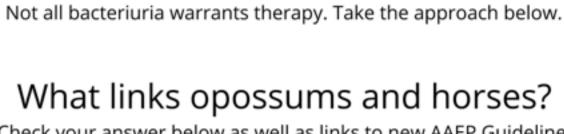
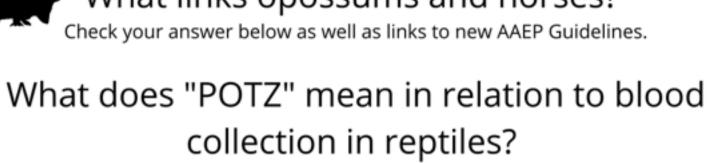
What links opossums and horses?





Welcome Our New Pathologist

Dr. Colby Klein

There are Bacteria!

Read on to find out.





Immediately after, he began his residency training in Anatomic Pathology and

joined True North Veterinary Diagnostics in May 2021. When he is not at his

scope Dr. Klein enjoys hiking, camping, photography, and beekeeping.

Dr. Klein is undoubtedly going to be a valuable addition to our team and thus yours. As with all of the pathologists, we are always available for additional discussion on your cases. Reach out anytime.

What is subclinical bacteriuria?

evidence of infectious urinary tract disease = subclinical bacteriuria.

Clinical evidence of acute pyelonephritis can include fever, lethargy,

Why should you care?

It important to distinguish between a diagnosis of subclinical

bacteriuria and a clinically relevant infection.

must be considered.

includes:

PUPD, renal pain, azotemia, urinary casts and an inflammatory leukon.

The presence of bacteria in urine as determined by a positive

cystocentesis bacterial culture and the absence of clinical

The cytological presence of bacteria, hematuria or pyuria alone is adjunctive information but may not predict culture results or correlate well with clinical signs of lower or upper urinary tract disease. Clinical evidence of lower urinary tract (LUT) disease includes: hematuria, frequent urination, inappropriate urination, painful urination or straining to urinate.

Time, cost and possible stress incurred to the owner and patient.

The negative impact of treating a patient with subclinical bacteriuria

Possible unwanted side effects e.g. vomiting or dysbiosis. There is a <u>significant risk</u> of promoting resistant organisms with repeated exposure to antibiotics. In certain populations a sterile urine is impossible to achieve. Antibiotic stewardship principles

What evidence supports withholding therapy? It is noted that up to 12% of healthy females dogs have positive urine cultures without clinical signs. The prevalence of subclinical bacteriuria is between 1-13% in clinically healthy cats.

In the very limited number of veterinary studies to date, the results

follow the extensive human medicine evidence that withholding

treatment does not lead to a detrimental outcome.

diabetes were not associated with a higher risk.

Just as in human medicine, positive culture rates are higher in certain patients with comorbities. In dogs, this is seen with obesity, glucocorticoids or cyclosporine therapy, acute IVDD or chronic spinal

cord disease. In cats, there is an association with a USG below 1.030

and CKD. Interestingly in recent papers, hyperthyroidism and feline

Despite the prevalence in certain populations, a 2019 update to

guidelines in human medicine does not recommend screening urine cultures in asymptomatic infants, diabetics, non-renal solid organ transplants, seniors with cognitive impairment, or patients with spinal cord injuries. This rationale can likely apply to veterinary medicine. When should you culture the urine? Guidelines in human or veterinary medicine are not intended to replace clinical judgment in the management of individual patients. Urine culture in cats or dogs without clinical signs might be considered when pyelonephritis is suspected, to investigate a source of septicemia,

if surgery involving the urinary tract is planned, in poorly controlled diabetics and in patients with spinal cord disease that cannot show

clinical signs. Unique to female dogs with suspect struvite bladder

without LUT signs even when comorbidities or pyuria are noted.

Urine culture should not be performed in patients with bacteriuria but

stones, culture may be considered.

To Treat or not to Treat? Generally Not!

urinary tract disease, a short 3-5 day course of antimicrobials might be

noted within the <u>ISCAID guidelines</u> together with culture results. (A link is

considered. Antibiotic choices should be made using first line choices

Treatment of subclinical bacteriuria is discouraged.

Antibiotics should be discontinued if no improvement is seen within 3 days. While treatment of a given event may eliminate bacteriuria it does not

prevent recolonization. Urine is not sterile 100% of the time and in

Antimicrobial use is not warranted in the face of pyuria without clinical

Isolation of multidrug resistant organisms does not automatically equate

certain populations attempts to achieve sterile urine is futile.

signs.

