



## DRUG USE GUIDELINES FOR BOVINE PRACTICE

*These guidelines from the American Association of Bovine Practitioners serve to assist the veterinarian in ensuring that drugs used in cattle are used in a safe and responsible manner.*

Good animal husbandry and strict preventive measures are important in reducing medical interventions, including the use of drugs. However, when FDA-approved pharmaceuticals need to be used in the care and treatment of cattle, they must be used in a legal and proper manner by veterinarians and their clients to protect animal health and the food supply. The keys to appropriately using drugs in bovine practice include establishing and maintaining a veterinarian-client-patient relationship (VCPR), utilizing scientific knowledge and veterinary training, prescribing/dispensing drugs appropriately, providing drug use oversight on cattle operations, preventing residues, following federal and other regulations for extralabel drug use, prudently using antimicrobials, and appropriately using analgesics.

### ESTABLISH AND MAINTAIN A VCPR

As outlined in the AABP Guideline, “Establishing and Maintaining the Veterinarian-Client-Patient Relationship in Bovine Practice,” the following areas are critical: a mutual agreement that a VCPR exists, a veterinarian of record with oversight of cattle operations, clear relationships with consultants and other veterinarians, written treatment protocols, written or electronic treatment records, and provision of drugs for only specific time frames and specific protocols.

For more information, refer to AABP’s VCPR guidelines (see Resources below).

### USE SCIENTIFIC KNOWLEDGE AND VETERINARY MEDICAL TRAINING

Veterinarians should use their scientific knowledge concerning disease management, diagnostics, Epidemiology, and pharmacology to work with cattle owners, managers, and other relevant workers to aid in disease prevention, control, and management.

Appropriate clinical and laboratory diagnostics should be used when applicable to diagnose disease in cattle prior to making decisions about drug use. Establishing and maintaining records of clinical and laboratory findings is also important.

### PROVIDE OVERSIGHT ON DRUG USE ON CATTLE OPERATIONS

Protocols should be developed jointly with clients and placed in appropriate written or other non-verbal forms for use by the operation’s personnel. Designated personnel should be trained to identify clinical signs and reasons for drug administration along with the correct administration, handling, and storage of drugs on the operation to promote efficacy and prevent adverse reactions, residues, damage to or inactivation of the drug properties and to comply with state and federal regulations.

There also should be agreed-upon review intervals appropriate to the scope and scale of an operation because procedural drift can occur due to employee turnover, lack of consistent oversight, and other factors, which can have major impacts on proper drug use. Veterinarians are in a key position to monitor on-farm disease diagnosis and use of drugs in a cattle operations, and provide input for practices that can substantially improve prudent use of antimicrobial drugs.

### PRESCRIBE OR DISPENSE DRUGS IN A LEGAL AND ETHICAL MANNER

Veterinarians should understand state and federal laws and regulations about administering, dispensing, and prescribing drugs. The relevant laws and regulations include the Animal Medicinal Drug Use Clarification Act (AMDUCA) for extralabel use, the Controlled Substances Act, state pharmacy acts, and state veterinary prac-



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tice acts. Of importance is knowledge of prohibited extra-label uses of drugs in cattle: no allowed extralabel use of feed additives, extralabel use of drugs for production purposes is illegal, and certain drugs are always prohibited from extralabel use in cattle (see Resources below).

All drugs should have a label that indicates the active ingredients, the amount of the drug, concentration, instructions for use, and withdrawal time(s). The Food Animal Residue Avoidance Databank (see Resources) may be able to provide

withdrawal time estimates for extralabel uses.

The exact contents of the label and the need for additional veterinary-directed labeling will depend on the distribution channel and federal and state labeling requirements for the particular type of cattle operation where the drug is being used.

Recording and maintaining clinical and laboratory findings are essential for understanding disease within a given animal population. These data should be reviewed regularly to determine if changes in the disease management program are needed. In addition to legal requirements, veterinarians are reminded of their ethical responsibilities to not dispense, recommend, or prescribe drugs solely for profit.

For drugs that are fed to cattle, veterinarians and producers must follow compliance guidelines. For medically important antimicrobial drugs, FDA's Guidance for Industry (GFI) #213 (see Resources) was published in the Federal Register on December 12, 2013. The revised labels for veterinary feed directive (VFD) drugs and drugs used as water medications were enacted on January 1, 2017. Feed-grade antimicrobial additives are designated as VFD, and water antimicrobials are designated as prescription status. Veterinarians are responsible for authorizing the use of these medically important antimicrobials in the feed or water, and they must be aware of all regulations and restrictions for the use of these drugs, including prohibited extra-label use of these drugs.

In June of 2021, the US FDA published GFI 263 (see Resources), which laid out the two-year voluntary process for drug sponsors to convert all remaining medically important veterinary drugs to prescription status. This guidance applies to drugs currently labeled for food-producing and non-food-producing animals. This step is the final process laid out by the FDA to convert

### WHAT IS AN ANIMAL DRUG?

21 USC 321 defines an animal drug as: (g)(1) The term "drug" means (A) articles recognized in the official United States Pharmacopoeia, official Homoeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement to any of them; and (B) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (C) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (D) articles intended for use as a component of any article specified in clause (A), (B), or (C). A food or dietary supplement for which a claim, subject to sections 343(r)(1)(B) and 343(r)(3) of this title or sections 343(r)(1)(B) and 343(r)(5)(D) of this title, is made in accordance with the requirements of section 343(r) of this title is not a drug solely because the label or the labeling contains such a claim. A food, dietary ingredient, or dietary supplement for which a truthful and not misleading statement is made in accordance with section 343(r)(6) of this title is not a drug under clause (C) solely because the label or the labeling contains such a statement.



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veterinary-approved drugs administered via all routes to prescription status. FDA's actions to convert all medically important veterinary drugs to convert all drugs under veterinary oversight and only for therapeutic purposes were based on their concern that the loss of effectiveness of antimicrobial drugs poses a serious human health risk.

### PREVENT VIOLATIVE RESIDUES

Veterinarians should understand drugs and their labels, including production class, dose, duration, route and frequency of administration, and withdrawal times to avoid violative milk and meat residues. They should verify that their client and the operation's personnel understand the prescribing information to avoid residues. Treated animals should be appropriately identified and, when indicated, segregated from non-treated animals, such as milking strings or groups of animals leaving the operation for slaughter before the treated animal's withdrawal period is over. Treatments should be recorded, and the record should include the person(s) administering and/or recording the treatment, date, diagnosis, treatment given, dosage, route of administration, withdrawal date (or dates if both meat and milk are involved), and animal identification. These records should be kept for a minimum of two years and should be readily retrievable.

### AVOID COMPOUNDED AND UNAPPROVED DRUGS

The use of drugs compounded from bulk ingredients in cattle is currently illegal. FDA has exercised enforcement discretion when compounding from bulk ingredients in the case of certain poison antidotes and euthanasia agents (refer to FDA GFI #256). In the case of euthanasia, see the AABP Guidelines for Euthanasia reference below.

Compounding from bulk ingredients to manufacture other medications for cattle under any circumstance is illegal. There are circumstances, however, where minor compounding might be considered appropriate under the AMDUCA algorithm, e.g., vitamin B-12 in a bottle of dextrose. The AMDUCA regulations state that compounded preparations are required to be prepared from FDA-approved animal or human drugs, and if possible, an animal-labeled drug is to be used for compounding rather than a human-labeled drug. Drugs not approved for cattle or not for the production class of cattle being treated should only be used after following AMDUCA regulations.

Medications labeled for cattle or for that production class should always be considered first for treatment, control, and disease prevention. If the prescribing veterinarian has determined that the labeled medication is or will be clinically ineffective for treating the disease condition, and extralabel use is indicated, then an extended withdrawal period for meat and milk should be provided. The Food Animal Residue Avoidance Databank (FARAD) may help establish these recommendations (see Resources below).

