

Australian Veterinary Prescribing Guidelines

Clinic Stewardship Champion:

For more information and further resources visit
www.fvas.unimelb.edu.au/vetantibiotics

Equine

SURGERY

CLEAN SURGERY, NO MITIGATING FACTORS

FIRST LINE: NONE.

MITIGATING FACTORS: Penicillin and gentamicin.

MITIGATING FACTORS:

- Surgical duration >90 mins.
- Surgery involves implant.
- Surgical site infection would be a major threat (i.e. CNS).

DURATION OF THERAPY:

Stop within 24 hours (except implants [7 days]).

CLEAN CONTAMINATED SURGERY

FIRST LINE: Penicillin and gentamicin.

DURATION OF THERAPY: Stop within 24-48 hours.

CONTAMINATED SURGERY (SIGNIFICANT BOWEL LEAKAGE)

FIRST LINE: Penicillin, gentamicin and metronidazole.

DURATION OF THERAPY:

No evidence, 24-48 hours is common in human medicine.

DIRTY SURGERY

Use antimicrobial appropriate for infection (based on culture and susceptibility) and treat until cured.

ANTIMICROBIAL TIMING

IV: 30-60 mins prior to surgery, repeat benzyl penicillin every 80 minutes.

IM procaine penicillin: 3.5 hours prior to surgery.

CLINIC POLICY

CLEAN:

CLEAN CONTAMINATED:

CONTAMINATED:

CELLULITIS

PRIMARY

No obvious underlying cause.
Often more severe than secondary cases.

SECONDARY

An underlying cause can be identified (surgery, joint injection, wound, blunt trauma).

DIAGNOSTICS

Fine-needle aspirate should be collected for culture and susceptibility testing.
Care is needed for cellulitis occurring over synovial structures.

FIRST LINE:

Systemic antimicrobials: Penicillin and gentamicin (adjust dose if IVRP performed) or oxytetracycline. IVRP: gentamicin 1/3 systemic dose.

Topical therapy: Cold water hosing and pressure bandage.
Analgesia especially if non-weight bearing as risk laminitis in contralateral limb.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

WOUNDS

NO SYNOVIAL STRUCTURES INVOLVED:

No antimicrobial therapy indicated, even if contamination of the wound is present.
Systemic antimicrobials only when:

- Systemically unwell.
- Potential synovial involvement (see FOOT ABSCESS).
- Immunosuppressed patient.

SYNOVIAL STRUCTURE INVOLVED:

Lavage is almost always required for successful outcome.
Systemic antimicrobials always indicated.
Therapy should be based on culture and susceptibility testing.

Empirical therapy with penicillin and gentamicin should be initiated pending culture results.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

STRANGLES

DIAGNOSTICS

Notifiable disease, samples should be submitted for serology, culture or PCR to confirm diagnosis.

TREATMENT

No antimicrobials recommended.
Most cases resolve quickly once drainage has been established.
A small percentage continue to shed (carriers).
Systemic antimicrobials only when:

- Respiratory compromise.
- Metastatic disease (Bastard strangles).

In these cases, penicillin is first line therapy.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

PNEUMONIA IN ADULTS

DIAGNOSTICS

Transtracheal wash, or endoscopic tracheal wash with a triple guarded catheter, should be performed for cytological evaluation.
Culture and susceptibility testing should be performed in all cases.
Culture of bronchoalveolar lavage specimens is never appropriate as these samples are contaminated by the upper airway.

TREATMENT

Should be based on culture and susceptibility results.

FIRST LINE:

Penicillin and gentamicin should be initiated pending results. Metronidazole should be added if anaerobes are suspected (foul smell to tracheal fluid).

CLINIC POLICY

FIRST LINE:

SECOND LINE:

SEPTIC ARTHRITIS

DIAGNOSTICS

Arthrocentesis should be performed to obtain fluid for cytological evaluation and for culture and susceptibility testing in all cases. Radiographs should be taken to investigate bone involvement.

TREATMENT

Based on culture and susceptibility results.
Empiric therapy can be initiated while results pending.

FIRST LINE: Penicillin and gentamicin is recommended. Gentamicin should be used intra-articularly or as an intravenous regional limb perfusion to improve penetration (IVRP: 1/3 systemic dose, reduce systemic dose appropriately and give at same time).

Oxytetracycline is an alternative, especially if osteomyelitis is diagnosed.

DURATION OF THERAPY: Base on resolution of clinical signs, longer if osteomyelitis is present.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

SINUSITIS

DIAGNOSTICS

A sample of fluid from the sinus should be obtained to confirm the diagnosis.
Consider underlying disease (dental or equine Cushing's) especially if recurs.

TREATMENT

Sinus lavage alone may be sufficient and is almost always required for successful outcome (minimally invasive technique in the field can be used).
Systemic antimicrobials when:

- Recurrent disease.
- Systemically unwell.

FIRST LINE:

Penicillin or trimethoprim / sulphonamide.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

PERITONITIS

DIAGNOSTICS

Abdominocentesis should be performed to collect fluid for cytological evaluation and culture and susceptibility testing.

Differentiation between primary and secondary origins is critical as secondary peritonitis is typically due to leakage from the gastrointestinal or reproductive tracts and surgery should be considered.

TREATMENT

Systemic antimicrobial therapy should be instituted immediately following sample collection.

FIRST LINE: Penicillin and gentamicin and metronidazole.

