University of Nebraska Lincoln

# Diagnostic Center News

University of Nebraska Veterinary Diagnostic Center

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Spring 2007

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## Notes From The Director

The Laboratory has had a very busy and successful spring. It seems our rapidly changing weather and beneficial moisture did cause increases in perinatal calf mortality.

In May I attended a meeting in Columbus with the Poultry Industry, where tabletop exercises regarding an avian influenza outbreak were held. I always learn much from the poultry industry. The integrated nature of the industry certainly makes emergency disease response complicated. Birds in these production facilities are scheduled for slaughter before being placed in the production facilities. Any disruption of flow affects employees on the farms, and at the processing plants. It becomes quite evident why emergency response planning is so critically important. Every hour of indecision would not only allow disease spread, but greatly magnifies the economic losses suffered by producers and processors.

I am very much looking forward to getting out for a series of district meetings this fall and winter. The Lab received USDA funding to increase the Lab's preparedness to respond to an animal health emergency and to assure safe efficient handling and transport of samples. We are cross-training employees and developing emergency response agreements with laboratory partners at the Department of Agriculture and at the University of Nebraska Medical Center. These actions will hopefully be of benefit during the initial days of any event while the USDA response is being activated.

Unfortunately, I will miss the NVMA meeting in Valentine. I will be attending the veterinary internal medicine meeting in Seattle, Washington, as part of the educational programs. I do hope to see some of you at the district meetings this fall and winter.

Thank you for your continued support. We look forward to continue working with you in the future. If you have any suggestions as to how we may better serve your needs, please let us know.

Dave Steffen
Director

## Did You Know??

100 years ago the first virus was found in both plants and animals.

The typical hen lays 19 dozen eggs a year.

Due to gravitational effects, you weigh slightly less when the moon is directly overhead.

-taken from:

http://www.hightechscience.org/funfacts.htm

## Tularemia in a Cat

Tularemia is a bacterial disease which can affect a variety of wild and domestic mammals, birds reptiles, fish and people. The causative bacterium, *Francisella tularensis*, is a gram-negative coccobacillus which is found naturally in small rodents and insects. It is a facultative intracellular parasite which is readily killed by heat or proper disinfection but can survive for months in a damp environment. In North America, natural reservoirs exist where the organism circulates freely between various arthropod vectors and mammalian, avian, reptilian, and fish species. Important wild animal hosts include cottontail and jack rabbits, beaver, muskrats, and meadow voles. Recognized arthropod vectors in the United States include the wood tick (*Dermacentor andersoni*), the lone star tick (*Amblyomma americanum*), the dog tick (*Dermacentor variabilis*), and the deer fly (*Chrysops discalis*). Transstadially and transovarian infection can occur in ticks. In domestic animals, sheep are particularly susceptible but clinical disease has been reported in dogs, pigs, and horses. Cattle appear to be resistant. Cats are especially susceptible to infection due to their predatory nature.

*(cont'd. on page 2)*

***Tularemia (cont'd.) . . .***

A 8 month-old male Domestic Long-haired cat was submitted to the Veterinary Diagnostic Center for necropsy with the complaint of ataxia, development of tremors, prolonged anorexia, and progressive deterioration of body condition. The animal was an outdoor cat, lived on an acreage, and had opportunity for contact with raccoons and opossums. Over the past 2 years, the owner indicated that 3 other cats had died acutely after developing similar clinical signs. At necropsy, a multifocal necropurulent pneumonitis, splenitis, hepatitis, nephritis, lymphadenitis, and meningoencephalitis were noted. *Francisella tularensis* was isolated from cultures of kidney, spleen, and cerebral spinal fluid.

Tularemia is a zoonotic disease which can be transmitted by direct contact, aerosol, ingestion, or through the bite of infected arthropod. The organism is very infectious. Transmission of as few as 10 organisms will cause disease. Most cases occur June through September (tick season) although a second peak of reported cases often is seen in the late fall and early winter (rabbit hunting season). Highest incidence is in the south central and western United States. The most common source of infection for humans and animals is the bite of an infected tick. However, individuals who dress, prepare, or eat improperly cooked contaminated wild game can become infected. Cats, dogs, and other carnivores may acquire infection by consumption of an infected carcass or contaminated drinking water. A few reports have implicated cats as a source of infection for humans by direct contact through either bites or scratches.

Human tularemia is often presented as an indolent ulcer at the site of infection, accompanied by swelling and pain in regional lymph nodes, sudden onset of fever, and malaise. Incubation period is 3-15 days. Clinical signs usually appear in 3-5 days. Immediate treatment by a physician is required. Approximately 200 human cases are reported in the United States each year. Generally, less than 2% of cases are fatal but mortality may reach 30-35% if untreated. Diagnosis is made by isolation and identification of the causative organism, immunofluorescence detection of organisms in impression smears from tissues, and serology.

