ANTIBIOTIC GUARDIAN

- 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)

educe prophylaxis

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

ffer 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

reat 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

mploy 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)

ulture 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)

ailor your practice policy

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

M onitor

- 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

ducate others

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







© BSAVA/SAMSoc 2018

Antibacterial use in our practice

Select which antibacterials your practice uses in the boxes below



(where possible) Use your smartphone and a QR code reader to access extra information.

GASTROINTESTINAL INFECTIONS

Antibacterials are not indicated for:

- Acute diarrhoea (including acute haemorrhagic cases)
- Pancreatitis
- Chronic diarrhoea (except as part of a treatment trial)

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

- If acute diarrhoea with systemic signs

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

- Metronidazole
- Tylosin

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

URINARY TRACT INFECTIONS

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

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

- Amoxicillin (<u>+</u> clavulanate)
- Trimethoprim/sulphonamide

Treat for 7–10 days

Reinfection, recurrent and persistent urinary tract

- Amoxicillin (<u>+</u> clavulanate)
- Trimethoprim/sulphonamide
- If reinfection occurs, use the SAME antibacterial if previously If recurrent/persistent infection, modify therapy on basis of
- Review predisposing factors (e.g. urolithasis, anatomical abnormalities)

Prostatitis (entire males):

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

Urolithiasis (≠ crystalluria):

- urolithiasis confirmed Dietary modification and urine acidification alongside treatment

Consider surgical removal Suspected pyelonephritis:

- Fluoroguinolones
- Trimethoprim/sulphonamide
- Treat for 2–4 weeks

ORAL INFECTIONS EYE INFECTIONS

Canine conjunctivitis:

- Fusidic acid Chlortetracycline
- Treat for 5–7 days

Feline conjunctivitis

- queens and kittens)
- Treat for 21–28 days Mycoplasma felis

Uncomplicated corneal ulceration:

- Topical chloramphenicol Complicated corneal ulceration (infectious
- keratitis): Topical chloramphenicol AND
- __ Topical gentamicin

Topical tetracycline

- 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

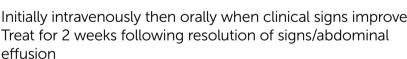
SYSTEMIC INFECTIONS

- Mild (neutrophil count >1000/µl) antibacterial
- NOT required
- 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

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



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

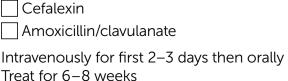
ORTHOPAEDIC INFECTIONS

Discospondylitis:

- Cefalexin
- Amoxicillin/clavulanate Trimethoprim/sulfadiazine
- _ Clindamycin Intravenously, if severe neurological compromise or signs

Treat for minimum 8 weeks (based on clinical response) Infective/septic arthritis:

- Amoxicillin/clavulanate
- Treat for 4 weeks OR until synovial fluid neutrophils <3% Osteomyelitis:





Consider chlorhexidine mouthwash

- Severe gingivitis and periodontitis:
- Amoxicillin/clavulanate
- Metronidazole
- Clindamycin (if periodontal bone infections)

- If systemically well and not pyrexic:
- If systemically unwell and pyrexic
- Systemic antibacterials based on cytology: For cocci



- Amoxicillin/clavulanate (for 7 days)
- Topical treatment ONLY 2-4% chlorhexidine
- Superficial pyoderma:
- 2–4% chlorhexidine If required:
- Clindamycin Cefalexin
- ☐ Trimethoprim/sulphorianing

 Culture if rods are seen on cytology

 in a history of MRSP/MRSA
- Treat for minimum 3 weeks or 1 week beyond clinical cure
- Deep pyoderma: Whilst culture pending, systemic antibacterial therapy based on
- Add topical treatment with 2–4% Treat for minimum 4–6 weeks or 2 weeks

Ideally repeat cytology

- Otitis externa: Topical treatment ONLY
- and prognosis f rods
- Framycetin Gentamicin
- Polymyxin B If cocci
- Fusidic acid/framycetin ___ Polymyxin B/miconazole

Treat until cytology is negative

Anal sac inflammation/engorgement without

May combine with antiseptic ear cleaner

- Anal sac abscessation: ONLY if signs of cellulitis

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

- Treat for 7–10 days
- 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



- Antibacterials are not indicated for: ■ Clean (elective surgery, no entry into hollow viscus) surgical procedures
- For all surgery involving entry into a hollow viscus (e.g. gastrointestinal
- Where there is an obvious break in asepsis causing contamination of
- Where infections would be catastrophic (e.g. in CNS) In most cases
- until the end of surgery Where anaerobic involvement is highly likely:

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

- **MISCELLANEOUS INFECTIONS**
- Surgically managed: Amoxicillin (<u>+</u> clavulanate)
- Treatment discontinued after surgery (unless septic peritonitis)
- Medically managed:
 - Mastitis:
 - Amoxicillin/clavulanate Trimethoprim/sulphonamide

Treat for 2-3 weeks or until offspring weaned (early weaning NOT advised) Suspected Mycoplasma haemofelis (feline infectious anaemia):

Treat for 4 weeks

Treat for 2 weeks

_ Doxycycline

Marbofloxacin

- Penicillin G Amoxicillin (<u>+</u> clavulanate)
- Hepatic encephalopathy (HE):
- Amoxicillin

ADVERSE REACTIONS TO ANTIBACTERIALS

This list is not comprehensive.