The labeled withdrawal period from the manufacturer does not apply if the drug is used in an extra-label manner, such as changing the dose, route, duration, frequency, or production class of the animal. The FDA considers the use of medications in a production class of animal not approved on the label to be an extra-label use. When a veterinarian prescribes this extra-label use in an unapproved class of livestock, there is no tolerance in edible tissues or milk. Any detectable level of the medication in such a scenario is a violative residue. Therefore, the withdrawal time for meat and milk must be substantially extended to ensure no detectable level of residue in the animal product.



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When an appropriate withdrawal time cannot be established, the use of the drug precludes the animal or its products from entering the food chain.

### ASSURE RESPONSIBLE USE OF ANTIMICROBIALS

The ability of antimicrobial drugs to treat bacterial diseases is a societal resource. Veterinarians working with cattle are responsible for using antimicrobial drugs appropriately and providing oversight of antimicrobial drug use by their clients. Antimicrobials should only be employed in conjunction with a well-defined, prevention-based disease management program.

A veterinarian should first consider if an antimicrobial is necessary and appropriate. Additionally, the veterinarian should consider if another intervention may be more effective for disease prevention or therapy. If an antimicrobial is deemed necessary, an antimicrobial which is safe and effective for the diagnosed condition should be used. Safety considerations include the animal(s), the environment, and the food the animals produce.

Efficacy means that specific outcomes are defined and evaluated by research data. Diagnosed means that the components of a case definition have been met. When the selected antimicrobial is in use, there must be a sustained commitment to using the antimicrobial in the manner in which safety and efficacy have been demonstrated. This requires an ongoing relationship between the veterinarian, the client, and the patient(s). In this relationship, the veterinarian should continue

to evaluate the need for and the results of antimicrobial use. The veterinarian should also evaluate alternatives, including management practices, which may reduce the need for antimicrobial therapy. The AABP has partnered with the AVMA to develop more specific guidelines for judicious antimicrobial use (see Resources below).

### USE ANALGESICS TO CONTROL PAIN WHEN INDICATED

In the U.S., the only drug currently approved for pain in cattle is topical flunixin meglumine for the control of pain associated with foot rot in steers, beef heifers, beef cows, beef bulls intended for slaughter, replacement dairy heifers under 20 months of age, and the lactating dairy cow target animal subclass. AMDUCA provides for the extralabel use of drugs when labeled drugs are not available for the correct indication or species class, which means the lack of approved products does not remove the responsibility of veterinarians to provide pain relief when it is indicated. It is not the purpose of these guidelines to outline all painful procedures and conditions for which analgesia might be indicated, but the AABP has produced guidelines for castration and dehorning. Principles of animal welfare, medical knowledge, and diagnostic capabilities should guide the use of analgesics for other painful conditions and procedures encountered in veterinary practice. More specific information on implementing pain relief measures for castration and dehorning can be found in the AABP Castration and Dehorning Guidelines (see Resources below).



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### PROHIBITED/ILLEGAL DRUGS IN CATTLE

The following information is taken directly from the Code of Federal Regulations (CFR), Title 21, Chapter I, Subchapter E, Part 530, Subsection 530.41: Drugs prohibited for extralabel use in animals.

The following drugs, families of drugs, and substances are prohibited for extralabel animal and human drug uses in food-producing animals.

**Chloramphenicol**

**Clenbuterol**

**Diethylstilbestrol (DES)**

**Dimetridazole**

**Ipronidazole**

**Other nitroimidazoles**

**Furazolidone**

**Nitrofurazone**

**Sulfonamide** drugs in lactating dairy cattle (except approved use of sulfadimethoxine, sulfabromomethazine, and sulfaethoxy pyridazine)

**Fluoroquinolones**

**Glycopeptides.**

**Phenylbutazone** in female dairy cattle 20 months of age or older

**Cephalosporins** (not including cephapirin) in cattle, swine, chickens, or turkeys:

For disease prevention purposes

At unapproved doses, frequencies, durations, or routes of administration

If the drug is not approved for that species and production class

The FDA prohibits the extralabel use of drugs in feed for cattle. These drugs can only be used for the indication, production class, dose, frequency, and duration that is stated on the FDA approved label. All extralabel use is illegal. Milk and milk replacer is considered to be feed; therefore, this prohibition applies to drugs that are placed in milk or milk replacer as well.

