



Wyoming State Veterinary Laboratory Newsletter Vol 1(#3):2000
Wyoming State Veterinary Laboratory
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University of Wyoming

WSVL NEWS

Message from the Director:

I hope this letter finds you well. The American Association of Veterinary Laboratory Diagnosticians (AAVLD) recently re-accredited the Wyoming State Veterinary Laboratory as a full service diagnostic laboratory for all species of animals. This action resulted from a regular 5-year review that is conducted on all accredited veterinary diagnostic laboratories. The review consisted of a written self-evaluation, followed by a site visit by the directors of 3 other laboratories. The site visitors reviewed all laboratory operations, including Quality Assurance/Quality Control measures, staffing, budgeting, caseload, and client communications. In addition, they met with upper administration from the University and members of the WSVL Advisory Council. Accreditation by the AAVLD provides a measure of the WSVL abilities and provides assurance of our ability to provide a full diagnostic laboratory service. Thank you to all participants in this review. With the accreditation, the site visitors also made 3 major recommendations to assure the WSVL's future success. Those suggestions include establishing a plan to provide for continuous funds to replace or add equipment, address the need for 4 full time employees to meet mission-critical needs, and continue to develop and implement quality control measures to meet international criteria.

We are continuing to implement the Laboratory Information Management System (LIMS). As many have noted, the new system generates a lot of paper. Although the problem isn't completely resolved, measures have been taken to minimize the impacts. For example, EIA test reports, which go out on Federal forms anyway, are no longer duplicated. The current report consists of case information, the results, and an invoice. Client identification has been added to each page, so results can be filed without cover sheets and invoices. Many clients need the invoice estimate with reports to help them determine their own billing. Thus, that feature was left alone. We are also working to develop alternate methods of reporting. An email protocol will allow reports to be emailed. In addition, a developmental project is underway to determine if reports can be made available via the Web under a special password to protect client privacy. Please send suggestions to us as we work through the implementation of our LIMS system.

Dr. Hana Van Campen (virology) is leaving for another opportunity. The University approved our request to fill her post. Thus, a search is underway. Although we will miss Hana, the virology laboratory is in capable hands. Jackie Cavender will continue to provide technical service and Dr. Todd Cornish will oversee cases. Dr. Ken Mills will supervise the serology and Electron Microscopy sections, with

technical efforts of Joan Edwards and Carol Hearne.

In other news, you have asked us to develop serology testing for *Brucella ovis* and immunohistochemistry screens of skin biopsies for BVDV in cattle. Both tests were developed and are now available (detailed below). Also in this letter is a description of a policy change for billing on histology biopsies. A cap of \$30 per tissue has been established for cases that involve histology alone. The goal of this policy change is to help veterinarians predict what to bill their clients for a biopsy.

On a sad note, we just learned that Dr. Rue Jensen recently passed away. Dr. Jensen was a fixture of WSVL and had many friends in Wyoming. His impact is still felt here via the Jensen Scholarship, which helps support Wyoming students interested in pursuing a veterinary career. We are continuing to seek support to enhance that worthy cause.

Thank you again for your support. Your input is appreciated. Please let us know about how we can improve service, new tests that may be useful, or other related issues. Call, send an email, write, or visit us anytime! Have a Happy Holiday Season from all of us at the WSVL.

Frank Galey DVM, PhD, Diplomate ABVT, Director, Wyoming State Veterinary Laboratory

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Skin biopsy immunohistochemistry for BVDV diagnosis

Identification of cattle persistently infected (PI) with bovine viral diarrhea virus (BVDV) is currently based on an enzyme-linked immunosorbent assay (BVD ELISA) or classical virus isolation. A few laboratories also use a polymerase chain reaction (PCR) assay.