Antimicrobiat	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 (intravenous 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



Highest priority critically important

antibacterials luoroquinolones (enrofloxacin, marbofloxacin, oradofloxacin, 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



First-line antibacterials imit the use of first-line antibacterials to times of genuine

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.

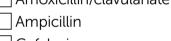


For further information on



rescribe only when necessary

- Acute vomiting
- Most gastric *Helicobacter* infections ■ Most Campylobacter, Salmonella, Clostridium perfringens
- or *C. difficile* infections
- Suspected parvovirus Amoxicillin/clavulanate
- Amoxicillin/clavulanate Cefalexin
- Oxytetracycline



Add metronidazole (dogs) Treat for 2–4 weeks

- Antibacterials are not indicated for:
- Urinary incontinence
- Complicated canine or feline urinary tract infection

- Canine struvite urolithiasis (for dissolution) Amoxicillin (+ clavulanate) until resolution of
- Amoxicillin/clavulanate

Bites and traumatic wounds: ■ Debride and lavage

- Clindamycin Cefalexin
- Amoxicillin/clavulanate Trimethoprim/sulphonamide

2-4% chlorhexidine

- \Box Fusidic acid \pm glucocorticoid Silver sulphadiazine (if rods)
- Amoxicillin/clavulanate

Repeat cytology to assess response

- Use doses at top end of range for better skin
- beyond clinical cure
- No authorized products if ear drums not intact
- Florfenicol
- abscessation: ■ Topical treatment ONLY Manual evacuation, flushing with
- Trimethoprim/sulphonamide

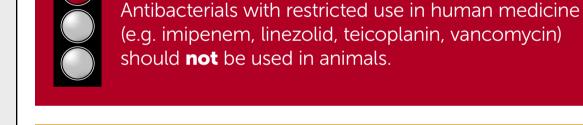
■ When the risk of a postoperative infection developing is high due to contamination or major break in asepsis

Intravenously 60 minutes before the first incision, then every 90 minutes

- Cefalexin + enrofloxacin
- Amoxicillin (± clavulanate)
- Suspected leptospirosis: Doxycycline
- Diet and lactulose should be first line therapies in the management of patients with HE

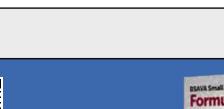
Doxycycline is necessary to address renal colonization/carrier state

the BSAVA Library and SAMSoc.org.

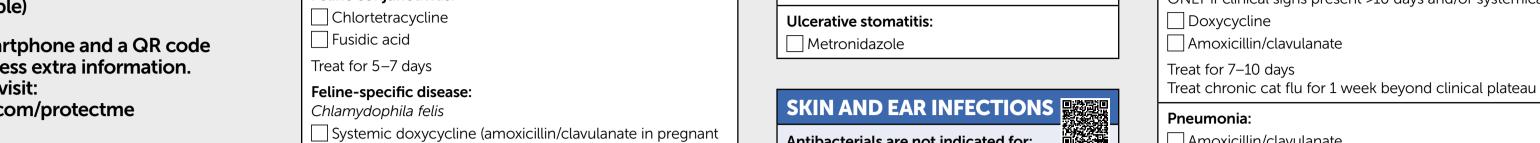


these agents, and then therapy adapted.









- Antibacterials are not indicated for:
- Malassezia dermatitis ■ Non-specific skin problems (e.g. pruritus)
- Topical treatment with 2–4% chlorhexidine
 - | Fluoroguinolone + amoxicillin (+ clavulanate) Fluoroquinolone + clindamycin
 - **SURGICAL USE**

Treat for 4-6 weeks (and beyond radiographic/ultrasonographic resolution)

- Prophylactic (perioperative) antibacterials are appropriate: ■ For prolonged clean surgery (>90 minutes) or surgery involving an
- For all contaminated wounds or if there is a pre-existing infection ■ For debilitated or immunosuppressed patients
- Amoxicillin/clavulanate Cefuroxime
- Add metronidazole











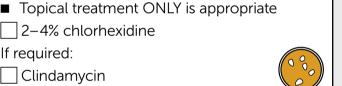
Alternatively visit:

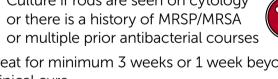
- bsavalibrary.com/protectme

Culture strongly advised to guide therapy

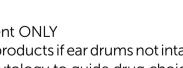


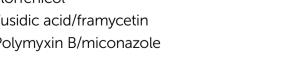






cytology as for superficial pyoderma





aminoglycoside or florfenicol

■ Use in-house cytology to guide drug choice

chlorhexidine + packing with topical polypharmacy ear product containing

Ampicillin

If symptomatic: | Metronidazole (decreased dose)

individual drugs and dosages, see BSAVA Small Animal