

RESPONSIBLE USE OF ANTIMICROBIALS IN VETERINARY PRACTICE

As little as possible, as much as necessary

The BVA has issued a [poster for veterinary surgeons](#) with an 8 point plan on the responsible use of antimicrobials in veterinary practice to optimise the therapeutic effects of antimicrobials while minimising the development of antimicrobial resistance. The following provides more information on each point in the plan and stresses the importance of preserving the effectiveness of fluoroquinolones and third/fourth generation cephalosporins by reserving their use to conditions that respond poorly to other classes of antimicrobials.

POINT 1 - WORK WITH CLIENTS TO AVOID THE NEED FOR ANTIMICROBIALS

Avoiding the need for antimicrobials is the most obvious way to stop resistance development.

The use of antimicrobials is not a substitute for efficient management or good husbandry and a holistic approach to disease control is preferable. Veterinarians should work with their clients to reduce the incidence of infections by encouraging them to have:

- Integrated disease control programmes
- Animal (Farm) Health Plans
- On-farm quality assurance programmes

Such programmes are likely to encourage vaccination to prevent disease in the first place and involve hygiene and disinfection procedures, biosecurity measures, management alterations, changes in stocking rates etc. They require effective and open communication between animal owners and the veterinarian to optimise animal health and not just when a problem occurs.

Limiting the spread of infection is also essential in order to minimise the number of animals to be treated. Infected animals should be isolated wherever possible and quickly

POINT 2 – AVOID INAPPROPRIATE USE

Antimicrobials should only be used when it is known or suspected that an infectious agent is present that is susceptible to such treatment. Wherever possible, veterinarians should avoid their use in cases such as uncomplicated viral infection.

Limit antimicrobial treatment to ill or at-risk animals

Successful treatment relies on the correct administration of medicinal products. Provide clear advice to clients on administration and follow manufacturers' instructions on: route of administration, dose, dose frequency, duration of treatment, handling, storage, withdrawal periods and labelling. Above all, emphasise the importance of avoiding underdosing and of completing the course of treatment.

POINT 3 – CHOOSE THE RIGHT DRUG FOR THE RIGHT BUG

Wherever possible antimicrobial usage should be based on exact (preferably microbial) diagnosis. Treatment may be started on the basis of a clinical diagnosis before microbial sensitivity results can

be obtained. However sensitivity of suspected causal organisms should, where possible, be determined so that if treatment fails it can be changed subsequent to results of susceptibility testing.

The choice of antimicrobial should be based on experience, clinical judgement and up-to-date knowledge. Veterinarians should:

- Assess the likely target organisms
- Predict the antimicrobial drug susceptibility of target organisms (microbial resistance trends, epidemiological history, etc.)
- Know how common antimicrobials work (pharmacokinetic properties of the antimicrobial: bioavailability, plasma concentrations, protein binding, tissue distribution, elimination half-life, etc.)
- Know the pharmacodynamic properties of the antimicrobial – bactericidal or bacteriostatic, susceptibility (MICs)
- Use antimicrobials with a spectrum as narrow as possible and a margin of safety as high as possible
- Use rational antimicrobial combinations
- Take into account host immunocompetence and owner compliance

Create practice-based antimicrobial protocols for common infections. Ensure that they flexible and reviewed regularly.

POINT 4 – MONITOR ANTIMICROBIAL SENSITIVITY

While clinical diagnosis is often the initial basis for treatment, microbiological sensitivity must be determined whenever possible so that a change of treatment can be implemented if necessary.

Encourage clients to report any unexpected delay in recovery. The efficacy of treatment should be monitored and should there be recurrence of the infection it may need to be investigated more thoroughly to ascertain the reason for recurrence and the most suitable therapy to use.

POINT 5 – MINIMISE PROPHYLACTIC USE

The use of antimicrobials for the prevention of disease can only be justified where it can be shown that a particular disease is present on the premises and spread to other animals on the unit or is likely to do so, or where other disease or treatment modalities may result in immunocompetence. The prophylactic use of antimicrobials is never a substitute for good management.

Use only when animals are at risk and there is evidence that usage reduces morbidity and/or mortality. Regularly assess prophylactic use and develop written protocols for when prophylactic medication is considered appropriate.

Monitor antimicrobial sensitivity trends of antimicrobials used for prophylactic purposes.

POINT 6 - MINIMISE USE PERIOPERATIVELY

Only use antimicrobials perioperatively when necessary whilst ensuring strict aseptic techniques are always applied.

Develop practice-based guidelines on perioperative use of antimicrobials.

POINT 7 – RECORD AND JUSTIFY DEVIATIONS FROM PROTOCOLS

When prescribing antimicrobials, veterinarians should be able to justify their use and the choice of antimicrobial. When deviating from protocols it is particularly important to record the reasons why.

Veterinarians are of course subject to legal obligations for record keeping. Accurate records of treatment and the outcome of treatment are also however essential to evaluate the effectiveness of therapeutic regimens. Historical information, including laboratory sensitivity data, is also valuable in deciding on future treatments.

POINT 8 – REPORT SUSPECTED TREATMENT FAILURES TO THE VMD

Pharmacovigilance is the process whereby concerns in relation to the safety or effectiveness of medicines are reported to the national authorities.

Treatment failure may be the first indication of resistance to an antimicrobial. It is essential therefore that each and every suspected failure is reported to the Veterinary Medicines Directorate (VMD) through its [Suspected Adverse Reaction Surveillance Scheme](#) (SARSS).

FLUOROQUINOLONES AND THIRD/FOURTH GENERATION CEPHALOSPORINS

The need for use of fluoroquinolones and third and fourth generation cephalosporins should always be carefully considered. Their use should be reserved for the treatment of clinical conditions that have responded poorly, or are expected to respond poorly, to other classes of antimicrobials.

Use of systemically administered fluoroquinolones and third and fourth generation cephalosporins for groups or flocks of animals should be strongly discouraged, except in very specific situations, and special attention should be given to the risk of antimicrobial resistance to these products as part of the benefit/risk assessment.

Off label use should be strongly discouraged.

The European Commission's Committee for Medicinal Products for Veterinary Use (CVMP) has published reflection papers on [third/fourth generation cephalosporins](#) and on [flouroquinolones](#).

Other Sources of Advice

The [Responsible Use of Medicines in Agriculture Alliance \(RUMA\)](#) has issued separate detailed advice on the use of antimicrobials for poultry, pigs, dairy and beef cattle, sheep and fish production. It is aimed at veterinarians, farmers and everyone involved in the production of these animals.

The BSAVA has issued advice on the [prudent use of antimicrobial agents](#) in its Guide on the use of veterinary medicines.

Guidance can also be found through the [National Office of Animal Health \(NOAH\)](#) and the [Veterinary Medicines Directorate](#)