Immunohistochemistry (IHC) on formalin-fixed biopsied skin recently emerged as a potentially useful method to detect PI animals. Skin is biopsied from live animals using ear notches, 8-mm punch biopsies, or brisket punch samples. Samples are conventionally fixed in 10 % neutral buffered formalin, treated with a BVDV-specific monoclonal antibody followed by a color reaction, and examined by a pathologist. Viral antigen, if present, is detected in keratinocytes in epidermis and/or hair follicles, and to a lesser extent in other cell types. IHC has advantages of rapid turn-around and lower cost compared to classical virus isolation. IHC is comparable in turn around time and cost to the BVD ELISA.

We now offer the IHC test on formalin-fixed skin for the identification of BVDV-infected cattle. Each glass slide can handle skin samples from up to 5 animals. The cost is therefore on a per slide basis; the charge is \$15 to examine skin from 1 - 5 animals. If you anticipate sending a large consignment (>50 samples), please contact Dr. Galey about bulk pricing. It is important that care is taken in identifying each sample by ear tag. Samples must be free of crush and freezing artifact. If you send samples on very cold days, please add 95% alcohol to fixative at a ratio of 1:5, to reduce the chance of solutions freezing

in transit.

Questions about the use of this technique can be directed to a WSVL pathologist.

Donal O'Toole, MVB, MRCVS, PhD, FRCPath, Dipl. ECVP. Dr O'Toole is a diagnostic pathologist with the WSVL. Dr. O'Toole is interested in malignant catarrhal fever in Bison and domestic animals. He has also developed a niche in tumor biopsy diagnosis.

Email: dot@uwyo.edu

The WSVL offers ELISA testing for Brucella ovis serology

The WSVL has recently begun to offer the ELISA for Brucella ovis serology on rams. The best sample is clean sera submitted in a red top tube. Bangs tubes or blood submitted on the clot can cause problems. We run a negative, weak positive and medium positive each time the assay is done. Samples are reported as negative if the duplicate well reading is less than the weak positive. Suspects are samples that fall above the weak positive but less than the medium positive. Animals that give an ELISA reading above the medium positive will be reported as positive. The cost is \$4 per sample. Please notify the laboratory if you wish to submit a large number of samples.

Ken Mills, MS, PhD. Dr. Mills is the Diagnostic Bacteriologist for WSVL with interests in developing new diagnostic tests for bacterial diseases and the spread of skunk-type rabies in Wyoming. Email: KMills@uwyo.edu

Biopsy charges to be capped

Histopathology (biopsy) charges are based upon the number of slides cut for each case. One to three slides are charged at \$18, and there is an extra charge of \$2 per slide for each additional slide. Single, small biopsies generally require one to three slides, resulting in the base price of \$18. In cases where large single samples (requiring examination of margins) or multiple samples are submitted, charges may be higher (to a maximum capped charge of \$30). It is hoped that capping charges for biopsies at \$30 will allow practitioners to plan their own billing for this service.

If you have questions about histopathology charges, please feel free to contact one of the pathologists or the Director of the lab, Dr. Galey.

Amy Boerger-Fields Honored by the College of Agriculture

The WSVL Laboratory Manager for the bacteriology and rabies service, Amy Boerger-Fields, was

presented the Outstanding Professional Staff award by the College of Agriculture in a November ceremony. Among many comments, Amy was cited for being a "Hard worker, dedicated, with a perennially cheerful attitude, a "can do it" approach, always professional, innately tranquil, patient, perseveres, solid, reliable, bright intellect, sharp wit, and serves as the social glue for her department." Congratulations to Amy and "Thank you" from all of us as well. Please join us in congratulating Amy if you get a chance.

Recent Cases and Trends

Cattle:

Seven bulls, all from Fremont County, tested positive for trichomoniasis this fall in this laboratory.

A calf born this year in the WSVL's small herd of Salers developed hemochromatosis (liver failure from dietary uptake of iron). Calves develop chronic weight loss, loss of incisors, and liver failure between 9 - 24 months of age. The syndrome can be detected shortly after birth by blood testing and liver biopsy. A collaborative study, involving veterinarians in Wyoming, Montana, Utah, and Colorado, about the disease and its inheritance is accepted for publication (O'Toole et al.: Hepatic failure and hemochromatosis of Salers and Salers-cross cattle. Vet Pathol, 2001). Please contact Dr. O'Toole if you suspect this case in your Salers.

