To improve the ease of after-hours sample submission, the VMDL has recently stopped using the out-of-state answering service for after-hours calls. Currently, a veterinary student assigned to emergency duty and a pathology resident carry the phones. When you call 800-822-8635 or 573-882-6811 on evenings, weekends or holidays, you will hear the following message:

“Thank you for calling the Veterinary Medical Diagnostic Lab. If you are calling during regular business hours, Monday through Friday between 8 a.m. to 5 p.m., please leave a message and we will return your call as soon as possible. If you are seeking assistance after hours to bring in an animal carcass or samples for diagnostic testing, please call 573-864-7160 for the on-call student. If the on-call student is unavailable, please dial 573-808-5658. If you need assistance with a live animal, the Veterinary Health Center may be reached at 573-882-4589.”

In the current arrangement, two students rotating through the VMDL are assigned to emergency after-hours duty, one with a phone and one without. Both students may come to the lab to receive carcasses or samples.

It is our hope that this arrangement will improve clients’ experience and students’ learning experience. As always, your feedback is highly appreciated.

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

Did you see us at the MVMA Conference?
The 125th MVMA Conference took place in Columbia, Missouri this January. Several VMDL faculty members were able to attend and be on hand at the VMDL booth. Two of our faculty members, Marlyn Whitney and Angela Royal, also provided lecture and lab sessions on hematology and cytology.
Quality begins with you, the client. Everyone has heard the phrase popularized by the advent of the computer age: “Garbage in, garbage out.” This basic concept applies to diagnostic laboratory work as well. Proper sample collection, transport and submission all play a critical role in the quality of laboratory results provided by the VMDL.

Proper sample collection includes a number of different factors, such as the correct sample type for the test ordered and utilizing the correct type of container. For example, many blood collection tubes have a variety of additives, such as anti-coagulants, to preserve the sample. The additives are specific for various types of tests. Specimens collected for isolation and identification of infectious agents need to be collected as aseptically as possible, placed in a sterile container, and transported as rapidly as possible under refrigeration (ice packs). Note that containers with additives, such as transport media for cultures and blood tubes with anticoagulants, do have expiration dates. Be sure to use containers that are within date.

For optimal results, always consider the stability of the specimen and the recommended storage and transport temperatures. As we approach spring and summer, remember that dead animals and tissues decompose rapidly, especially if left at room temperature or in warmer conditions. Many infectious agents and other analytes to be tested are only stable for a short period of time unless the specimen is refrigerated, frozen or otherwise preserved. Specimens clearly labeled with indelible ink allow accurate identification of your specimens when they arrive. If you are shipping specimens with formalin or other liquid, take extra care to tightly close the containers to prevent leakage. Please consult the VMDL Summary List of Services and Fees for specific details about the collection and preparation of specimens.

Clearly mark the requested tests on the submission form and provide detailed animal histories in order to help facilitate accurate diagnoses. Be sure your contact information is current so that we can communicate with you regarding any questions that may arise about the case. Fillable submission forms are available on the VMDL website to speed the process of completing the submission forms.

Taking time to provide the best samples possible is a worthwhile investment for your patients and can change the old paradigm from “Garbage in, garbage out” to “Quality in, quality out.”

Toxicology Reminders

Lilies and Cats Don’t Mix
As cut flower arrangements start ushering in spring, remember that *Lilium* and *Hemerocallis spp* (lilies including Easter lilies, stargazer lilies, daylilies, tiger lilies, and others) are highly toxic for cats. Ingestion of even small quantities of these plants, inadvertent consumption of their pollen, or consumption of water from their vases can result in acute kidney injury and potentially death. Calla lilies, Peruvian lilies, and peace lilies are from different genera and are not nephrotoxic. Peace lilies and calla lilies do, however, contain insoluble oxalates that can cause oral mucosal irritation and in some cases mild gastrointestinal upset. Please remind your clients that if they have cats in the house, it is safest to stay lily-free.

Arsenic Poisoning
Arsenic poisoning may first bring to mind murder mysteries, but there is a potential source of arsenic you may find on your own land. CCA (chromated copper arsenate) treated lumber does, as the term implies, contain arsenic. It seems harmless enough as our domestic animals are unlikely to eat this material, but burning CCA-treated lumber can liberate enough arsenic in smoke and in the ash produced to cause livestock deaths or poisoning in people! Please keep this in mind if disposing of old lumber is part of your spring-cleaning plans.
NEWS BRIEFS

New Test Offering – Phenobarbital
The VMDL’s Clinical Pathology Laboratory recently acquired a new instrument allowing for expanded testing capabilities. Phenobarbital level will soon be added to our in-house testing menu. This test requires 0.5 mL of serum, and the cost will be $25. Samples received by 4 p.m. Monday through Friday will be resulted the same day.

Updates to CBC Reports
Our small animal CBCs will soon have a few new values reported. In addition to the reticulocyte percentage, we will provide the absolute reticulocyte concentration. That’s one less calculation for you to do! We will also provide the RDW, MPV, and PCT. Reference intervals for these values are prepared for canine samples; however, we are still in the process of creating reference intervals for other species.