Should there be concern that clinical signs possibly reflect **lower**

provided in the PDF version available via the button below).

drug choice in clinical cases but does not equate to greater virulence. Even with isolation of the same bacterial species on subsequent urine cultures, unless clinical signs are exhibited, there is no indication to treat with antimicrobial agents. Retesting for confirmation of bacteria

The presence or absence of pyuria does not indicate whether bacteria

eradication is also not warranted unless clinical signs develop.

grown are clinically relevant or not.

might be the source of systemic infection.

accurate patient history and imaging.

to treatment of subclinical bacteriuria. Antibiotic resistance restricts

Bacterial colony count does not differentiate subclinical bacteriuria from bacterial cystitis regardless of number of colony forming units/ml. Heavy bacterial growth does not imply greater risk to the patient

Treatment might be considered when there is concern that the bladder

Should imaging or other modalities reveal a lesion that requires

treatment (e.g., bladder neoplasia) in an otherwise asymptomatic

patient, all other parameters and clinical findings should collectively be taken into consideration when deciding whether or not to use antimicrobials. Could the bacteriuria be evidence of

pyelonephritis? Pyelonephritis whether acute or chronic can be challenging to diagnose. Supportive clinical signs would include intermittent fever, renal pain, sudden onset in PUPD, azotemia, and an inflammatory leukon with no other obvious source of infection. However, clinical signs

therapy have been decreased to 10-14 days. Note amoxicillin or amoxicillin/clavulanic acid are not likely to reach the necessary tissue concentrations needed to treat *E.coli* pyelonephritis.

Adapted from an article by Dr. Margie Scherk, DVM, DAVBP.

may also be vague and there are limited studies on antimicrobial

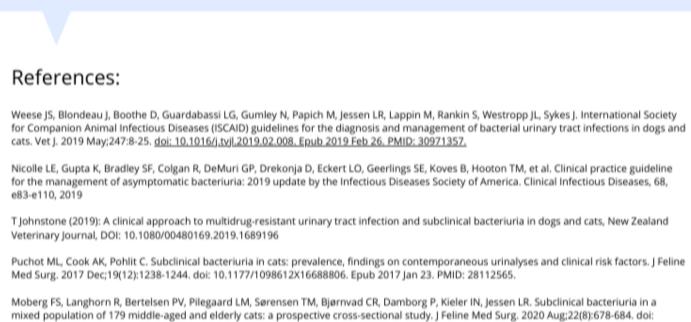
treatment of chronic pyelonephritis to provide definitive guidance.

Cystocentesis or pyelocentesis is necessary to make the definitive diagnosis of pyelonephritis along with supportive clinical signs, an

Antibiotic choices again should be based on the specific ISCAID

guidelines that are distinct for an **upper** urinary tract infection while

awaiting culture results. Previous recommendations of 4-6 weeks of



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Mayer-Roenne B, Goldstein RE, Erb HN. Urinary tract infections in cats with hyperthyroidism, diabetes mellitus and chronic kidney disease. Journal of Feline Medicine and Surgery. 2007;9(2):124-132. doi:10.1016/j.jfms.2006.09.004

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on your differential diagnoses list.

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Equine Protozoal Myeloencephalitis

Equine protozoal myeloencephalitis (EPM) is a central nervous system disease

primarily caused by Sarcocystis neurona. Neopsora hughesi can also cause the disease. Multifocal neurologic signs without a fever should place this disease

The time from ingestion of the sporocysts to clinical disease is unknown and

the exact pathogenesis is unclear. Factors which likely impact infection risk

include the amount of protozoal exposure, a patient's immune system,

comorbid disease and concurrent environmental stress. Opossums are commonly infected with S. neurona and serve as definitive hosts. The environment where opossums are noted frequently can be heavily contaminated and serve as a risk for equine exposure and disease.

The AAEP has recently released as of February 2021, updated guidelines on

clinical signs, diagnostic testing as well as control measures.

AAEP Equine Protozoal Myeloencephalitis (EPM) Guidelines February 2021

reptile species is known as POTZ.

Being ectotherms reptiles depend on the outside temperature to regulate their body temperature. This affects their metabolism and also can play a

The preferred optimal temperature zone of a

significant role if they are unwell. Husbandry is often the essential key that separates healthy reptiles from ones that have disease. Poor husbandry may cause the disease itself or make them susceptible to disease in the majority of cases seen in practice. Did you know that ideally one should be collecting blood from a reptile when they are within their preferred optimal temperature zone. This provides the

most accurate reflection of their metabolic status. Note that blood collection can be contaminated with lymph in reptiles. Let us know if during collection lymph contamination is suspected as it can be visible.

Monday May 24th Stat Holiday



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