American Association of Feline Practitioners
American Animal Hospital Association

Basic Guidelines of Judicious Therapeutic Use of Antimicrobials
Revised January 2014

Introduction

The Basic Guidelines to Judicious Therapeutic Use of Antimicrobials in companion animals are designed to provide information to aid practicing veterinarians in choosing appropriate antimicrobial therapy to best serve their patients and to help minimize the development of antimicrobial resistance. Presented below are the Principles of Judicious Therapeutic Use of Antimicrobials adopted as a framework document for the recommended guidelines developed for companion animals.

Position Statement

Veterinarians agree to protect animal and public health when they pledge the Veterinarian's Oath. It is the responsibility of veterinarians to maintain patient health by routine examinations, preventative strategies, and client education. When a medical condition exists it is important to obtain an accurate clinical diagnosis whenever possible. Once the decision is reached to use antimicrobial therapy, veterinarians strive to optimize therapeutic efficacy, minimize resistance to antimicrobials, and protect public and animal health.

The American Animal Hospital Association and the American Association of Feline Practitioners are committed to the following objectives as developed by the American Veterinary Medical Association's Steering Committee on Judicious Therapeutic Antimicrobial Use:

> Support research efforts for development of a scientific knowledge base that provides the basis for judicious therapeutic antimicrobial use.
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> Support educational efforts that promote judicious therapeutic antimicrobial use.
> Preserve therapeutic efficacy of antimicrobials.
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> Continue to develop antimicrobial monitoring systems to determine resistance patterns.
> Ensure current and future availability of veterinary antimicrobials.

Judicious Therapeutic Use of Antimicrobials in Cats and Dogs

Preventive strategies, such as appropriate husbandry and hygiene, routine health monitoring, and vaccinations should be emphasized.
Routine preventative health care in cats and dogs includes the following:

- Adhere to the American Association of Feline Practitioners' guidelines for feline vaccinations and the American Animal Hospital Association's guidelines for canine vaccinations.
- Parasite control, nutritional counseling and dental health care are implemented.
- Client education and involvement is used to successfully adopt good preventative health care programs.
- Appropriate hygiene and husbandry is especially important in multiple pet households.

Therapeutic antimicrobial use should be confined to appropriate clinical indications.

- A definitive diagnosis should be established whenever possible, and empirical use avoided.
- Practitioners should strive to rule out viral infections, parasitism, mycotoxicosis, nutritional imbalances, and other ailments that will not respond to antimicrobial therapies.
- Antimicrobial therapy is not indicated in most viral upper respiratory infections (e.g.feline herpesvirus or calicivirus and canine influenza) not suspected to be complicated by secondary bacterial infection.
- Most cases of pancreatitis in dogs and cats do not have a bacterial component.
- Most cases of feline lower urinary tract disease do not involve bacterial infection and in such cases antimicrobials are not indicated.

Therapeutic alternatives should be considered prior to antimicrobial therapy.

This includes supportive care, such as correction of fluid and electrolyte abnormalities, maintaining acid-base balance, and ensuring adequate nutrition. Surgical intervention may be necessary in some cases. The use of antimicrobials to prevent infection can only be justified in cases where bacterial infection is likely to occur.

Therapeutic antimicrobial use should be used appropriately in the surgical setting.

- Administration of antimicrobials should not replace appropriate sterile technique.
- Surgical antimicrobial prophylaxis is the use of a very brief antimicrobial agent initiated immediately prior to an operation.
- Surgical wounds may be classified as *Clean, Clean-Contaminated, Contaminated, and Dirty-Infected.*
- *Clean* surgical wounds do not require on-going antimicrobial therapy unless there is a break in sterile technique or a surgical implant has been placed.
- *Clean-Contaminated, Contaminated, and Dirty Wounds* should be cultured to determine the appropriate antimicrobial.

Culture and susceptibility results aid in the appropriate selection of antimicrobials.

- In suspected urinary tract infection (UTI), urine collected by cystocentesis can help distinguish infection from contamination.
- It is important to note that dilute urine is a risk factor for UTI, and infection may exist despite the lack of pyuria and bacteriuria on microscopic examination. Urine culture may be the only way to identify infection in such cases.
- Ideally, minimum inhibitory concentrations (MIC) sensitivities should be done to identify the best choice of antimicrobials.
- Gram stains can help determine an appropriate antimicrobial choice while awaiting culture results.
- Since certain antimicrobials are more effective against gram-positive or gram-negative organisms, interim antimicrobial decisions can be based on gram stain and the site of infection.

Use narrow spectrum antimicrobials whenever appropriate.

It is best to choose an antimicrobial with a narrow spectrum that is effective against the organism.

Antimicrobials considered important in treating refractory infections in human or veterinary medicine should be used in animals only after careful review and reasonable justification.

- Consider using other antimicrobials for initial therapy.
- Drug side effects or interactions should be considered when choosing an appropriate antimicrobial.