- - - Alan Doster DVM PhD, Scott McVey DVM PhD, Debra Royal ASCP,
Veterinary Diagnostic Laboratory, University of Nebraska-Lincoln, Lincoln, NE 68506

## *Pet Food Analysis for Melamine Available at University of Nebraska*

**Epidemiological Definition of Cases Related to Contaminated Pet Food Ingestion**

Bona fide cases of illness or death attributable to the ingestion of the contaminated pet food meet some or all of the following criteria:

- Acute renal disease in dogs or cats not suffering from renal disease attributable to other causes and supported by results of clinical evaluations (history, clinical exam, results of serum analysis or urinalysis)
- History of having consumed recalled pet food, especially within 10 days of onset of renal disease
- The presence of crystals in urine from affected animals
- Histopathological findings consistent with renal failure, especially the presence of crystals in renal tissue consistent with ingestion of the suspect food

**Pet Food Analysis for Melamine**

People concerned about the presence of melamine in their pet's food can get the food (dry and canned) analyzed through the University of Nebraska-Lincoln, Veterinary Diagnostic Center (UNL VDC). The analysis will be conducted using gas chromatography/mass spectroscopy and is being offered in cooperation with the UNL Water Science Laboratory. The service will determine if melamine is present or not present in the submitted specimen.

The cost for the analysis is $107 per specimen, which includes the admission fee.

Specimens for analysis will be admitted to the UNL VDC beginning immediately. The turn-around-time for results of the analysis will depend upon the number of specimens received.

**Collecting, Preserving and Submitting a Pet Food Specimen**

The following information may be obtained from the pet food container label: manufacturer of the pet food submitted, brand name of product, production code or lot number.

Is the food product on the list of recalled pet foods? That information may be found on the US FDA website at http://www.fda.gov/oc/opacom/hottopics/petfood.html

Please send as much of the wet or dry specimen as possible. We prefer the specimen be shipped in the original container. Unopened containers of wet or dry food can be shipped directly to our laboratory at room temperature. Contents of opened containers of wet food should be frozen and shipped to arrive frozen at the VDC.

- - -submitted by Michael Carlson, MS, PhD, Diagnostic Toxicologist,
Analytical Chemist

## Canine Distemper Virus

We have recently seen two cases of canine distemper virus infection in dogs less than eight months of age. This has been an unusual finding for the Veterinary Diagnostic Center (VDC). Most commonly, we see canine distemper virus infection in raccoons. Diagnosis in the most recent canine cases was based on observation of viral inclusion bodies in conjunction with non-suppurative encephalitis. Testing by polymerase chain reaction at the VDC was performed on one of these cases and was positive. One of the two dogs had not been vaccinated, and the second dog received one dose of vaccine at six-weeks of age, exemplifying continued education of the public on the importance of vaccination.

- - - contributed by Bruce Brodersen, DVM, PhD, Veterinary Pathologist, University of Nebraska Veterinary Diagnostic Center

"Our task must be to free ourselves— by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty."—Albert Einstein

## VDC Employees

***Dr. Jon Ayers***

Dr. Jon Ayers is a part-time pathologist at the Veterinary Diagnostic Center.

Dr. Ayers enjoys archaeology, flying, golf, fishing and silversmithing.

Dr. Ayers was in private practice in Nebraska for 21 years and was a diagnostic pathologist at Texas A&M for 17 years.

Dr. Ayers is originally from Cairo, Nebraska and resides in Lincoln during his employment at the Diagnostic Center.

## Bacteriology News

**Mailing of Organisms for Autogenous Vaccines or Other Testing**

Many of our clients have requested that the bacteriology lab send organisms to another location for autogenous vaccine or other testing. There are several governmental regulations that we must comply with in order to ship organisms. First, there are specific regulations designating how to pack and label a box that contains a live organism. Second, personnel must be properly trained and certified before shipping organisms. Lastly, anyone receiving an organism must have obtained a USDA permit to receive vectors. Most laboratories have the permit that is required, however most veterinary offices do not, so we can forward an organism to any lab with a permit, but we cannot send it directly to your office. If you want an organism and do not have a permit, you can pick it up from the VDC.

On the same note, some of the organisms that we isolate are fastidious (require special media or atmospheric conditions to survive) and they do not live for more than a day or two after isolation. We try to freeze them, but many organisms do not survive the freezing process. If you think you want a vaccine made, please indicate on your submission form where you would like the organism sent. By doing this, we are able to send the organism as quickly as possible.

If a clinic wants a permit to receive the isolates, they can be obtained through the USDA at htpp://www.aphis.usda.gov/permits/ and eAuthorization is available via http://www.aphis.usda.gov/authCreatAccount.html

- - submitted by Dr. Scott McVey, DVM, PhD, Faculty Supervisor, Microbiology and by Deb Royal, Supervisor, Microbiology

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**We're On the Web:**
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The Nebraska Veterinary Diagnostic Center is accredited by the American Association of Veterinary Laboratory Diagnosticians

All regulatory testing for export is done in compliance with the code of federal regulations and technicians performing the test have been tested annually by the USDA through the National Veterinary Services Laboratories check-testing program. Additional assays within the lab regarding toxicology, microbiology and parasitology are assessed annually by check testing through the Veterinary Laboratory Association. Positive and negative control samples are included in all serologic and toxicologic testing protocols that require them.

Ancillary testing is reviewed by a single case coordinator who assures that test results are in agreement and any unusual test results are investigated to ensure that standard operating procedures are followed and that results can be replicated. Standard operating procedures are on file in each of the laboratories and available for inspection. A copy of our Quality Manual is available upon request.

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