

**MU
VMDL
Newsletter**

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**Veterinary Medical
Diagnostic Laboratory**
Veterinary Health Center
University of Missouri

**VMDL Now Offers
After-hours Sample
Drop Off Option**

The Veterinary Medical Diagnostic Laboratory can now accept after-hour drop off of select samples.

Location: MU Veterinary Health Center – Second Floor Small Animal Reception. Veterinary professionals may have to enter through the emergency entrance located on the second floor (street level).

Hours: 5 p.m.-8 a.m. Monday through Friday. Samples may be dropped off on the weekend as well, however; samples dropped off after 9 a.m. on Saturday will be picked up on the following Monday during normal business hours.

Process:

- Ask the small animal receptionist to provide the clip board with the After-Hours Sample Tracking Log located on the refrigerator. Fill in all the fields provided.
- Place the clearly labeled sample (swabs, tubes, and other small specimens) into a secondary bag and have the receptionist put both the sample and the completed submission form into the refrigerator.
- For larger samples (such as large fresh tissue samples, amputations

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A MESSAGE FROM THE DIRECTOR

Welcome to the MU VMDL Summer 2018 Newsletter! I hope everyone is having a wonderful summer. The VMDL faculty, staff and residents are working hard to serve our clients.

We recently developed a more user-friendly website: <http://vmdl.missouri.edu/>. For your convenience, tests are listed alphabetically, by lab sections and by animal species. Forms, sample submission instructions, and test results are available online. Please take a few minutes to review the website and feel free to call or email me with comments or suggestions.

Although it is still summer, our Serology and Histology sections have begun to prepare for the winter chronic wasting disease (CWD) testing. The VMDL staff are certified by NVSL to perform both CWD ELISA (screening) and IHC (confirmation). We accept samples from wild and captive cervids.

As many of you know, the VMDL building, constructed in 1975, no longer meets space needs and is not conducive to implementing biosafety



and biosecurity protocols. Recently, a programming and planning study was conducted that identified three concepts for a new addition then subsequent renovation or replacement of the current building. In upcoming months, we will share the plans with our constituents.

Please keep in mind that the VMDL is here to serve all of you and the state of Missouri. I truly appreciate your support.

Best regards,
*Dr. Shuping Zhang, Director,
Veterinary Medical Diagnostic Laboratory
Professor, Veterinary Pathobiology*

MU VMDL Newsletter

***Echinococcus Multilocularis* in a Pet Dog**

by Kei Kuroki, DVM, PhD, DACVP

The life cycle of *Echinococcus multilocularis*, which is the causative agents of human alveolar echinococcosis, involves canids as definitive hosts. Human echinococcosis occurs when these cestodes utilize people as aberrant intermediate hosts. In the U.S., *E. multilocularis* is endemic in Alaskan wildlife (i.e., arctic foxes) and has been detected in wildlife (i.e., red foxes and coyotes) in the north-central states, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin, and Wyoming. (Deplazes et al., 2017; Global distribution of alveolar and cystic echinococcosis. In: Thompson, R.C.A., Deplazes, P., Lymbery, A.J., (Eds.), *Echinococcus and echinococcosis*, Part A. Elsevier Ltd., New York, New York, USA, pp. 315-493.).

Although Missouri is included in the north-central endemic region, consideration for its endemicity is based on unpublished data in red foxes in the 1990s. Human echinococcosis is uncommon in the contiguous U.S.; however, because of increasing encroachment of fox and coyote populations into suburban and urban areas in the U.S.,

there is an increasing concern of potential human exposure through pet dogs who become infected by consuming infected wild rodent intermediate hosts.

In October 2017, a formalin-fixed jejunum biopsy specimen from a 17-week-old, female German shepherd was submitted to the VMDL for histopathologic examination. Microscopic findings were suggestive of intestinal echinococcosis. PCR testing confirmed it was the E4 haplotype, one of the European strains of *E. multilocularis*. The dog had no travel history outside the state of Missouri.

This is the first confirmed case of intestinal *E. multilocularis* infection in a pet dog in the contiguous U.S. and is the first detection of a European strain in the U.S. (Kuroki et al. *Vet Parasitol Reg Stud* in review). This case suggests that *E. multilocularis* is an emerging threat to public health in the contiguous U.S., including Missouri, and implies a potential risk of wider distribution and higher heterogeneity of *E. multilocularis* in the contiguous U.S. than previously believed.

