

Antibiotic use policy

To be used in order to comply with good antimicrobial stewardship

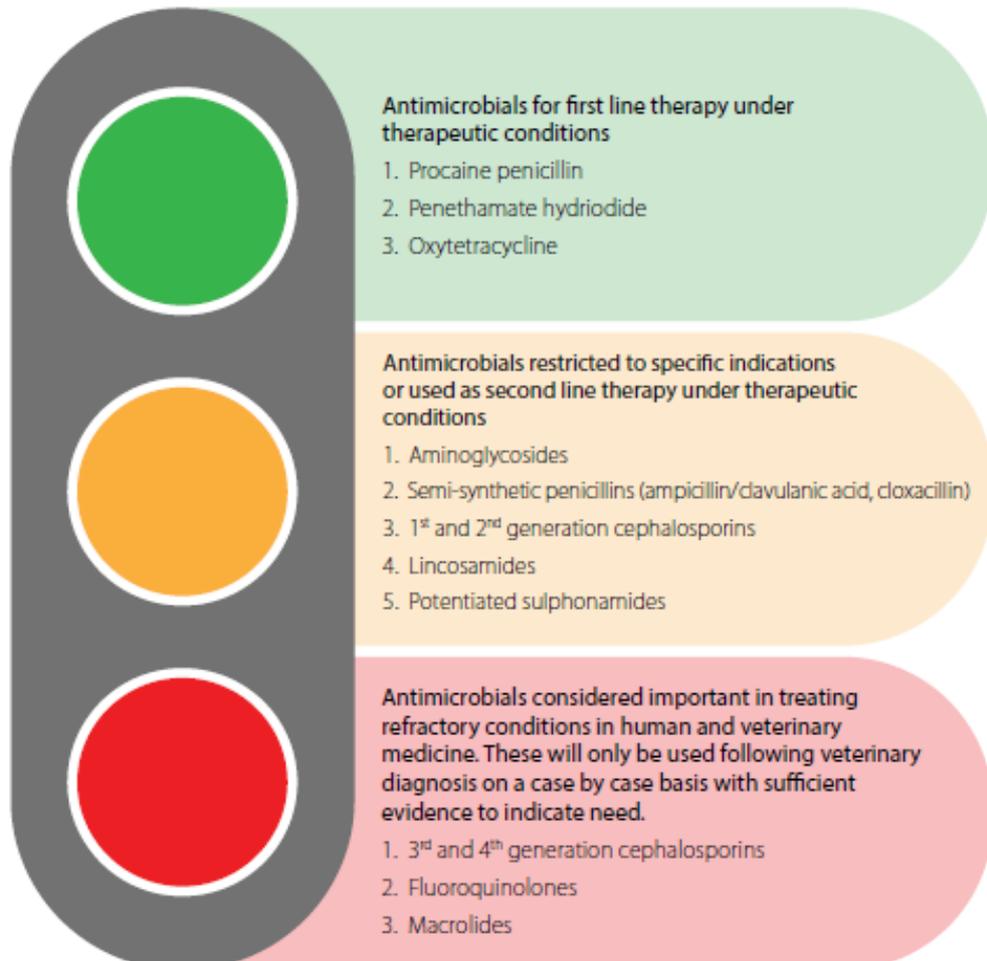
This document largely rests on a document produced by the New Zealand Veterinary Association-it most closely resembles the South African situation.

It was adopted for us by Dr Pia Randleff-Rasmussen- Draakenstein Veterinary Clinic

Core Principles

1. Consideration of the impacts of antimicrobial use on human and animal health is made by all people handling or administering antimicrobial agents.
2. Prevention of conditions that could require antimicrobial therapy is a key focus of veterinary practice
3. Animals receive antimicrobial agents only as required to maintain their health and welfare.
4. Strategies reducing the number of animals given antimicrobial agents are employed where this will not compromise animal health or welfare.
5. When antimicrobial agents are used, dose rates and regimens are designed to improve efficacy and limit re-treatment.
6. Antimicrobial agents considered more important in human medicine are not used as first line treatment and are only employed when use is likely to deliver superior outcomes.

Dose and routes of



administration of common antimicrobial drugs

Colours represent likely use:
 Green – first line
 Yellow – alternative
 Red – clinically important to human medicine
 +++ Effective

Clinically important drugs are used only if culture and sensitivity testing suggest they are the only effective option.

