



PROTECT ME

Prescribe only when necessary

- Consider non-bacterial disease (e.g. viral infection, nutritional imbalance, metabolic disorders)
- Remember that some bacterial diseases will self-resolve without antibacterials
- Offer a non-prescription form (see box bottom right)

Reduce prophylaxis

- Perioperative antibacterials are NOT a substitute for surgical asepsis
- Prophylactic antibacterials are only appropriate in some immunocompromised patients

Offer other options

- Consider therapeutic alternatives (lavage and debridement of infected material, cough suppressants, fluid therapy, nutritional modification)
- Using topical preparations reduces selection pressure on resident intestinal flora (the microbiome)
- Use effective hygiene techniques and antiseptics to prevent infections

Treat effectively

- Consider which bacteria are likely to be involved
- Consider drug penetration of the target site
- Use the shortest effective course and avoid underdosing
- Ensure compliance with appropriate formulation and provide clear instructions

Employ narrow spectrum

- Unnecessarily broad-spectrum antibacterials could promote antibacterial resistance
- The use of narrow-spectrum antibacterials limits effects on commensal bacteria
- Use culture results to support de-escalation (switching to a narrower spectrum antibacterial)

Culture appropriately

- A sample for culture should be collected **before** starting antibacterial therapy wherever possible
- Culture is essential when prolonged (>1week) treatment courses are anticipated, when resistance is likely (e.g. hospital acquired infections) and in life-threatening infections
- If first-line treatment fails, do not use another antibacterial without supportive culture and sensitivity results (**avoid cycling antibacterials**)

Tailor your practice policy

- A customized practice policy can guide antibacterial selection to address the bacterial infections and resistance patterns that you encounter, minimizing inappropriate use
- Complete the tick boxes in this poster to highlight your practice's first-line approach to each condition

Monitor

- Track and record culture profiles and update your practice policy accordingly
- Monitor for preventable infections (e.g. postoperative) and alter practices if needed
- Audit your own antibacterial use, particularly of critically important antibacterials (fluoroquinolones/cefovecin), e.g. using mySavsNET AMR

Educate others

- Share this important message to reduce the threat from multi-resistant strains of bacteria and improve the health of pets and people



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Antibacterial use in our practice

The antibiotic guardian(s) of this practice is/are:



Select which antibacterials your practice uses in the boxes below

Culture essential to ensure effective therapy

Culture strongly advised to guide therapy (where possible)

Use your smartphone and a QR code reader to access extra information. Alternatively visit: bsavalibrary.com/protectme

GASTROINTESTINAL INFECTIONS

Antibacterials are not indicated for:

- Acute vomiting
- Acute diarrhoea (including acute haemorrhagic cases)
- Pancreatitis
- Most gastric *Helicobacter* infections
- Most *Campylobacter*, *Salmonella*, *Clostridium perfringens* or *C. difficile* infections
- Chronic diarrhoea (except as part of a treatment trial)

Acute diarrhoea with systemic signs indicating actual (or risk of) bacteraemia or sepsis:

Suspected parvovirus
 Amoxicillin/clavulanate
 If acute diarrhoea with systemic signs
 Amoxicillin/clavulanate
 Cefalexin

Trial treatment of chronic diarrhoea/chronic enteropathy ('inflammatory bowel disease'):

Metronidazole
 Tylosin
 Oxytetracycline

Prior to antibacterial trial, perform appropriate diagnostics and consider other treatments including *Giardia* treatment, dietary change or prednisolone trial.
 Trial antibacterial treatment should not exceed 3–4 weeks

Cholangitis/cholangiohepatitis:

Amoxicillin/clavulanate
 Ampicillin
 Cefalexin
 Add metronidazole (dogs)
 Treat for 2–4 weeks

URINARY TRACT INFECTIONS

Antibacterials are not indicated for:

- Feline idiopathic cystitis (FIC)
- Feline struvite urolithiasis and canine non-struvite urolithiasis
- Urinary incontinence
- Subclinical bacteriuria (canine or feline)
- Juvenile canine vaginitis

Uncomplicated, symptomatic, canine urinary tract infection (cystitis):

Amoxicillin (± clavulanate)
 Trimethoprim/sulphonamide
 Treat for 7–10 days

Complicated canine or feline urinary tract infection

Reinfection, recurrent and persistent urinary tract infections:

Amoxicillin (± clavulanate)
 Trimethoprim/sulphonamide

If reinfection occurs, use the SAME antibacterial if previously successful

If recurrent/persistent infection, modify therapy on basis of sensitivity data

Review predisposing factors (e.g. urolithiasis, anatomical abnormalities)

Prostatitis (entire males):

Fluoroquinolones (high dose – see QR code)
 Trimethoprim/sulphonamide
 Treat for 4–6 weeks + medical/surgical castration

Urolithiasis (≠ crystalluria):

Canine struvite urolithiasis (for dissolution)
 Amoxicillin (± clavulanate) until resolution of urolithiasis confirmed
 Dietary modification and urine acidification alongside treatment
 Consider surgical removal

Suspected pyelonephritis:

Amoxicillin/clavulanate
 Fluoroquinolones
 Trimethoprim/sulphonamide
 Treat for 2–4 weeks

EYE INFECTIONS

Canine conjunctivitis:

Fusidic acid
 Chlorotetracycline
 Treat for 5–7 days

Feline conjunctivitis:

Chlorotetracycline
 Fusidic acid
 Treat for 5–7 days

Feline-specific disease:

Chlamydomydia felis
 Systemic doxycycline (amoxicillin/clavulanate in pregnant queens and kittens)
 Treat for 21–28 days
Mycoplasma felis
 Topical tetracycline

Uncomplicated corneal ulceration:

Topical chloramphenicol
Complicated corneal ulceration (infectious keratitis):

Topical chloramphenicol AND
 Topical gentamicin
 Topical ciprofloxacin
 Topical ofloxacin

Treat until the corneal defect has re-epithelialized q4 hours for the first 48 hours – reduced once the destructive corneal process has stopped

Consider systemic antibacterial if, e.g. 'melting', corneal perforation, marked uveitis

Orbital abscessation/bacterial cellulitis:

Amoxicillin/clavulanate
 Cefalexin and metronidazole
 Cefalexin and clindamycin
 Treat for 2 weeks
 Attempt drainage via most appropriate route, usually via mouth

SYSTEMIC INFECTIONS

Neutropenia:

- Mild** (neutrophil count >1000/μl) – antibacterial NOT required
- Moderate** (neutrophil count 500–999/μl) AND well
 Cefalexin
 Amoxicillin/clavulanate
 Trimethoprim/sulphonamide

Treat for 5–7 days

Severe (neutrophil count <500/μl) AND/OR unwell
 Amoxicillin/clavulanate (OR cefuroxime) + fluoroquinolone

Septic peritonitis secondary to gastrointestinal leakage:

Metronidazole + marbofloxacin
 Ampicillin + amikacin + metronidazole
 Amoxicillin/clavulanate + marbofloxacin

Initially intravenously then orally when clinical signs improve

Treat for 2 weeks following resolution of signs/abdominal effusion

Bacteraemia/sepsis (including peritonitis of non-gastrointestinal origin):

Clindamycin + marbofloxacin
 Ampicillin + metronidazole + marbofloxacin
 Ampicillin + amikacin + marbofloxacin
 Amoxicillin/clavulanate + marbofloxacin

Initially intravenously then orally when clinical signs improve

Treat for 2 weeks following resolution of signs/abdominal effusion

ORTHOPAEDIC INFECTIONS

Discospondylitis:

Cefalexin
 Amoxicillin/clavulanate
 Trimethoprim/sulfadiazine
 Clindamycin

Intravenously, if severe neurological compromise or signs of sepsis

Treat for minimum 8 weeks (based on clinical response)

Infective/septic arthritis:

Cefalexin
 Amoxicillin/clavulanate
 Treat for 4 weeks OR until synovial fluid neutrophils <3%

Osteomyelitis:

Cefalexin
 Amoxicillin/clavulanate
 Intravenously for first 2–3 days then orally
 Treat for 6–8 weeks

ORAL INFECTIONS

Consider chlorhexidine mouthwash

Severe gingivitis and periodontitis:

Amoxicillin/clavulanate
 Metronidazole
 Clindamycin (if periodontal bone infections)

Ulcerative stomatitis:

Metronidazole
Antibacterials are not indicated for:

- Malassezia dermatitis
- Non-specific skin problems (e.g. pruritus)

Bites and traumatic wounds:

Debride and lavage
 If systemically well and not pyrexia:
 Topical treatment with 2–4% chlorhexidine
 If systemically unwell and pyrexia

Systemic antibacterials based on cytology:

For cocci
 Clindamycin
 Cefalexin
 Amoxicillin/clavulanate
 Trimethoprim/sulphonamide

For rods

Fluoroquinolones
Acute bite wound prophylaxis:

Thorough flushing with saline or 2–4% chlorhexidine
 Amoxicillin/clavulanate (for 7 days)

Surface pyoderma (hot spots, intertrigo):

Topical treatment ONLY
 2–4% chlorhexidine
 Fusidic acid ± glucocorticoid
 Silver sulphadiazine (if rods)

Superficial pyoderma:

Topical treatment ONLY is appropriate
 2–4% chlorhexidine
 If required:
 Clindamycin
 Cefalexin
 Amoxicillin/clavulanate
 Trimethoprim/sulphonamide

Culture if rods are seen on cytology or there is a history of MRSP/MRSA or multiple prior antibacterial courses

Treat for minimum 3 weeks or 1 week beyond clinical cure

Repeat cytology to assess response
 Use doses at top end of range for better skin penetration

Deep pyoderma:

Whilst culture pending, systemic antibacterial therapy based on cytology as for superficial pyoderma
 Add topical treatment with 2–4% chlorhexidine

Treat for minimum 4–6 weeks or 2 weeks beyond clinical cure

Ideally repeat cytology

Otitis externa:

Topical treatment ONLY
 No authorized products if ear drums not intact
 Use in-house cytology to guide drug choice and prognosis

If rods

Framycetin
 Gentamicin
 Polymyxin B

If cocci

Florfenicol
 Fusidic acid/framycetin
 Polymyxin B/miconazole

May combine with antiseptic ear cleaner
 Treat until cytology is negative

Anal sac inflammation/engorgement without abscessation:

Topical treatment ONLY
 Manual evacuation, flushing with chlorhexidine + packing with topical polypharmacy ear product containing aminoglycoside or florfenicol

Anal sac abscessation:

ONLY if signs of cellulitis
 Trimethoprim/sulphonamide
 Amoxicillin/clavulanate

RESPIRATORY INFECTIONS

Antibacterials are not indicated for:

- Chronic bronchitis/allergic airway disease unless secondarily infected
- Canine sino-nasal disease

Canine infectious respiratory disease complex (Kennel Cough) and Feline upper respiratory tract infection (Cat Flu):

ONLY if clinical signs present >10 days and/or systemically unwell
 Doxycycline
 Amoxicillin/clavulanate
 Treat for 7–10 days
 Treat chronic cat flu for 1 week beyond clinical plateau

Pneumonia:

Amoxicillin/clavulanate
 For suspected *Bordetella/Mycoplasma*
 Doxycycline

If antibacterial exposure in preceding 4 weeks or if hospitalized for >48 hours prior to onset of respiratory signs (i.e. hospital-acquired infection)

Fluoroquinolone + clindamycin
 Treat for 4–6 weeks, based on C-reactive protein, or for 7–10 days beyond radiographic resolution

Pyothorax:

Fluoroquinolone + amoxicillin (± clavulanate)
 Fluoroquinolone + clindamycin
 Treat for 4–6 weeks (and beyond radiographic/ultrasonographic resolution)

SURGICAL USE

Antibacterials are not indicated for:

- Clean (elective surgery, no entry into hollow viscus) surgical procedures

Prophylactic (perioperative) antibacterials are appropriate:

- For prolonged clean surgery (>90 minutes) or surgery involving an implant
- For all surgery involving entry into a hollow viscus (e.g. gastrointestinal tract, urinary tract)
- Where there is an obvious break in asepsis causing contamination of the wound
- For all contaminated wounds or if there is a pre-existing infection
- For debilitated or immunosuppressed patients
- Where infections would be catastrophic (e.g. in CNS)

In most cases

Amoxicillin/clavulanate
 Cefuroxime
 Intravenously 60 minutes before the first incision, then every 90 minutes until the end of surgery
 Where anaerobic involvement is highly likely:
 Add metronidazole