The WSVL has recently diagnosed 2 cases each of TEME (*Haemophilus somnus*) and coccidiosis in cattle from Wyoming.

Small ruminants:

Scrapie was diagnosed in a flock of sheep from Wheatland.

Small Companion Animals:

Chlamydiosis was identified by fluorescent antibody testing in a cat from Gillette. The animal originated from a multi-cat household. Gross and histologic lesions of FIP were also present. Thus, the patient may also have had FIP. An attempt to isolate Chlamydia is underway.

Mast cell tumors have been identified in several young Shar pei dogs, most recently a Grade 3 tumor from a 2 year old dog.

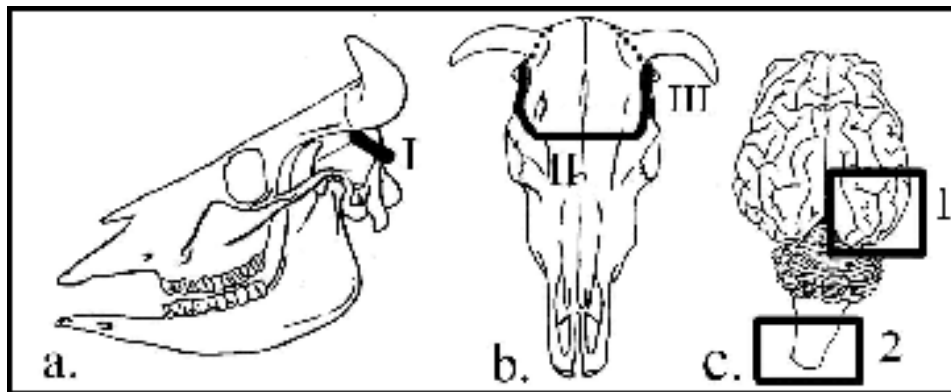
An unusual splenic histiocytic tumor was diagnosed in a Golden Retriever.

Wildlife:

A skunk from Sweetwater County was diagnosed with skunk-origin rabies virus. This is the first report of the more aggressive strain of virus (in the skunk population), which is endemic in the Northern drainages, West of the Continental Divide. A skunk from Teton County and a squirrel from Laramie County were also diagnosed with rabies. However, both of those cases involved bat-origin virus and not the more aggressive skunk-origin virus.

Sampling Brains Postmortem or "The ABC's of Brain Removal"

Brains are fragile organs and should be treated as such. From time to time our laboratory receives brains for evaluation that are macerated, crushed, badly fixed, or improperly sampled. Described below are instructions for when and how to take out a brain, and how to sample it for microbiology and pathology. An important point to remember is that brains, unlike many organs, cannot be randomly sampled. Many diseases of the brain affect specific areas. The best sample to send us is an intact brain so that it can be properly and comprehensively sampled.



- a.) Make two cleaver cuts (I) at the BACK of the skull above each occipital condyle.
- b.) Make a third cut (II) at the FRONT of the cranial vault along a line connecting the lateral (temporal) part of the eye sockets or lateral canthus of each eye. Two layers of bone here form the roof and floor of the frontal sinus, and you have some margin for error with the top layer. The two final cuts (III) are made at the LATERAL sides of the skullcap, through the frontal and parietal bones, ventral to the horns (in cattle). If the horns are big and in the way, saw them off first.
- c.) In most instances, samples for microbiology require a swab of meninges between cerebellum and occipital poles (arrowhead), and a wedge of tissue from one cerebral pole (1). If you suspect rabies, listeriosis, or other diseases localized to brainstem, sample the most posterior part of medulla oblongata (caudal to fourth ventricle) for microbiology (2). Submit the rest of the brain intact for histopathology.

Copies of newsletters, more details on brain removal, and information related to WSVL will be posted on our new Web site, which will be available soon. That address will be provided in the next issue of WSVL

News.

[Return to Archives](#)