Drug	Dose per kg	Route	Dosing interval	Spectrum			Notes
Sodium penicillin	22,000-44,000 iu*	IV	6 hours*	++	+	++	Wide distribution, poor penetration into CNS, abscess sites or necrosis. Procaine penicillin at higher doses is above MIC at SID.
Procaine penicillin	22,000-44,000 iu*	IM	24 hours*	++	+	++	
Benthazine penicillin (LA)	Fails to reach MIC - avoid						
Ceftiofur	2mg	IM IV	12 hours*	+++	++	++	Clinically important Higher dose for foals/ neonates
Cefquinome*	0.5-1mg	IV	12 hours*	+++	++	++	Clinically important
Oxytetracycline	5mg	IV	12 hours*	++	++	+	NB also Ehrlichia, richetsia and anaplasma
Doxycycline*	10mg	PO	12 hours*	++	++	+	
Trimethoprim / Sulphadiazine	15-24mg 30mg	IV PO	8-12 hours* 12 hours*	++	++	-	Ineffective S equi equi. Oral bioavailability reduced in the presence of food. Do no use IV form with detomidine.
Gentamicin	6.6mg	IV	24 hours	+	+++	-	Note dose in the neonate should be adjusted to reflect high total body water.
Streptomycin	20mg	IM	24 hours	+	+	-	Resistance common
Rifampin*	5mg	IM	24 hours	+++	+	++	Always use in combination (not for use with quinolones)
Azithromycin*	10mg	PO	24 hours	+++	+	+	Contraindicated in adults. Foals only
Clarithromycin	7.5mg	PO	12 hours	+++	+	+	
Enrofloxacin	5.5mg 7.5mg	IV PO	24 hours	+	+++	-	Clinically important
Marbofloxacin	2mg 3-3.5mg	IV PO	24 hours	+	+++	-	
Metronidazole*	25mg 15mg	PO IV	12 hours 12 hours	-	-	+++	Not in food producing animals

- +++ Effective against most important pathogens, including staphylococci for Gram positive and pseudomonas for Gram negative bacteria
 - ++ Effective against many important bacteria
 - +
 - Some effect, but many clinically significant bacteria may not be susceptible
 - Poor effectiveness
 - * Indicates a drug, dose, route, or dosing frequency that is not listed in the ACVM authorisation for that product, i.e. "off label use"
- Note: + signs indicate spectrum rather than potency

Responsible antimicrobial use policy

Condition	First Line	Alternatives	Notes
Upper Respiratory Tract Disease			
Strangles Formed abscess (uncomplicated strangles)	Not indicated	Penicillin	TMS is contraindicated since it is inactivated in the presence of pus.
Primary Sinusitis	Penicillin	Trimethoprim & Sulphadiazine	NB secondary sinusitis: see GI disease. TMPS inactivated by pus, so must have lavage as well.
Guttural pouch empyema / chondroids	Penicillin	Oxytetracycline or Doxycycline	<i>Strep equi</i> most commonly implicated
Lower Respiratory Tract Disease			
Primary pneumonia	Penicillin & Gentamicin	Oxytetracycline or Doxycycline	Extremely uncommon Affected animals systematically ill Metronidazole if anaerobes suspected
.RAO/COPD (Equine asthma)	Not indicated	Not indicated	Secondary pneumonia more common than primary
Rhodococcus pneumonia	Azithromycin / Clarithromycin + Rifampin	Rifampin & Doxycycline (10mg/kg BID PO)	Only if large or multiple abscess and/or sick foal
Wounds			
Contaminated wounds with synovial sepsis	Penicillin & Gentamicin	Oxytetracycline/ Doxycycline	Synovial debridement and lavage most often indicated
Contaminated wound with open fracture	Penicillin & Gentamicin	IVRP (adjust aminoglycoside dose if adding via IVRP)	Metronidazole if anaerobes suspected Fracture care is more important than antimicrobial therapy
Contaminated wounds (non-complicated)	Not indicated	Not indicated	Debridement and drainage is far more important than antibiotics
Skin / Hoof			
Cellulitis	Penicillin / Gentamicin if severe	Oxytetracycline or Doxycycline	Consider IVRP
Subsolar abscess	Not indicated	Not indicated	Drainage alone usually curative
Subsolar abscess with P3 involvement	Oxytetracycline / Doxycycline	Penicillin & Gentamicin & Metronidazole	If recurrent, rule out keratoma
Folliculitis	Not indicated	Penicillin for Strep infections	Topical treatment including antiparasitic and/or antifungal treatment
Gastrointestinal			
Periodontal disease	Trimethoprim & Sulphadiazine	Oxytetracycline or Doxycycline	
Periapical ascession	Oxytetracycline or Doxycycline	Penicillin	
Acute diarrhoea	Controversial	Controversial	AM use is controversial. Consider FEC. If neutropaenic, Penicillin / Gentamicin.
Peritonitis MILD	Trimethoprim & Sulphadiazine	Oxytetracycline or doxycycline	If parasitic, Abs not indicated unless necrosis of bowel
Peritonitis SEVERE	Penicillin & Gentamicin	Penicillin & Gentamicin & Metronidazole	If parasitic, Abs not indicated unless necrosis of bowel
Bacterial cholangiohepatitis	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	Biopsy sample should be submitted for culture

Condition	First Line	Alternatives	Notes
Urogenital			
Cystitis	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	Caution with aminoglycoside nephrotoxicity
Pyelonephritis	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	Caution with aminoglycoside nephrotoxicity
Post foaling endometritis	Penicillin	Penicillin & Gentamicin	Ecbolics
Post covering endometritis	Penicillin (IU)	Penicillin & Gentamicin (IU)	Ecbolics more imp than Abs. Abs only in problem mares
Mastitis	Penicillin	Penicillin & Neomycin	
Ocular			
Conjunctivitis	Fusidic acid	Neosporin	Local therapy for all ocular problems
Mild corneal ulceration	Consider artificial tears/ plasma	Gentamicin	Most cases trauma
Severe corneal ulceration	Gentamicin	Ciprofloxacin	
Melting corneal ulceration	Ciprofloxacin		Consider keratomycosis
Miscellaneous			
Endocarditis	Penicillin & Gentamicin	Trimethoprim & Sulphadiazine & Rifampicin Fluoroquinolones	Blood and urine cultures before therapy
Neutropenia >1 & <2.4x10⁶/l; Pyrexia of unknown origin	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin	Blood cultures at peak fever BEFORE Abs
Neutropenia <1x 10⁶/l	Penicillin & Gentamicin	Penicillin & Gentamicin & Metronidazole	Avoid antimicrobials where viral cause, e.g. equine corona virus, is suspected
Neonate <3 Weeks			
Neonatal pneumonia	Ceftiofur	Penicillin & Gentamicin/Amikacin	*Clinically important but justified in neonate due to high mortality
Septice arthritis / synovitis	Penicillin & Gentamicin/Amikacin	Trimethoprim & Sulphadiazine Oxytetracycline or Doxycycline	Consider source (lungs, GI, umbilicus), if iatrogenic, consider MRSA (Macrolides / Fluoroquinolones)
Patent urachus	Not indicated	Oxytetracycline or Doxycycline	Abs not indicated unless sepsis is involved. Avoid dehydration at all costs
Unbilical infection	Trimethoprim & Sulphadiazine	Penicillin & Gentamicin/Amikacin	
SEPSIS	Ceftiofur high doses (5-10 mg/g TID)	Penicillin & Gentamicin/Amikacin	Infection + 2 of: tachycardia, abnormal Temp, Resp. WBC
SEVERE SEPSIS	Ceftiofur & Gentamicin/Amikacin	Penicillin & Gentamicin & Metronidazole	Defined as sepsis with organ dysfunction, hypoperfusion, or hypotension
Meningitis	Ceftiofur	Penicillin & Gentamicin/Amikacin	No BBB in meningitis Consider source
Prophylaxis	Pre-Operative	Post-Operative	Duration of post-operative treatment
Clean surgery	Penicillin		24 hours, i.e. one dose
Contaminated surgery	Penicillin & Gentamicin	Penicillin & Gentamicin	5 days
High risk surgery	Penicillin & Gentamicin	Penicillin & Gentamicin	10 days, then reassess. Consider TMP-S if longer treatment required