Treat for the shortest effective period possible in order to minimize therapeutic exposure to antimicrobials.

- Culture and sensitivity at the conclusion of therapy will determine if additional therapy is necessary.
- Rechecking complete blood counts and urine analyses may also be indicated.
- For specific conditions, refer to appropriate resources.

Judicious use of antimicrobials in animals requires the oversight of a veterinarian.
Judicious use of antimicrobials and extra-label use of antimicrobials should meet all requirements of a valid veterinarian-client-patient relationship (VCPR – see glossary).

Extra label antimicrobial therapy must be prescribed in accordance with all federal laws including the Animal Medicinal Drug Use Clarification Act amendments to the Food, Drug, and Cosmetic Act and its regulations.

An appropriate dose form is critical for reliable application of the drug as well as safety for the pet and owner.

Oral medication, when prescribed for aggressive or potentially injurious patients that require restraint, is not appropriate or at the very least will not be reliably administered. Alternative administration techniques, such as injections or hiding medication in treats, may allow safe administration.

Veterinarians should work with those responsible for the care of animals to ensure the judicious use of antimicrobials.

- Administration procedures of antimicrobials must be made clear and labeled correctly (e.g., doxycycline capsules or tablets must be followed by liquid to avoid esophageal stricture).
- Clients should be advised to complete the entire course of medication even if signs of illness have abated.
- Clients should be warned of potential adverse reactions, and what to do if any such reactions occur (for example, stop medication and call your veterinarian for further recommendations).

Regimens for therapeutic antimicrobial use should be optimized using current pharmacological information and principles.

The antimicrobial chosen should be effective against the organism and be able to penetrate the affected organ in a proper concentration to eliminate the offending organism.

When combination antimicrobial treatment is advantageous, avoid the use of drugs whose actions are antagonistic.

For example, a drug that inhibits the growth of microbes (e.g. tetracycline) should not be combined with a drug whose efficacy is dependent on rapid bacterial growth (e.g. penicillin).

The routine prophylactic use of antimicrobials should never be used as a substitute for good animal health management.

Sterile technique and proper tissue handling should eliminate the need for prophylactic antibiotics in ovariohysterectomies and most other sterile procedures.

Minimize environmental contamination with antimicrobials whenever possible.

Accurate records of treatment and outcome should be maintained to evaluate therapeutic regimes. Recognize risk factors for infections in cats and dogs and prevent or correct them whenever possible. These include, but are not limited to:

- Urinary catheterization
- Dilute urine
- Intravenous catheters
- Fight wounds
- Environmental factors (stress, crowding, poor hygiene, transportation, temperature extremes, poor ventilation, and high humidity)
- Feline leukemia virus, feline immunodeficiency virus infection, or other debilitating disease
- Immunosuppressive drugs (chemotherapeutic agents, glucocorticoid therapy)
- Endocrine diseases (diabetic cats are more prone to urinary tract, skin and mouth infections; dogs with hyperadrenocorticism are more prone to skin and urinary infections)

Glossary

Antibiotic – a chemical substance produced by a microorganism that has the capacity, in dilute solutions, to inhibit the growth of or to kill other microorganisms.

Antimicrobial—an agent that kills microorganisms or suppresses their multiplication or growth. This includes antibiotics and synthetic agents. This excludes ionophores and arsenicals.

Narrow Spectrum Antimicrobial—an antimicrobial effective against a limited number of bacterial genera often applied to an antimicrobial active against either gram-positive or gram-negative bacteria.

Broad Spectrum Antimicrobial—an antimicrobial effective against a large number of bacterial genera; generally describes antibiotics effective against both gram-positive and gram-negative bacteria.

Antibiotic Resistance—a property of bacteria that confers the capacity to inactivate or exclude antibiotics or a mechanism that blocks the inhibitory or killing effects of antibiotics.

Extralabel—actual use or intended use of a drug in a manner that is not in accordance with the approved labeling. This includes, but is not limited to, use in species not listed in the labeling, use for indications (disease or other conditions) not listed in the labeling, use at dosage levels, frequencies, or routes of administration other than those stated in the labeling, and deviation from the labeled withdrawal time based on these different uses.

Immunization—the process of rendering a subject immune or of becoming immune, either by conventional vaccination or exposure.

Monitoring—monitoring includes periodic health surveillance of the population or individual animal examination.

Therapeutic—treatment, control, and prevention of bacterial disease.

Veterinarian/Client/Patient Relationship (VCPR) – A VCPR exists when all of the following conditions have been met:

1. The veterinarian has assumed the responsibility for making clinical judgments regarding the health of the animal(s) and the need for medical treatment, and the client has agreed to follow the veterinarian's instructions.
2. The veterinarian has sufficient knowledge of the animal(s) to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s). This means that the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of an examination of the animal(s) or by medically appropriate and timely visits to the premises where the animal(s) are kept.
3. The veterinarian is readily available for follow-up evaluation, or has arranged for emergency coverage, in the event of adverse reactions or failure of the treatment regimen.