Alberta Veterinary Specialists (ABVS) Antimicrobial Stewardship Recommendations

Antimicrobial stewardship (AMS) plays a vital role in safeguarding animal health while curbing the rise of antimicrobial resistance (AMR). As surgical interventions become more advanced and frequent in veterinary medicine, the judicious use of antibiotics is essential to ensure both effective treatment and long-term sustainability of antimicrobial efficacy.

Why AMS Matters in Orthopedic Procedures

- Orthopedic surgeries often involve implants or hardware, which can increase the risk of post-operative infections.
- Infections in bone and joint tissues are notoriously difficult to treat and may require prolonged antibiotic therapy.
- Overuse or misuse of antimicrobials can lead to resistant bacterial strains, compromising future treatment options for both animals and humans.

Key Stewardship Strategies

- *Preoperative Planning:* Use of surgical checklists and aseptic techniques to minimize infection risk.
- *Targeted Therapy*: Culture and sensitivity testing to guide antibiotic selection rather than relying on broad-spectrum empiric therapy.
- *Appropriate Dosing and Duration*: Administering the correct dose for the shortest effective duration to reduce resistance pressure.
- *Postoperative Monitoring*: Regular assessment of surgical sites to detect early signs of infection and avoid unnecessary antibiotic use.
- *Alternatives to Antimicrobials*: There may be consideration for using natural and biological alternatives in certain cases. These usually do not apply for our small animal surgical cases. (1)
    - These may include: Pre and Probiotics to support gut health and immunity and Phytogenics (Plant-based compounds including essential oils like oregano, garlic, and turmeric with antimicrobial and anti-inflammatory properties).
    - There are also Targeted Therapies such as Bacteriophages (Viruses that specifically target and kill bacteria without harming the host) and Antimicrobial Peptides (Naturally occurring proteins that disrupt bacterial membranes).

- The CVMA has produced and promotes general and specific guidelines for the prudent use of antimicrobials by the veterinary profession as well as resources to support informed decision making including the use of alternatives to antimicrobials. (2)

Veterinary Team's Role

Veterinarians, technicians, and support staff must collaborate to implement AMS protocols. Educating pet owners about the importance of completing prescribed antibiotic courses and avoiding self-medication is equally crucial. Veterinary AMS is not just about animal care—it's a cornerstone of the global fight against AMR. Responsible antibiotic use in pets and livestock helps protect public health by reducing the risk of zoonotic transmission of resistant bacteria.

ABVS Recommendations:

- Consider whether antimicrobials are needed peri-operatively
    - If yes - start 30 min before incision and repeat dosing every 90 min for the duration of the procedure.
    - In general we recommend Cefazolin at 25 mg/kg IV every 90 minutes during most of our procedures.
- Specific examples of exceptions:
    - Oral surgery - in general, unless the patient has a heart condition or we are dealing with an abscess, antimicrobials are not indicated for use with oral surgery.
    - Infected surgical site - Please talk to us about a plan. Usually we like to collect a sample for culture prior to starting antibiotics.
- ***Post-operative oral antibiotics*** are less and less indicated and are noted to increase the incidence of anti-microbial resistance.
    - Certain exceptions to this would include:
        - Patients with known skin problems/derm issues
        - Infected surgical sites
        - Perianal surgeries with a high likelihood of infection
        - Open fractures

As always, please do not hesitate to contact us and chat with us about case management.

References

1. https://www.intechopen.com/chapters/82838
2. CVMA Guidelines for Veterinary Antimicrobial Use