DURATION OF THERAPY: Serial abdominocentesis should guide therapy. Treat for one week past resolution of disease.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

SEPSIS IN FOALS

DIAGNOSTICS

Sepsis score can be used to assess risk (see website).
Blood for culture and susceptibility should be collected but false negatives are common.

TREATMENT

Based on culture and susceptibility results if possible.
Empiric therapy can be initiated while results pending.

FIRST LINE: Penicillin and gentamicin is recommended. Care with gentamicin if renal function is compromised. Intravenous trimethoprim / sulphonamide is an alternative.

DURATION OF THERAPY:

2 weeks is generally considered to be adequate, unless focal infection develops (i.e. septic arthritis).

CLINIC POLICY

FIRST LINE:

SECOND LINE:

PATENT URACHUS

DIAGNOSTICS

Ultrasound evaluation should be performed to rule out omphalophlebitis. Antimicrobial therapy is not indicated if the umbilical remnants are not enlarged.

TREATMENT

No antimicrobial therapy indicated.
Frequent topical antibacterial therapy with 0.5% chlorhexidine is recommended until patency resolves.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

OMPHALOPHLEBITIS (NAVEL ILL)

DIAGNOSTICS

Ultrasound evaluation should be performed to define the infected structure and to allow for monitoring with treatment.

TREATMENT

Penicillin and gentamicin is most effective but often not tolerated well. Trimethoprim / sulphonamide or doxycycline are suitable alternatives that can be given orally.

DURATION OF THERAPY: Serial ultrasonographic examination should be performed and therapy continued until 1 week after resolution of disease.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

FOOT ABSCESS

No antimicrobial therapy indicated.
Curette to establish drainage.
If recurrent consider underlying disease.
Systemic antimicrobials only when:

- Immunosuppressed patient.
- If severe cellulitis is present.

Ensure horses are vaccinated for tetanus.

DOSE RATES

| ANTIMICROBIAL AGENT | RECOMMENDED DOSE | ROUTE | INTER-DOSING INTERVAL |
|-----------------------------|---|----------|-------------------------|
| Procaine penicillin* | 22,000 IU/kg (22 mg/kg) | IM | 12 hours |
| Benzyl penicillin | 22,000 IU/kg (13 mg/kg) | IV | 4-6 hours |
| Gentamicin* | Adults 6.6-7.7 mg/kg Foals 8.8-9.7 mg/kg | IV or IM | 24 hours 24-36 hours |
| Trimethoprim / sulphonamide | 30 mg/kg | PO or IV | 12 hours |
| Doxycycline* | 10 mg/kg | PO | 12 hours |
| Oxytetracycline* | 6.6 mg/kg | Slow IV | 12 hours |
| Metronidazole* | 20 mg/kg | PO | 12 hours |

*Many of the recommendations in this guide represent off-label use of antimicrobials. Compliance with the legal requirements of your jurisdiction is your responsibility.

FOAL PNEUMONIA

DIAGNOSTICS

Streptococcus zooepidemicus and *Rhodococcus equi* are equally common. Transtracheal wash is required for cytological examination and culture and susceptibility testing in all cases.

TREATMENT

Based on culture and susceptibility results.
Empiric therapy can be initiated while results pending.

FIRST LINE: If S. zooepidemicus is suspected penicillin is appropriate. If R. equi is suspected clarithromycin and rifampin is recommended.

DURATION OF THERAPY: Varies by pathogen; 1 week generally adequate for *S. zooepidemicus*, 4-6 week generally recommended for *R. equi*.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

DIARRHOEA

ACUTE DIARRHOEA DIAGNOSTICS

Culture should be performed for *Salmonella*.
Diagnosis of clostridial disease requires toxin test.
Faecal PCR available for *C. difficile*, *C. perfringens*, *Salmonella*, *Lawsonia*, Rotavirus and Coronavirus.

TREATMENT

Antimicrobial therapy does not reduce *Salmonella* shedding or reduce duration of diarrhoea.
No antimicrobials unless:

- Confirmed clostridial cause.
- Severe leukopaenia and neutropaenia.

If clostridial: Metronidazole.
If leukopaenic: Penicillin and Gentamicin.

DURATION OF THERAPY:

Clostridial: until diarrhoea resolves.
Leukopaenic: until leukopaenia resolves.

CHRONIC DIARRHOEA

Antimicrobial therapy rarely indicated.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

HIGH-RISK FOALS

Premature foals and those with neonatal encephalopathy ('Dummy Foal Syndrome') are at increased risk of sepsis. Failure of passive transfer should be addressed with plasma transfusion.
There is no evidence for any benefit from prophylactic antimicrobials in place of plasma transfusion.

DIAGNOSTICS

Serial haematologic evaluation and sepsis score may guide necessity for antimicrobial therapy.

TREATMENT

Prophylactic therapy is warranted when leukopaenia is present or sepsis score is high.

FIRST LINE: Penicillin and gentamicin.

Care should be taken in foals with impaired renal function.
Trimethoprim / sulphonamide IV is an alternative.

CLINIC POLICY

FIRST LINE:

SECOND LINE:

LAWSONIA (PROLIFERATIVE ENTEROPATHY)

DIAGNOSTICS

Diagnosis can be made via serology (ELISA) or by faecal PCR.

TREATMENT

Mild to moderate disease: doxycycline PO.
Severe disease: oxytetracycline IV.

DURATION OF THERAPY:

Mild to moderate disease: generally 3 weeks is recommended.
Severe disease: 3-4 weeks.

CLINIC POLICY

FIRST LINE:

SECOND LINE: