

## ANTIMICROBIALS

### CASE STUDY- Pet Rabbit

1 year old pet doe rabbit

History: Rabbit has been sneezing off and on for 3 weeks (summer, hot, humid). The owner noticed a discharge from the nose for a few days. The rabbit has a decreased appetite and is less active.

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## ANTIMICROBIALS

### CASE STUDY- Pet Rabbit

List the problems you have identified:

fever

anorexia

sneezing

conjunctivitis

mucopurulent discharge

fur on paws wet, matted

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## ANTIMICROBIALS

### CASE STUDY- Pet Rabbit

Diagnostic Samples?

Bacterial culture?

conjunctiva?

nasal?

How to collect a sample?

Culturette (sterile swab)

Gram stain?

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## ANTIMICROBIALS CASE STUDY- Pet Rabbit

### Treatment

Suspect *Pasteurella multocida* (Gm neg)  
(snuffles):

penicillin  
enrofloxacin  
chloramphenicol  
doxycycline  
trimethoprim/sulpha  
erythromycin  
aminoglycosides

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## ANTIMICROBIALS CASE STUDY- Pet Rabbit

Route of Administration?

Problems with choice?

Contraindications with choice

Superinfections:

macrolides/lincosamides  
oral penicillins

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## ANTIMICROBIALS CASE STUDY- Pet Rabbit

P multocida sensitivity		<b>Best antibiotic?</b>
benzylpenicillin		<b>Advice to client:</b>
s	s	<b>Husbandry issues</b>
amoxicillin	s	ammonia, air quality...
gentamicin	s	<b>Disinfect rabbit's cage...</b>
erythromycin	s	<b>Zoonosis-immunocompromised</b>
tetracycline	r	
Enrofloxacin	s	

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**ANTIMICROBIALS  
CASE STUDY- Fergus**

**7 yr old spayed Great Dane  
List the problems you can identify:**  
Fever  
Anorexia  
Reluctant to move  
Hyperdynamic shock  
Swollen right elbow  
Leukocytosis, mild

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**ANTIMICROBIALS  
CASE STUDY- Fergus**

**7 yr old spayed Great Dane  
Comment on the referring vet's  
therapy.**  
expensive in large dog  
potential for developing resistance  
other antibiotic options would be effective

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**ANTIMICROBIALS  
CASE STUDY- Fergus**

**7 yr old spayed Great Dane  
What 3 samples would you  
take?**  
Blood culture  
urine culture (cystocentesis)  
joint fluid

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## ANTIMICROBIALS CASE STUDY- Fergus

What antibiotic(s) would you choose while waiting for your results?

Choose bacteriocidal, parenteral antibiotics

\_\_\_\_\_?  
while waiting for results

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## ANTIMICROBIALS CASE STUDY- Fergus

S aureus	Sensitivity	Based on the sensitivity results, what would you choose to treat Fergus?
Ampicillin	r	How long should the treatment be continued?
Co-Trimazine	s	
Chloramphenicol	s	Why was enrofloxacin ineffective?
Gentamicin	s	
Enrofloxacin	s	
Cephalexin	s	
Co-amoxiclav	s	

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## ANTIMICROBIALS CASE STUDY- TB Colt

List the problems you have identified:

fever  
anorexia  
cough  
dyspnoea  
Purulent nasal discharge  
Swelling of lymph nodes, draining LN

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**ANTIMICROBIALS  
CASE STUDY- TB Colt**

**What further physical examinations?  
check temperature of all yearlings  
examine unaffected yearlings BUT  
avoid cross contamination from  
obviously sick yearlings**

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**ANTIMICROBIALS  
CASE STUDY- TB Colt**

**What clinical pathology and bacteriology  
tests will you perform?  
Aspirate lymph node, culture &  
sensitivity  
Gram stain of aspirate  
CBC?**

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**ANTIMICROBIALS  
CASE STUDY- TB Colt**

**What treatment will you give while waiting  
for results?  
Isolate affected yearlings  
Use separate halters, buckets, etc  
between affected and nonaffected  
yearlings  
Drain abscesses, if appropriate  
Antibiotics - \_\_\_\_\_? usually  
work**

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**ANTIMICROBIALS  
CASE STUDY- TB Colt**

**How will you manage the unaffected yearlings?**

**Isolate from affected yearlings**

**Check temperatures daily**

**Monitor for clinical signs**

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**ANTIMICROBIALS  
CASE STUDY- TB Colt**

**Streptococcus equi**      **Choose an appropriate treatment:**  
**Sensitivity**

Penicillin	s	Dosage? _____
Ampicillin	s	
Tetracycline	s	
Co-trimazine	s	Route of administration?
Gentamicin	r	_____?
Erythromycin	s	

Justification?

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**ANTIMICROBIALS  
CASE STUDY- Minnie DSH Cat**

**List the problems you have identified:**

**diarrhoea**

**Blood in faeces (haematochezia)**

**tenesmus (straining)**

**depression**

**dehydration**

**fever**

**leukopaenia**

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## ANTIMICROBIALS

### CASE STUDY- Minnie DSH Cat

What type of diarrhoea?

Enterocolitis (large and small bowel)

Three potential differentials?

Salmonellosis

Campylobacteriosis

Parvovirus

Others: yersiniosis or

clostridial

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## ANTIMICROBIALS

### CASE STUDY- Minnie DSH Cat

Would you put cat on antibiotics?

Yes, evidence of bleeding, mucosal  
breakdown, fever

What antibiotic and route?

\_\_\_\_\_?

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## ANTIMICROBIALS

### CASE STUDY- Minnie DSH Cat

Adverse effects of antibiotics on GIT?

Clavulox (amoxicillin & clavulanic) ?

may predispose to Salmonella  
overgrowth

Diarrhoea

Superinfections

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**ANTIMICROBIALS**  
**CASE STUDY- Minnie DSH Cat**

Pharmacokinetic property with an Adverse effect on normal flora:

Enterohepatic cycling - e.g. tetracyclines

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**ANTIMICROBIALS**  
**CASE STUDY- Minnie DSH Cat**

What antibiotic spectrum increases the adverse effects of antibiotics on GIT?

anaerobic

Confirmation of bacterial enterocolitis?

Culture faeces for enteric pathogens

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**ANTIMICROBIALS**  
**CASE STUDY- Minnie DSH Cat**

Bacteria Salmonella spp cultured  
Treatment?

Controversial - severity warrants treatment

Antimicrobial Treatment?

chloramphenicol?

enrofloxacin?

trimethoprim/sulpha?

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**ANTIMICROBIALS  
CASE STUDY - CHARLIE**

**Kings Charles Cavalier Spaniel**

**10 year-old entire female**

**Based on the history what problems can you identify?**

**poor appetite (anorexia)  
misalliance (recently in heat)  
polyuria, polydipsia (PU/PD)  
discharge from vulva**

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**ANTIMICROBIALS  
CASE STUDY - CHARLIE**

**After clinical examination what additional problems have you identified?**

**panting  
abdominal distension, difficult to palpate  
purulent discharge from vulva  
heart rate of 160 bpm**

**Diagnosis: suspected pyometra**

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**ANTIMICROBIALS  
CASE STUDY - CHARLIE**

**What clinical pathology tests would you do?**

**Routine CBC**

**What would you treat Charlie with while waiting for the results?**

**Treat with a bacteriocidal, broad spectrum antibiotic keeping in mind E. coli may be the causative agent.**

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## ANTIMICROBIALS

### CASE STUDY - CHARLIE

What do the clinical pathology results indicate?  
Note the total and differential white blood cell counts.

Increase in total WBCs

Left shift with TP:F ratio indicating inflammation

Any problems?

Anaemia

Dehydration

What other tests might be indicated?

Radiographs or Ultrasound to aid diagnosis

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## ANTIMICROBIALS

### CASE STUDY - CHARLIE

What are your treatment options?

Surgical management and antibiotics

Medical management, antibiotics, +/- prostaglandins

What is the likelihood of success with conservative treatment (e.g. medical management)?

Not very good

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## ANTIMICROBIALS

### CASE STUDY - CHARLIE

Treatment Plan for Charlie:

Surgery plus

antibiotic treatment - IM, SC or IV initially:

Medical antibiotic treatment:

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**ANTIMICROBIALS**  
**CASE STUDY - FRIESIAN COW**

Friesian Cow #267 - 4 yo high yielding cow  
History of difficult calving and down with calving  
paralysis for 10 days. Hot swollen quarter.

Given that you agree with the farmer about  
mastitis, what would you do next?

Culture the affected quarter aseptically

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**ANTIMICROBIALS**  
**CASE STUDY - FRIESIAN COW**

What immediate treatment would you give?  
Intramammary products:

Parenteral?

Do you think that it is necessary to administer  
parenteral antibiotics? Why or why not?

Yes, the type of mastitis (watery with  
white flecks) may indicate E. coli and  
intramammary infusions may not diffuse into the  
quarter evenly.

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**ANTIMICROBIALS**  
**CASE STUDY - FRIESIAN COW**

What factors determine a drug's distribution  
from the blood into the milk?

Lipid solubility

Degree of ionisation

Extent of protein binding in milk and plasma

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**ANTIMICROBIALS  
CASE STUDY - FRIESIAN COW**

Culture E. coli:

**Antibiotic sensitivity**

Penicillin	r
ampicillin	s
cloxacillin	r
amoxicillin	s
streptomycin	r
neomycin	r
co-trimazole	s
erythromycin	r

Would you change your initial treatment plan based on these results? If yes what would you treat with?

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**ANTIMICROBIALS  
CASE STUDY - FRIESIAN COW**

Would you change your initial treatment plan?

What other important factors do you and the farmer need to consider?

Milk withholding times for intramammary and parenteral therapy.

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**ANTIMICROBIALS  
CASE STUDY - Kaiser**

German Shepherd

6 year-old entire male

Based on the history what problems can you identify?

- Pain, pyrexia initially
- Hunched, resented palpation of hindleg, abdomen and manipulation of the neck
- Blood results:

•neutrophilia, inflammatory change

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**What do you think of the previous treatment?**

- Changing antibiotic families, treatment time too short
- Trimethoprim/sulphas not effective for gram positive bacteria producing beta lactamase
- Using steroids in the face of a slight neutrophilia

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**List the problems you can identify.**

- Reluctant to stand and hunched while standing
- Resents hindleg extension and lumbar pressure
- Takes short strides when walking

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**What clinical pathology tests might you consider?**

**Clinical tests**

- Bloods CBC and chemistry panel
- Blood culture (Staph aureus, Strept or B canis)
- Urine culture

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**What other diagnostic aids will you use?**

- ♦ Radiograph of mid thoracic and lumbar vertebrae

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**What will you treat Kaiser with while you wait for the results?** (Hint: Based on a tentative Dx of

discospondylitis with a likelihood of gram positive bacteria choose an appropriate antibiotic)

- ♦ choice of antimicrobial that will distribute to the bone and be effective against gram positives like Staphs.

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**What would you expect to see with the other diagnostic aid?**

**Radiographs:**

- ♦ Lysis of the bone in the lumbar region
- ♦ new bone growth in the lumbar region

Different from 1<sup>st</sup> visit due to length of time to develop

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**Based on evidence of discospondylitis from radiographs plan your treatment:**

**Antibiotic? Dose? Course of treatment?**

**Need a long course of antibiotic treatment.**

**Might consider parenteral therapy for 5 days and then oral therapy for 4-6 weeks.**

**See: <http://www.walthamusa.com/articles/wf82cor.pdf>**

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**ANTIMICROBIALS  
CASE STUDY - KAISER**

**German Shepherd - 6 yo entire male**

**Based on evidence of discospondylitis from radiographs plan your treatment:**

**1<sup>st</sup> Choice Antibiotic?**

**Other options?**

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**Labrador Retriever**

**8 year-old entire female**

**Based on the history what problems can you identify?**

- ♦ **chronic skin infections**
  - Staphylococcus intermedius
- ♦ **intractable ear infection, otitis externa**
- ♦ **depression**
- ♦ **possible exercise intolerance**  
(not moving around)

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**List the problems you can identify**

- ♦ chronic skin infections *Staphylococcus intermedius*
- ♦ intractable ear infection, *otitis externa*
- ♦ depression
- ♦ possible exercise intolerance (not moving around)

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**Defend or criticise your boss's approach to therapy:**

- ♦ Possibility of primary endocrine disorder initially
- ♦ initial therapy should have been bacteriocidal

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**List the additional problems you can identify now**

- ♦ *otitis externa* (green smelly purulent discharge)
- ♦ purulent chronic skin infection
- ♦ cold to touch
- ♦ partial alopecia
- ♦ obese
- ♦ bradycardia

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**Should you do anything diagnostically or therapeutically about the hormonal disorder at this time and why?**

- Yes, need to correct for treatment to be successful
- Diagnostic tests: T4,  $\pm$  TRH or TSH stimulation test, CBC

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**Should you do anything differently about the skin and ear infections at this time?  
If so what and why?**

- Treat them as separate and distinct problems

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**ANTIMICROBIALS  
CASE STUDY - DRIBBLES**

**Indicate your course of therapy if the owner has no money and cannot afford diagnostic tests at all, i.e. what is your recommended empirical therapy?**

- Ancillary treatment for ears—drain and keep clean
- Suspect *Pseudomonas* by colour and smell
  - Skin:
  - Topical treatment of ears:
- Need to correct endocrine problem

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