



KEY ELEMENTS FOR IMPLEMENTING ANTIMICROBIAL STEWARDSHIP PLANS IN BOVINE VETERINARY PRACTICES WORKING WITH BEEF AND DAIRY OPERATIONS

AABP ANTIMICROBIAL STEWARDSHIP GUIDELINES

The goal of this document is to provide bovine veterinarians with best practices for designing, implementing, and monitoring antimicrobial stewardship programs with their clients. These best practices are aimed at veterinarians that administer antimicrobials, are responsible for oversight of drug use or treatment protocols, or who make recommendations for use of antimicrobials.

The focus is on best practices for veterinarians with defined and defensible Veterinarian-Client-Patient Relationships (VCPR) or who are Veterinarians of Record. Elements may be applicable to veterinarians with other relationships to clients and patients.

DEFINITION OF ANTIMICROBIAL STEWARDSHIP

Antimicrobial stewardship is the commitment to reducing the need for antimicrobial drugs by preventing infectious disease in cattle, and when antimicrobial drugs are needed, a commitment that antimicrobials are used appropriately to optimize health and minimize selection for antimicrobial resistance.

KEY ELEMENT 1: LEADERSHIP COMMITMENT

Commitment to leadership in antimicrobial stewardship in bovine practice means being responsible for the entire cycle associated with bacterial disease management. It includes accepting responsibility and accountability for antimicrobial prescribing, dispensing, and administration. This commitment also includes identifying leaders within the practice and client operations to share in antimicrobial stewardship.

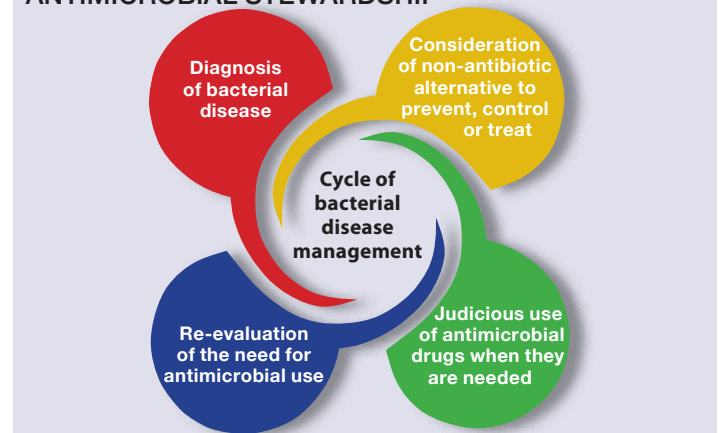
Multi-veterinarian practices may find it beneficial to designate one main leader to coordinate efforts and bring information and opportunities to their colleagues. Everyone in the practice should

shoulder leadership responsibility including involvement of other stakeholders such as veterinary technicians, cattle operation managers, nutritionists, farm employees, drug distributors, animal health companies, pharmacies, and contract service providers such as hoof trimmers, in all settings in which antimicrobial drugs are used.

VETERINARIANS CAN BE LEADERS IN ANTIMICROBIAL STEWARDSHIP BY ASKING THE FOLLOWING QUESTIONS:

- Have I made a commitment to apply what I learn from continuing education and to relay what I learn to my clients and colleagues?
- Have I provided the necessary training and education about the need for antimicrobial stewardship and ways to use antimicrobial drugs judiciously for on-farm personnel, if appropriate/necessary?
- Have I made the commitment to use what I learn from each of these therapeutic events and investigations to further the training and education of all stakeholders?
- Have I considered whether my personal economic gain has influenced my decisions to treat, dispense, or prescribe an antimicrobial drug?

ANTIMICROBIAL STEWARDSHIP





KEY ELEMENTS FOR IMPLEMENTING ANTIMICROBIAL STEWARDSHIP PLANS IN BOVINE VETERINARY PRACTICES WORKING WITH BEEF AND DAIRY OPERATIONS

ONCE A NEED FOR ANTIMICROBIAL DRUGS HAS BEEN IDENTIFIED, JUDICIOUS USE INCLUDES CONSIDERATION OF THE FOLLOWING:

- Have I identified the organ system(s) affected and the most common infectious agent(s) to make an informed selection of an appropriate regimen including antibiotic, dose, and route of administration?
- Is the regimen safe?
- Am I committed to complete the cycle of disease management by following the judicious use of antimicrobial drugs with reevaluation of their need?
- Am I committed to using antimicrobial drugs in a manner that does not increase short-term benefits at the expense of long-term loss of antimicrobial susceptibility and effectiveness?
- Do I have a veterinary-client-patient-relationship?
- Have I followed the legal requirements for using antimicrobial drugs by selecting approved products when available or choosing legally acceptable extra-label use?
- Have I avoided causing a violative residue?

KEY ELEMENT 2: DRUG EXPERTISE

It is the responsibility of the veterinarian to continuously seek new information about the use of antimicrobial drugs. This may take the form of consulting infectious disease specialists, attending professional continuing education opportunities, searching for and reading peer-reviewed published research, or reviewing rigorously conducted knowledge summaries. Knowledge summaries may include online decision-support tools, systematic reviews and meta-analyses, or critically appraised summaries of published data.