Do not continue antibacterials after surgery, unless there is a therapeutic indication as this will select for resistance

Therapeutic (postoperative) antibacterials are indicated:

- To treat a known bacterial infection
- When the risk of a postoperative infection developing is high due to contamination or major break in asepsis

MISCELLANEOUS INFECTIONS

Pyometra:

Antibacterials not required if stable and proceeding directly to OHE
 Surgically managed:
 Amoxicillin (± clavulanate)
 Cefalexin + enrofloxacin
 Treatment discontinued after surgery (unless septic peritonitis)

Medically managed:

Amoxicillin (± clavulanate)
Mastitis:
 Cefalexin
 Amoxicillin/clavulanate
 Trimethoprim/sulphonamide
 Treat for 2–3 weeks or until offspring weaned (early weaning NOT advised)

Suspected *Mycoplasma haemofelis* (feline infectious anaemia):

Doxycycline
 Marbofloxacin
 Treat for 4 weeks

Suspected leptospirosis:

Doxycycline
 Penicillin G
 Amoxicillin (± clavulanate)
 Doxycycline is necessary to address renal colonization/carrier state
 Treat for 2 weeks

Hepatic encephalopathy (HE):

Diet and lactulose should be first line therapies in the management of patients with HE
 If symptomatic:
 Metronidazole (decreased dose)
 Amoxicillin
 Ampicillin

ADVERSE REACTIONS TO ANTIBACTERIALS

This list is not comprehensive.

Antimicrobial	Adverse effect	At risk group	Recommendation
Aminoglycosides	Nephrotoxicity	Dogs/cats with pre-existing renal disease, volume or electrolyte depletion	Avoid in at risk animals or when close monitoring is not available Do not exceed 7 days treatment duration Monitor urine for casts
	Ototoxicity	Cats	
Amoxicillin/clavulanate (intranavene use)	Urticaria, hypotension Anaphylactoid reactions	Dogs under general anaesthesia	Caution with intravenous use in anaesthetized patients
Doxycycline or clindamycin	Oesophageal irritation ± stricture	Cats (>dogs)	Ensure administration with food or water
Enrofloxacin	Retinal degeneration leading to partial, temporary or total blindness	Cats	Alternative fluoroquinolones preferred in cats
Fluoroquinolones	Defective cartilage development leading to severe lameness	Young dogs	Avoid in growing animals
Metronidazole	Dose-dependent neurotoxicity	Dogs	Caution with higher doses
Penicillins	Immediate and delayed hypersensitivity reactions	Dogs/cats	Avoid in penicillin-sensitive animals/owners
Potentiated sulphonamides	Keratoconjunctivitis sicca Hepatic necrosis (rare) Immune complex reactions (polyarthritis, anaemia, thrombocytopenia)	Dogs esp. Dobermanns, Samoyeds and Miniature Schnauzers	Avoid in specified breeds Monitor Schirmer Tear Test before and during use

DO NOT USE
 Antibacterials with restricted use in human medicine (e.g. imipenem, linezolid, teicoplanin, vancomycin) should **not** be used in animals.

Highest priority critically important antibacterials
 Fluoroquinolones (enrofloxacin, marbofloxacin, pradofloxacin, ciprofloxacin), and 3rd- and 4th-generation cephalosporins (cefovecin) should **only** be used when first-line antibacterials are inappropriate or ineffective. If urgent treatment is required, then samples for culture and sensitivity testing should be submitted before starting these agents, and then therapy adapted.

First-line antibacterials
 Limit the use of first-line antibacterials to times of genuine clinical need and avoid all unnecessary use.

Responsible antibacterial use under the Cascade
 It is justifiable, on a case-by-case basis, to prescribe an antibiotic on the cascade in the interests of minimizing the development of resistance, particularly where culture and sensitivity data indicate that a particular antibiotic active substance is effective against a bacterial pathogen and where knowledge of pharmacokinetics indicates that the selected product is likely to be safe and effective for the animal species and condition being treated.

Use non-prescription forms. Available from the BSAVA Library and SAMSoc.org.

For further information on individual drugs and dosages, see BSAVA Small Animal Formulary.