Veterinarians should be aware that dogs with intestinal echinococcosis may have



Echinococcus multilocularis in a jejunal biopsy from a dog.

no significant clinical signs. It is difficult to distinguish the ova of *E. multilocularis* from those of *Taenia taeniaformis* and *T. pisiformis*, more common tapeworms in dogs, based on morphology because their shapes and sizes are very similar. Intestinal echinococcosis should be suspected if tiny, approximately 1 mm long, tapeworm proglottids are found in dogs' feces.

Human alveolar echinococcosis is a slowly progressive zoonotic disease in which the fatality rate of untreated cases approaches 100 percent. It is advisable for owners, veterinarians and anyone who has handled an infected dog or its feces, to contact their physician for advice.

Samples, continued

and bodies), please contact the block student on duty by calling the main VMDL number and following the instructions.

For questions regarding sample submission or pricing, please see our sum-

mary list of tests and fees at vmdl.missouri.edu or contact the VMDL main number during normal business hours at (573) 882-6811.

Sample pick up will be delayed until the next business day during the following holidays:

- New Year's Day – January 1
- Martin Luther King Jr. Day
- Memorial Day
- Independence Day – July 4
- Labor Day
- Thanksgiving Day
- Friday following Thanksgiving
- Christmas Day – December 25

2018-2019 VMDL Fee Guide Available

The annual University of Missouri Veterinary Medical Diagnostic Laboratory Fee Guide is now available on our website: www.vmdl.missouri.edu. As the name implies, this publication serves as a convenient reference on costs for our most common tests, but it also provides concise sample handling and submission instructions.

This guide lists only our most common tests, if you need information on testing not mentioned in this guide, please contact us at 573-882-6811.

New Equipment Expands Toxicology Services

The Toxicology Section recently acquired new instrumentation (inductively coupled plasma optical emission spectroscopy or ICP-OES), which will allow for analyses for a panel of metals in various types of samples. The section is now in the final stages of method validation, and it expected that this service will become available to our clients sometime during the month of August.

Missouri is experiencing a drought this summer, and there is an overall shortage of quality forages available to feed livestock. The Toxicology Section has been providing nitrate spot testing kits to MU Extension personnel, and has been busy testing many samples of green chop for the for nitrate content, as well as testing for cyanogenic potential in sorghums and sorghum hybrids.



***Clostridium Perfringens* in Enteric Screens**

Veterinarians are often faced with determining the cause of death in calves up to 10 days of age, and giving advice to their clients. In many cases, the veterinarian does not have the opportunity to observe the clinical signs exhibited by the calf prior to its death. This results in relying upon the observations of the animal owner, and what is observed upon necropsy and subsequent lab diagnostics requested by the veterinarian.

Clostridial disease can be caused by five different types of *Clostridium perfringens*: Types A, B, C, D and E. These different types are classified based on the type of exotoxin that they produce.

Clostridial organisms are ubiquitous in the environment, and are commonly found in the gastrointestinal tract. For this reason, it is common for the Clostridial organisms to rapidly multiply in the GI tract shortly after death occurs. If an enteric screen is requested, the VMDL can isolate *Clostridium perfringens* from nearly all mailed-in samples, but this organism may not be the cause of disease. In order to receive accurate results, the samples must be taken from a euthanized animal or shortly after death before this overgrowth occurs. An accurate diagnosis is important in determining what management procedures would be successful in preventing and controlling diarrhea in calves.

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Personnel Updates from the Diagnostic Laboratory



Hatem Kittana



Brett Havis



Sara Obeiter

- Hatem Kittana, Brett Havis and Sara Obeiter have just begun their microbiology, anatomic pathology, and clinical pathology residencies, respectively.
- Rachel Newton has moved from her role in receiving to a position in our quality assurance office.
- James Lucchesi and Brad Meinders are our newest staff members in receiving and reception.
- Heather Gibson is our newest clinical pathology staff member.

Please welcome our new team members, we are happy to have them on board!

VMDL Portal Access

This free service for clients enables 24-hour daily access to test results and improves transparency of the status of the sample and cost of testing.

<https://vetview.cvm.missouri.edu>

