Human health challenges of AMR

Increased difficulty treating infections due to less effective antimicrobials

Increased mortality rates from resistant infections that cannot be treated

Fewer and poorer treatment options for resistant infections

Animal health challenges of AMR

Poor animal health outcomes & lower productivity

Increased costs to treat animals & losses due to lower productivity

Spread of resistant infections from animals to humans

What can we do about AMR?

The key is good antimicrobial stewardship!



Antimicrobial stewardship is a set of actions that aim to use antimicrobials in a way that ensures they remain effective in the long run. Antimicrobial stewardship on dairy farms follows a step-by-step process, with the herd veterinarian serving as a guide.

The 5 Rs of Antimicrobial Stewardship And what they mean in practice!

Responsibility Antimicrobial stewardship is a shared responsibility. A team-based approach that includes advisors like veterinarians as well as everyone on the farm is essential.

Reduction Reduction in the use of antimicrobials largely surrounds focusing on disease prevention. Examples could include:

- ✓ Testing calves for transfer of passive status immunity confirms colostrum management effectiveness and supports reduced AMU by promoting healthier calves.
- ✓ Evaluating and revising biosecurity practices to prevent pathogens, like Salmonella Dublin, from entering the farm.
- ✓ Modifying mastitis vaccination program to reduce clinical cases of mastitis.

Replacement Consider what swaps we can make to the antimicrobials we use. For example:

- ✓ Use lower priority antibiotics to treat metritis (e.g. penicillin instead of ceftiofur).
- ✓ Consider non-antimicrobial alternatives that can be used to promote health or reduce disease.

Refinement Use the right antimicrobial for the right animal at the right time. Some key examples of refinement in the dairy industry include:

- ✓ Using on-farm cultures to selectively treat clinical mastitis cases.
- ✓ Weighing cattle to ensure correct dose of antibiotics is administered.
- ✓ Schedule time for the veterinarian to meet with the team and review criteria for disease treatment.

Review

- ✓ Review of health records to estimate the rate of respiratory disease in calves.
- ✓ Review of health records to estimate the rate of mastitis.
- ✓ Benchmark antimicrobial use within a veterinary clinic.

Funding partners



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