



Our Mission:

We are committed to saving lives and reducing suffering of homeless dogs and cats through education, advancement of knowledge and shelter outreach.

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Shelter Watch



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From the Director's Desk

Happy New Year from all of us at the Maddie's Shelter Medicine Program in the College of Veterinary Medicine at Cornell University!!! We hope that your holidays were happy and full of family, good food, and friends (including all those that have fur, claws, feathers, gills or other non-human features)!

It's that time of year to make time to review your shelter's progress in 2011, and to set new goals for the coming year. Goals help us improve, as they require us to take time away from the frenetic everyday events of the shelter, and think about how the shelter is doing and make plans to improve. I like to think about 3 broad objectives that most shelters are striving to achieve. They include 1) reducing the number of animals entering the shelter (excluding planned transfers in); 2) improving the quality of care for all animals brought to the care of the shelter; and 3) increasing the number of shelter animals finding loving homes. Numerous approaches can aid in the achievement of goals to achieving these objectives and it's important to select a manageable number and start planning.

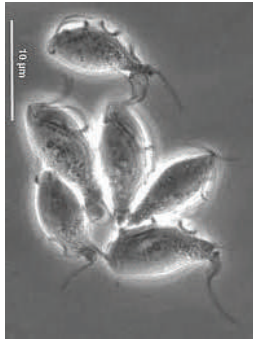
One of our goals for this year's newsletter is to spend some time talking about so-called emerging infectious diseases in shelters. Some of these diseases may have been around for awhile (but went undiagnosed or unnoticed) and others are truly "new". In this issue we discuss several of these diseases, some of which you may have already heard and others may be new to you. Regardless, mixing animals and species from many backgrounds in a stress-

ful environment like an animal shelter can lead to the emergence or modification of agents causing previously unrecognized disease. If you suspect that you are seeing something unusual in presentation, severity or frequency, don't ignore it! Contact us, one of the other shelter medicine programs across the country, or your local veterinary diagnostic laboratory. You can get help deciding whether you have a "weird" disease that requires further work-up and deal with it quickly. You may well help identify emerging problems and thereby, help other shelters as well. We hope that you enjoy this issue and have a wonderful, life-saving, quality-of-life improving, productive New Year!

One other special announcement: Dr. Berliner received the Community Service Award of Excellence given to faculty providing exemplary service to the Community. Congratulations Dr. Berliner!

Jan Scarlett, DVM, Ph.D.





“Understanding *T. foetus* and its behavior in individuals and populations will help your shelter make informed decisions about diagnosis and treatment.”



In the 1970's canine parvovirus emerged as a disease of dogs, evolving from the panleukopenia (cat distemper) virus.

Trichostrongylus foetus: Dr. Mike Greenberg

What is it?

Over the past decade, *Trichostrongylus foetus* has increasingly been recognized as a causative agent of diarrhea in domestic cats. Understanding this protozoa and its behavior in individuals and populations will help your shelter make more informed decisions about diagnosis and treatment.

What happens to cats that are infected?

Not every cat infected with *T. foetus* will develop disease. A combination of factors seems to determine severity of disease, including the cat's immune status, the environment, and presence of other infectious organisms. When *T. foetus* does cause disease in cats, animals develop large bowel diarrhea. This is characterized by frequent small volumes of stool; semiformal to liquid consistency; and strong odor. Mucus or blood may be seen, and in severe cases cats may strain or show pain during defecation.

How Common is It and who is at risk?

Prevalence estimates of *T. foetus* in cats have ranged from 10-31% in the US and Europe. Cats of almost any age can be affected but cats less than 12 months old appear to develop diarrhea more commonly.

How can it be diagnosed?

T. foetus should be suspected in any cat with large bowel diarrhea that has been

refractory to treatment with appropriate courses of anti-parasitics and antimicrobials. *T. foetus* can be identified on fecal smear, but can be difficult to distinguish from *Giardia spp.* A *Giardia* antigen test can be used on the same sample to rule out *Giardia spp.* In-house culture can be performed using a commercially available system (InPouch TF); this culture system uses media that does not allow for the growth of *Giardia* or other protozoa. A *T. foetus* PCR is available as well.

How can it be treated?

Treatment should *only* be considered if a definitive diagnosis has been made based on both clinical signs and diagnostic testing. *T. foetus* has generally proven difficult to treat with antimicrobials. Ronidazole is the most effective drug for treatment. It has been associated with neurotoxicity in some cases, and should be used cautiously.

How is it transmitted and how can it be controlled in the environment?

T. foetus is transmitted through the fecal-oral route. It is not hardy in the environment, and routine cleaning and disinfection will kill it. Most important for control is reduction of overcrowding. Overcrowded conditions, particularly in groups of kittens, seem to be associated with higher incidence of disease.

For more information, be sure to check out Dr. Gookin's page at: http://www.cvm.ncsu.edu/docs/personnel/gookin_jody.html

Canine Parvovirus (CPV-2c): Dr. Jan Scarlett

Parvoviruses have the ability to alter their genetic make-up, and as a consequence, potentially change their antigenicity and the severity of the disease that they cause. In the late 1970's canine parvovirus emerged as a disease of dogs, evolving from the panleukopenia (cat distemper) virus. Since that time the virus has continued to evolve, first

resulting in a genetically and antigenically distinct variant called CPV type 2a, then CPV type-2b, and most recently, CPV type 2c (or CPV-2c). The emergence of each new variant has been accompanied with concerns over whether the resultant disease is more severe, commercial vaccines are still protective, and whether the changes in virus affect the accuracy of the

prevailing diagnostic tests. The variant, CPV-2c was recognized in 2000 in Italy and has spread rapidly around the world, largely replacing CPV-2b in many locations. Despite geographic differences in the frequency of the various strains, CPV-2c is sufficiently common to prompt questions regarding the nature of the disease it causes, the effectiveness of current vaccines, and the accuracy of current diagnostic tests (e.g., the IDEXX SNAP test for parvovirus antigen).

Research findings relating to these questions have been mixed. CPV-2c induced disease in puppies seems similar to that caused by the other strains. The disease in adult dogs may be more severe, although the studies to date have been small and conflicting. Point-of-care tests such as the IDEXX SNAP test do not

appear to differ in their ability to identify infected dogs, and all three strains are best detected in dogs in early stages of their infection. While there is still some debate, the current vaccines probably provide good protection against CPV-2c infection and disease. This being said, more research is needed and shelters should monitor the latest research findings. One additional concern with CPV-2c, however, is that it has been shown to infect cats and shelters must incorporate measures to minimize cross-species transfer of the virus into their parvovirus protocols.

Regardless of CPV variant, shelters must continue to vaccinate for parvovirus at entry (including dogs that may be euthanized after the stray hold period), isolate infected dogs, and diligently clean and use disinfectants that kill parvoviruses.

Severely affected dogs may show signs including pneumonia, high fever and death.

How do we prevent an outbreak?

Canine flu is spread similarly to other respiratory pathogens of dogs: direct contact, fomites, and aerosol. Practicing appropriate sanitation, isolation and vaccination (DA2PP and Bordetella) protocols will go along way in preventing a flu outbreak in your shelter. Fortunately, this virus does not persist longer than a week in the environment and is killed by most disinfectants.

Is our shelter experiencing an outbreak?

Canine flu is nearly impossible to distinguish from kennel cough based on clinical signs alone. Some characteristics may clue you in to an outbreak of canine flu: a large percentage of affected dogs (over 50%), no propensity for a particular age group, and a recent history of a dog entering the shelter from a flu endemic region.

How is it diagnosed?

Canine influenza is most efficiently diag-
(Continued next page)



CPV-2c has been shown to infect cats, so incorporating measures to minimize cross-species transfer in parvovirus protocols is important!

“Regardless of CVP variant, shelters must continue to vaccinate for parvovirus at entry, isolate infected dogs, and diligently clean and use disinfectants that kill parvoviruses.”

Canine Influenza: Dr. Kate Gollon

Canine influenza is a relatively new disease to arrive on the veterinary scene: the first recognized outbreak was in racing greyhounds in Florida in 2004¹. Since that time, this disease has spread sporadically to different pockets of the United States. While initially there was a great deal of concern about it becoming widespread and causing a high canine mortality rate, this largely has *not* been the case. Rather, canine influenza usually causes mild symptoms and most dogs recover without incident.

What is Canine Influenza?

Canine flu is a highly contagious respiratory virus that only affects dogs. Because the majority of dogs are immunologically naïve to the virus (have no antibodies against it) they are quite susceptible to it. The most common clinical signs associated with canine influenza are a cough (either productive or dry), a mild fever, and occasionally nasal discharge (which can contain blood or pus). More complicated cases are often the result of a mixed infection with other pathogens.





Due to its nature and efficacy, the available vaccine should only be considered in shelters located in endemic areas that have a prolonged length of stay for dogs.

“While initially there was great concern about Canine Influenza becoming widespread and causing a high canine mortality rate, this largely has not been the case.”



The resource-guarding assessments are key components of canine behavior evaluations.

Canine Influenza: Continued from Page 3

nosed with PCR in the acute phase of infection (three days before and after the onset of clinical signs). Appropriate samples include nasal swabs or respiratory tissues. False negatives are common, especially later in the course of disease. A positive result on PCR is indicative of active disease.

Serology for canine influenza is helpful once the acute phase of disease has passed. The test requires paired serum titers two to three weeks apart. The first sample can be taken within a week after onset of clinical signs. A four-fold increase in the titer indicates a recent infection. In an outbreak situation, the need to wait two weeks for a second sample makes this test less useful.

Should we vaccinate?

The available vaccine to protect against canine influenza is labeled to reduce severity of clinical signs and duration of

shedding, not to prevent infection. This vaccine is a “killed” vaccine (versus a modified live). Killed vaccines do not confer immunity as reliably or as quickly as modified live vaccines. As such, two doses are needed two to four weeks apart. Both the need for a booster (which delays protection) and the cost, limit the practicality of using this vaccine in most shelters.

For more information on canine influenza, including an overview of treatment and links to our diagnostic lab, please visit our website: <http://www.sheltermedicine.vet.cornell.edu/shelter/CanineInfluenza.cfm>

¹Crawford, PC, et al. 2005. Transmission of equine influenza virus to dogs. *Science*, 310: 482-485.

Canine Behavior Evaluations: Ms. Kelley Bollen, MA, CABC

Last month I wrote about where to conduct the canine behavior evaluations and how to set up the room to do them efficiently but I have yet to discuss the canine evaluation procedure in detail. So my goal this month is to do just that.

There are several formalized canine behavior evaluation procedures used in the shelter field and they are all designed to do the same thing – get to know the dogs so that sound recommendations can be made based on their basic personality and temperament. While serving as the behaviorist for the Massachusetts SPCA I conducted a two-year study on the validity and reliability of the procedure that I use to evaluate the dogs. The results of this study have been published in peer-reviewed scientific journal (Bollen and Horowitz, Behavior Evaluation and Demographic In-

formation in the Assessment of Aggressiveness in Shelter Dogs, Applied Animal Behavior Science Vol. 112 (120-135), 2008).

There are nine components to the canine behavior evaluation procedure that I have used, taught and researched over the past twelve years. The first component is the cage presentation test whereby the evaluator gives the dogs a few seconds of eye contact while they are still in the kennel. This is an important test because this simulates the way potential adopters look at the shelter dogs. Because direct eye contact can be threatening to some dogs, we need to know how the dogs respond to this situation that will occur on a daily basis on the adoption floor.

The next component of the evaluation is the sociability test whereby we assess the

dog's level of sociability with people. This is an important assessment because sociability is a buffer against aggression. The more social a dog is, the more he will tolerate the things that humans do to and around him. Knowing the dog's level of sociability is helpful when making recommendations for adoption, especially in terms of going to a home with children. The more social the dog is, the more likely he will live successfully with children who may invade his personal space on a daily basis.

After determining the dog's level of sociability, the evaluator handles the dogs in ways that the owners will most likely handle them. The handling includes picking up a foot, touching the tail, looking in the mouth and ears, drying off with a towel and giving the dog a hug. This assessment helps us determine how tolerant or comfortable the dog is with handling. Again, the dog's response gives us valuable information that can help in making adoption recommendations, especially regarding children.

The next component involves engaging the dog in play so that we can see their play style and level of arousal. This assessment is also important when considering the age of child the dog should go home with. Some dogs get overly aroused in play and can inadvertently knock down or injure a small child when in that state.