Veterinary educators are called to include education about all aspects of antimicrobial

stewardship so that new veterinary graduates and those in animal science and related disciplines have the knowledge and skills necessary to be good stewards.

Bovine practitioners should provide antimicrobial use protocols and treatment guidelines specific for each operation as described in the AABP Guideline “Establishing and maintaining the veterinarian-client-patient relationship in bovine practice” and “Drug use guidelines for bovine practice.” Well-designed protocols make all the steps in antimicrobial decision-making transparent, and provide a tool for accountability and tracking.

KEY ELEMENT 3: TRACKING ANTIMICROBIAL DRUG USE

Bovine practitioners should periodically review treatment records, drugs present on the farm in relation to treatment protocols, and on-farm antimicrobial drug dispensing and usage. This requires appropriate record systems.

Tracking may include monitoring the pathogens associated with clinical disease, including antimicrobial susceptibility patterns, or evaluating treatment outcomes such as retreatment, culling, and case fatality rates. Knowledge of these parameters on a herd basis can help guide further investigation and changes in treatment protocols.

Actual antimicrobial use in treatment records should be compared to protocols for indications of protocol drift. Deviations from protocol should be addressed through training and other corrective actions as appropriate.

KEY ELEMENT 4: REPORTING

Bovine practitioners should support efforts to report antimicrobial drug use across farms in order to benchmark and compare usage, while maintaining client confidentiality.



KEY ELEMENTS FOR IMPLEMENTING ANTIMICROBIAL STEWARDSHIP PLANS IN BOVINE VETERINARY PRACTICES WORKING WITH BEEF AND DAIRY OPERATIONS

KEY ELEMENT 5: ACTION

Stewardship programs require action in addition to monitoring and tracking. Stewardship leader(s) should review activities and recommend appropriate actions on a regular basis. Below are some examples of ways to take action.

- Review the disease prevention programs such as vaccination, nutrition, and environmental management programs for specific disease conditions to assure optimal husbandry and management are being employed. Specific examples include:
 - Examine processing and arrival programs in the feedlot.
 - Review pre-weaned dairy calf management to reduce scours and respiratory disease and need for treatment.
 - Examine treatment records to estimate the percentage of entries for a single disease challenge (e.g., mastitis on a dairy, bovine respiratory disease complex on a feedlot). Make a plan with the owner or manager to reduce the incidence of disease and review records again in 6 months.
- Review diagnosis/treatment protocols developed for different disease syndromes.
 - Are the protocols up to date for the applicable disease challenges with regard to indication for use, dosage, route, and duration?
 - Examine treatment records to estimate the percentage of entries that include all of the necessary recorded items such as: antimicrobial drugs used, indication for use, and regimen (dose, route, duration, and frequency). Make a plan with the owner or manager to increase this percentage of complete records by a particular percent and review again in 6 months.
 - Look at the client's drug inventory and purchasing as a measure of protocol compliance.
- Review the published evidence for efficacy of

specific antimicrobials for pathogens seen in the practice.

- Pick one or more high prevalence diseases in a production class and create a progress plan for:
 - Herd management changes that have the potential to reduce disease pressure and prevalence over the subsequent period.
 - A review of current treatment protocols for that disease and suggestion of refinements in terms of a decision tree for when and how to treat.
 - Providing for reliable treatment and outcome records for later review.
 - Establish a schedule (annual, semiannual, quarterly) to review disease rates, treatment frequency, and changes in treatment outcome quality parameters.
 - Commit to seeking/creating a learning system around a selected disease such that repetition of the status quo is an unlikely long term outcome. Identify and review the disease, diagnosis, treatment and outcome with all team members.
 - Be able to measure, identify and describe the benefits of improvements garnered from these efforts.

RESOURCES

- *Evidence Based Veterinary Medicine Association* www.ebvma.org
- *Food Armor*® www.foodarmor.org
- *AABP Guidelines for Establishing and Maintaining The Veterinarian-Client-Patient-Relationship in Bovine Practice* http://www.aabp.org/resources/aabp_guidelines/vcprguidelinefinal11-2013.2.pdf
- *AABP Prudent Antimicrobial Use Guidelines for Cattle* http://www.aabp.org/resources/aabp_guidelines/AABP_Prudent_Antimicrobial_Use_Guidelines-2013.pdf
- *AABP Drug Use Guidelines for Cattle Practice* http://www.aabp.org/resources/aabp_guidelines/druguseguidelines_2015-4-8-1.pdf
- *FDA Guidance for Industry #152 Appendix A: Ranking of Antimicrobial Drugs According to their Importance in Human Medicine, pg 28* <https://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM052519.pdf>
- *FDA Guidance for Industry #213* <https://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM299624.pdf>
- *FDA Guidance for Industry #209 The Judicious Use of Medically Important Antimicrobial Drugs in Food-Producing Animals* <https://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM216936.pdf>