- RDW stands for red blood cell distribution width. This is a numeric value representing the degree of RBC anisocytosis present.
- MPV stands for mean platelet volume. Just like MCV in terms of erythrocytes, the MPV reflects the average size of platelets. Platelet clumping will affect the MPV, and as such we do not recommend interpretation of the MPV when platelet clumping is noted.
- PCT stands for the plateletcrit. Similar to the more common hematocrit on CBCs, plateletcrit represents the average circulating mass of platelets in a set amount of blood. PCT is sometimes a more useful marker than platelet concentration, particularly in animals with significant numbers of giant platelets (for example, a Cavalier King Charles Spaniel with hereditary macrothrombocytopenia). Platelet clumping will adversely affect the PCT.

Refined Reference Intervals
We are in the process of gathering samples from healthy animals to refine our hematology, chemistry, coagulation, and endocrine reference intervals. Our new and improved canine reference intervals will show up on your reports soon. Feline, equine and bovine reference intervals will follow once we accrue enough data.

Microbiology Lab Reminder
Pradofloxacin has been added to our small animal gram-positive and gram-negative antimicrobial susceptibility trays.

Convenient Testing Panels
The VMDL offers a variety of different test panel options for your convenience, such as the abortion panel and food animal diarrhea panel. To find out if either of these panels is of value to you, here is more information on what they include:

Abortion Panel
Abortions are cause for great concern to cattle producers and veterinarians. The aborted calf represents loss of production from that cow for the year and likely culling from the herd. The overall costs include the loss of the calf and cost of replacement of the cow.

It is important to determine whether the abortion is a result of an infectious pathogen. The VMDL offers an abortion panel that includes testing for pathogenic leptospira, IBR, BVD type 1 and 2, bacterial culture, and histopathological examination in fetal tissue. Tissues are screened for lesions of Neospora caninum by histopathology and immunohistochemistry is used for positive diagnosis.

Send the whole fetus or submit chilled fresh and fixed tissues that include brain, lung, liver, kidney, heart, skeletal muscle, spleen and placenta. The head may be submitted and we can remove the brain here. If available, body cavity fluids and abomasal fluid should be collected in red top tubes. Up to three fetuses from the same outbreak may be submitted on one accession at one time. While fetal necropsies are important in working up abortion cases, the cause is identified in only approximately 30 percent of cases. This indicates the importance of also examining the farm, herd, management procedures, and production records.
The same strategy is available for working up abortions in pigs, sheep and goats. Besides the bacterial culture and histopathology, routine PCR assays for pig abortions include PRRS virus, circovirus, and pathogenic leptospira. Sheep and goats are assayed for Chlamydophila (Chlamydia) psittaci, Toxoplasma gondii, and pathogenic leptospira.

Food Animal Diarrhea Panel

The spring calving season is just beginning. Farrowing is also in progress. Scours in young cattle and pigs can be a tedious and expensive problem for some of your clientele. The food animal diarrhea panel is offered as a quick, efficient approach to assessing for the common bacterial, viral and parasitic causes of diarrhea in these patients. Even negative results are helpful in ruling out some of these conditions. Freshly collected fecal samples or tissues from up to three animals may be submitted.

Testing fecal samples provides the opportunity to acquire data on animals that are affected, but surviving. The samples are aerobically cultured individually. Because of the nature of the sample, there is usually mixed bacterial growth. Heavy growth of E. coli; however, is suggestive that the particular isolate may be the cause. The K99 E. coli isolates from calves are smooth and nonhemolytic. The K88 isolates from pigs are hemolytic. Not every E. coli isolate with these characteristics bear either of these antigens. We report the colonial characteristics but do not currently assay the specific antigens. The isolates can be sent for further work-up at an outside laboratory for an extra fee if requested. The isolation of Salmonella sp. is indicative of its involvement in the enteric problem. Salmonella sp. isolates are grouped here. They are later routinely sent to NVSL for serotyping.

Fecal samples are also pooled and assayed using PCR techniques to detect enteric viruses. Assays are run for BVD virus, rotavirus, and coronavirus in calves. For pigs, assays for TGE, PEDV, Swine Delta coronavirus, and rotavirus are performed.

Depending on the age of the host, bovine fecal samples are checked for cryptosporidia. Flotation preparations are also examined for coccidia.

Tissues from diarrheic animals that have succumbed to the disease are worked up for a slightly higher fee. We hope the producer will not reach the point of excessive death loss but whole bodies or a combination of fecal samples and tissues from up to three animals can be submitted. The tissues provide additional sites for bacterial culture and PCR assay with possibly less contamination than afforded by the fecal samples. The same battery of tests listed above are applied in addition to microscopic examination of tissues.

This scheme can also be used for diarrhea work-ups in lambs and goat kids. Results are reported as they become available. Telephone inquiries for results or consultation are welcome.