There are then two resource-guarding assessments conducted to determine

how the dog responds to someone near them while they eat and when they have a chew bone. Some dogs can become annoyed or even aggressive when they are disturbed when eating or in possession of something valuable, and this behavioral tendency needs to be elucidated in order to make sound recommendations about the dog.

The dogs are then assessed for their reaction to a human stranger entering the room. The stranger approaches frontally while giving eye contact to see how the dog responds to this every day occurrence.

Lastly the dogs are introduced to several other dogs to assess their reaction. This is an important assessment since most dogs are walked in neighborhoods where other dogs are present.

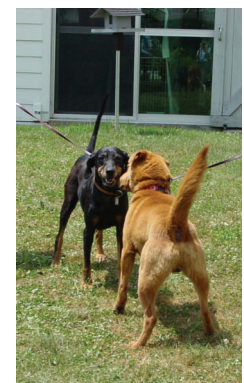
By the end of the evaluation, we know a great deal about the dog and can make training and behavior modification recommendations, as well as improve adoption matching. Additionally, this knowledge helps with adopter education, which in turn improves adoption success and retention.

The complete canine behavior evaluation procedure is available on our website (<http://www.sheltermedicine.vet.cornell.edu/behavior/>). I encourage you to review the procedure and email me at ksb68@cornell.edu with any questions you may have in its implementation.



Assessing play style and level of arousal during play is also important.

“By the end of a formalized evaluation, we know a great deal more about the dog and can make training and behavior modification recommendations as well as improve adoption matching”



Dog to dog introductions are another crucial feature of the canine behavior evaluation.

Streptococcus equi. subsp. zooepidemicus: **it's not just for horses anymore. Dr. Elizabeth Berliner**

What is it?

Strep zoo, as it is commonly called, is a commensal bacterial agent commonly found in horses. Recently, it has been implicated as a respiratory disease-causing organism in dogs. Cases have occurred in racing Greyhounds and shelter populations, places where dogs have been

densely housed.

What are the clinical signs?

Strep zoo can occur by itself, or as part of canine infectious respiratory complex (CIRD) that may also include one or more of other, more common organisms:

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Streptococcus equi. subsp. zooepidemicus: Continued from Page 5

Bordetella bronchiseptica, canine parainfluenza virus, canine respiratory coronavirus, and even canine influenza virus. However, *Strep zoo* can cause much more sudden, severe signs – including sudden death. Bloody nasal discharge, severe pneumonia, and sudden death could be warning signs of *Strep zoo* in your population. The rapid onset and serious nature of signs has been compared to that of “toxic shock syndrome” in people.

How do we test for it?

Although it is a bacterium, standard aerobic cultures are not very sensitive for *Strep zoo* because it does not grow easily in culture. Shelters are advised to perform swabs of nasal discharge or the oropharynx in live patients, or on lung tissue at necropsy. These should be submitted to a reference laboratory for culture and PCR analysis for best results.

Are there aclinical carriers?

Yes, studies have shown that some dogs will carry *Strep zoo* in their nasal passages, but will not have signs of disease. However, it is not thought to be commonly carried by dogs. In an outbreak situation, some dogs may aid in spreading the organisms even though they do not get sick.

How can it be prevented?

There is currently no canine vaccine for *Strep zoo*. However, standard methods of managing respiratory disease in shelters will aid in protecting dogs. Avoiding overcrowding and minimizing housing stress, as well as employing common disinfectants appropriately in cleaning will all go a long way in preventing outbreaks and keeping dogs safe.

Is there treatment?

Strep zoo is NOT sensitive to doxycycline, which is often the first antibiotic chosen for upper respiratory disease in shelters. Dogs often require intravenous fluids and other injectable antibiotics. Unfortunately, even with aggressive treatment morbidity is high.

Now I'm worried. How common is this?

While there have been several outbreaks in the last few years, they have been contained, and the disease is not common. If you are concerned with a particular case in your shelter, please feel free to call our consult line for help in assessing the situation.

Events Calendar

January 2012						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
University Closed →						
8	9	10	11	12	13	14
					NAVC →	
15	16	17	18	19	20	21
	Intern Experience at Mississippi State University →					
22	23	24	25	26	27	28
Extern - Tufts University →						
29	30	31				



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