Drugs with Special Restrictions for Grade "A" Dairy Operations Based upon recommendations by the National Conference on Interstate Milk Shipments (NCIMS), the FDA publishes a set of minimum standards and requirements for the production of Grade "A" milk. These standards, which are published collectively as the Grade A Pasteurized Milk Ordinance (Grade "A" PMO), provide applicable CFR references and can be used as an inspectional guide to cover specific operations in the dairy industry, including pasteurization equipment, packaging, quality control and record keeping requirements. Although the PMO does not have the force of regulations, it provides procedures and standards of general applicability that are acceptable to FDA. Owing to human food safety concerns, certain drugs including non-medical grade dimethylsulfoxide (DMSO), dipyrone and colloidal silver, are not to be used or not to be stored on dairy operations or fed to lactating dairy cattle.



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### DRUGS OR USES NOT RECOMMENDED IN CATTLE

**FLUNIXIN MEGLUMINE** This NSAID is labeled for use by the intravenous or topical route only. Use by other routes is never appropriate and can lead to extended withdrawal times as well as causing tissue damage that is contrary to Beef Quality Assurance guidelines. With the advent of new labeling, veterinarians should study each formulation's label to be sure they comply with label approvals or permissible extra-label drug use under AMDUCA regulations.

**AMINOGLYCOSIDES** The American Veterinary Medical Association, the Academy of Veterinary Consultants, and the National Cattlemen's Beef Association have position statements against the extra-label use of aminoglycosides in cattle due to prolonged withdrawal times. The American Association of Bovine Practitioners does not support extralabel use of aminoglycosides in cattle due to the substantial risk for violative residues in food products associated with the prolonged elimination of aminoglycosides.

### RESOURCES

#### AMERICAN ASSOCIATION OF BOVINE PRACTITIONERS' GUIDELINES

- Castration and Dehorning Guidelines [http://aabp.org/resources/AABP\\_Guidelines/Castration\\_and\\_DeHORning\\_Guidelines\\_app3.2014\\_03.17.2014.pdf](http://aabp.org/resources/AABP_Guidelines/Castration_and_DeHORning_Guidelines_app3.2014_03.17.2014.pdf)
- Veterinarian Client Patient Relationship (VCPR) Guidelines [http://aabp.org/resources/aabp\\_guidelines/vcpr-guidelinefinal11-2013.2.pdf](http://aabp.org/resources/aabp_guidelines/vcpr-guidelinefinal11-2013.2.pdf)

#### FDA CENTER FOR VETERINARY MEDICINE

- Unapproved Drugs <http://www.fda.gov/AnimalVeterinary/GuidanceComplianceEnforcement/ComplianceEnforcement/UnapprovedAnimalDrugs/default.htm>
- Drugs Prohibited for Extralabel Use in Animals <http://www.access-data.fda.gov/scripts/cdrh/cfdocs/cfCFR/CFRSearch.cfm?fr=530.41>
- Judicious Use of Antimicrobials <http://www.fda.gov/AnimalVeterinary/SafetyHealth/AntimicrobialResistance/JudiciousUseofAntimicrobials/default.htm>

■ AMDUCA <http://www.fda.gov/regulatoryinformation/legislation/federalfooddrugandcosmeticactfdca/significantamendmentstothefdca/animalmedicinaldruguseclarificationactamducaof1994/default.htm>

■ FDA Guidance for Industry #209 <http://www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM216936.pdf>

■ FDA Guidance for Industry #213 <http://www.fda.gov/downloads/animalveterinary/guidancecomplianceenforcement/guidanceforindustry/ucm299624.pdf>

#### AMERICAN VETERINARY MEDICAL ASSOCIATION

- AVMA/AABP Prudent Use Guidelines <https://www.avma.org/KB/Policies/Pages/AABP-Prudent-Drug-Usage-Guidelines-for-Cattle.aspx>
  - Extralabel Drug Use Algorithm <https://www.avma.org/KB/Resources/Reference/Pages/AMDUCA2.aspx>
- Food Animal Residue Avoidance Databank (FARAD): <http://farad.org/>