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## ANTIMICROBIAL THERAPY IN NEONATES: HOW TO CHOOSE?

Veterinarians worldwide are encouraged to minimize use of antimicrobial drugs. Legislation for prescribing antimicrobials is becoming increasingly restrictive, especially in the Netherlands. Although culture and susceptibility testing of bacteria isolated from the particular patient prior to initiation of treatment provides the best evidence on which to base antimicrobial selection, this is not always possible. Empirical use of antimicrobials is clearly justified in initial treatment protocols for rapidly progressive, life-threatening conditions such as sepsis, while awaiting the results of culture and susceptibility tests. Empirical choice of antimicrobial drugs should be based on previous experience, knowledge of the agents most likely involved with disease in a particular organ system, and knowledge of local resistance patterns.

Several studies have been published describing the most common bacterial species isolated from neonatal foals and their susceptibility patterns. These studies provide guidance to clinicians on which to base selection of antimicrobial drugs under specific circumstances. Unfortunately little data is available from Europe. Can we just extrapolate these results to other geographic regions? And what about polymicrobial infections, how do we make sure we cover multiple bacteria at the same time?

Foals aren't just miniature adult horses, so there are some factors to take into account when choosing antimicrobial drugs and determining the correct dose. Enteral absorption of drugs is very different between adults and foals. Also the volume of distribution is different. Foals have no hindgut fermentation and they are more susceptible to toxicities. How does this influence our therapeutic approach?

Also, specific diseases or patient specific factors can alter drug absorption or metabolism (e.g. liver function, renal function, concurrent administration of other drugs). Other factors we have to take into account are practical issues; such as how often do we need to administer the drugs and is this feasible under field circumstances? And of course financial aspects play a role as well.

Once we have decided, how do we evaluate if the drugs actually work? And when do we consider changing therapy in non-responsive cases? Ideally, we would submit follow up samples for bacteriological culturing and susceptibility testing, but this is costly and takes time.

Last but not least, how do we manage to take into account all of the above and make sure we make a choice that is in the best interest of the foal AND complies with the strict government regulation? Choosing antimicrobials for treatment of equine neonates is complex and challenging.