The Swedish Veterinary Association's Policy on prudent use of antibiotics

This policy was originally adopted by the General Assembly in 1998. Since then, species-specific guidelines have been developed and new legislation on national and EU level published.

Introductory statement

Infectious diseases should primarily be managed by preventive measures. Antibiotic treatment of infectious diseases is however justified in many situations. Antibiotics (i.e. antibacterial drugs) are valuable medicines and should be used so as to achieve effective treatment while minimising unwanted side effects. Unwanted side effects include development of resistance, ecotoxicological effects, residues in food and negative side effects for the treated animals. To limit unwanted consequences, veterinary use of antibiotics should be justified and judicious.
Swedish veterinarians strive to preserve and, if possible, improve the comparatively low level of antibiotic resistance among bacteria form Swedish animals, to limit negative environmental effects and to ensure that consumers have access to safe food. Any use of antimicrobial growth promoters is not compatible with this approach.

General guidelines when choosing antibiotic treatment

Preventive measures to avoid introduction and spread of infectious diseases are essential. When an infectious disease occurs it may nevertheless, not least from an animal welfare perspective, be justified to treat with antibiotics. The choice of antibiotic treatment should be made based on careful assessment and when the treatment is deemed to have a high probability of success. If there are alternative non-antibiotic treatment methods available, such a method should be used.
Preventive measures, when available, should already be implemented, or at least planned, when antibiotic treatment is initiated. Antibiotics can never compensate for poor hygiene.

Antibiotic treatment of an individual animal is justified in case of a bacterial infection that is not likely to heal without antibiotics and the welfare and/or productivity of the animal is therefore threatened.
Antibiotic treatment of a group of animals may be justified if there are signs of infectious disease among animals within the group and the risk of further spread of a bacterial infection is evident.
Antibiotic treatment may also be justified in certain cases of surgical procedures where there is an evident risk of bacterial infection that would significantly worsen the prognosis.

The choice of antibacterial substance and formulation should be based on several factors:
- Characteristics of the animal/animals
- Diagnosis and susceptibility of the causing bacteria
- Pharmacokinetics and site of infection
- Known side effects

- Current levels of resistance
- The probability of the particular substance drive resistance development
- Ecotoxicological effects
- Animal welfare aspects
- Food safety aspects
- Economic aspects

The choice of antibiotic should consider animal species, gender, age, breed, clinical status and any other medical treatment. When treating an immunosuppressed animal and in case of life-threatening infections, bactericidal substances should be the first-hand choice. If possible, the causative organism should be identified. Alternatively, a well-founded clinical diagnosis may be made. The choice of antibiotic substance should be based on the susceptibility of the confirmed or suspected bacteria and so as to affect other bacteria as little as possible.
The choice of antibiotic should also consider the pharmacokinetics of the relevant antibiotics. Effective treatment requires sufficient concentrations of antibiotics under a sufficient time period at the infection site. This in turn depends on route of administration, dosage, frequency of administration, blood supply at the infection site and the ability of the substance to pass biological membranes. The ability of the individual patient to eliminate the substance, and how it is metabolised, is also relevant.
The route of administration is important for the animal owner's ability to carry out the treatment, from a practical as well as economic point of view.

The use of an individual antibiotic treatment should be weighed against the risk of and type of known side effects. The treatment must not cause unnecessary discomfort for the animal.

The choice of antibiotic should consider the current levels of resistance among target bacteria as well as other bacteria in the relevant animal species, in the herd, region and/or nationally. The risk of development of resistance in bacteria in the individual animal, in the animal population, and transfer to other populations should also be taken into account. Broad-spectrum antibiotics usually drive resistance development faster than substance with a narrow bacterial spectrum. The consequences of resistance to the substance in question must be considered. Antibiotics of high critical importance in human medicine should not be used.

When choosing an antibiotic treatment for food-producing animals, food safety aspects must be considered. The risk of residues must be taken into account and measures to prevent exposure of animals not intended for treatment and contamination of equipment in contact with food must be implemented. When treating food-producing animals, particularly groups of food-producing animals, the risk of transmission of antibiotic resistant bacteria or resistance genes to food must be considered.

Potential ecotoxicological effects must also be taken into account. The negative consequences that may arise depend on the time period that the antibiotic substance or its

metabolites are biologically active outside the animal and, for microbiological effects, the range of affected bacterial species.

The choice of treatment strategy should also consider the cost for the animal owner as compared to the economic gain. The economic aspect should however not be prioritised over the unwanted side effects of an antibiotic treatment.

Legal framework

The veterinarian's responsibility for handling medical drugs is regulated in legislation by the Board of Agriculture (e.g. SJVFS 2010:17, D9, LSFS 1986:4, D42) and the Medical Products Agency (HSLF-FS 2019:32).

Recommendations

The resistance patterns among important animal pathogens must be continually monitored so that relevant information is available. Use of antibiotics in animals must also be reported on national as well as regional level so that compliance can be monitored. Species-specific data are preferable.

Increased knowledge can lead to reduced use of antibiotics. Knowledge can also contribute to more efficient treatments and a reduction in negative side effects. The Swedish Veterinary Association encourages research on infectious diseases, their epidemiology and prevention, antimicrobial resistance, pharmacokinetics and pharmacodynamics. We also promote veterinary education and continuous professional development within these areas.

Definitions

Antibacterial spectrum – the bacterial species that are killed off or prevented from growing by an antibiotic substance

Antibiotic – (in this text) all antibacterial substances

Side effect – unwanted effect of a medical treatment

Effective treatment – treatment eliminating clinical and subclinical signs of disease, or shedding of infectious agent, depending on the desired effect

Ecotoxicological effects – effects on individual organisms or groups of organisms affecting their interactions with each other or the environment, caused by the presence of chemical substances

Resistance – the ability of a bacterium to resist the effect of an antibiotic

Intrinsic resistance – natural characteristic of a bacterium making it less susceptible, or resistant, to an antibiotic

Acquired resistance – resistance or reduced susceptibility to an antibiotic substance in a previously susceptible bacterium

Residues –biologically active substances or metabolites in food originating from a treated animal

Directed therapy – treatment killing, or preventing the growth of, the disease-causing bacteria with minimum effect on other microorganisms