

Wyoming State Veterinary Laboratory Newsletter – May 2011

University of Wyoming

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Website Reports

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Laboratories or Faculty (307 + 766 + # below)

| | |
|---------------------|--------------|
| Sample Receiving | 9921 |
| Virology Lab | 9933 |
| Bacteriology Lab | 9930 |
| Parasitology Lab | 9958 |
| Toxicology Lab | 9961 or 9962 |
| Clinical Path Lab | 9958 |
| EM Lab | 9948 |
| Regulatory Serology | 9924 |
| Diagnostic Serology | 9950 |
| Necropsy Office | 9920 |
| Dr. Merl Raisbeck | 9963 |
| Dr. Chaoqun Yao | 9959 |
| Dr. Ken Mills | 9932 |
| Dr. Jonathan Fox | 9953 |
| Dr. Myrna Miller | 9934 |
| Dr. Don Montgomery | 9929 |
| Dr. Todd Cornish | 9967 |
| Dr. Donal O'Toole | 9976 |
| Dr. Charles Stith | 9939 |
| Dr. Gerry Andrews | 3139 |
| Dr. Hermann Schätzl | 6605 |
| Dean Frank Galey | 4133 |

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MESSAGE FROM THE DIRECTOR

Quite a lot has happened at the WSVL since the last Newsletter was prepared and sent. Please note new phone numbers for the lab in the column on the left. I apologize for this long hiatus but will use this column to provide an update.

Personnel

When it comes to resources, personnel are our most valuable asset. As you all know, the entire front office staff retired during this past year. Although we will miss Beth, Barb and Louise, life will go on. I am happy to introduce our new employees. Marjorie Jaeger replaces Beth Howell as the main administrative and business go-to person for the department. Marjorie has held progressively responsible positions with the University at both the departmental and college levels and we are certainly proud to have attracted her to this position. Tammy Jones replaces Barb Garret as the main staff member responsible for creating accessions, billing and accounts receivable, and serving as the primary receptionist for the new receiving area created by new construction. She also brings many years of University experience to this position. Lastly, Veronica Giustino, replacing Louise Smithson, will serve as the main receptionist for the administrative offices and will assist Marjorie in all of the many necessary duties of a busy academic department and diagnostic laboratory. Veronica will also fill the shoes of Tammy as needed. To accomplish this, Veronica's position has been up-graded from one-half to full-time. I hope you will welcome these new employees as opportunities arise.

We also have a new faculty member. Epidemiologist Dr. Brant Shumaker joined the department in November 2010 following

completion of his PhD at the University of California, Davis. Dr. Shumaker has already been busy studying disease outbreaks in Wyoming (see article on canine distemper) and will contribute to research efforts for diseases of importance to Wyoming such as brucellosis and trichomoniasis.

As some of you have heard, I will be stepping down as department head and laboratory director this August and return to full-time service as a pathologist for the WSVL. A search is currently in progress to fill this administrative position. I hope I have left the department and laboratory in at least as good a position as when I started as administrator four years ago.

Facilities

New laboratory facilities and renovations were completed in late 2010 and early 2011. Through a state legislative appropriation, we are now ordering equipment for the BSL-3 laboratory suite in preparation for our efforts to receive CDC approval to operate this laboratory to its full capability. Samples for the WSVL will now be received on the south side of the building.

A major change to the facility is increased security. Currently, the only public access to the building is via the main office and conference room on the north and the receiving area on the south. All laboratory testing areas are within a secure envelope requiring card-access. If you visit the lab, and you are certainly welcome, please come to one of these two public areas.

Laboratory Information Management System (LIMS)

Most of you will have noticed a dramatic change in the appearance of your diagnostic reports beginning with cases submitted after January 1, coinciding with our conversion from VisuaLab to LIMsPro. You may also have noticed some glitches as we continued to make modifications and lab personnel learned the new system. We continue to develop LIMsPro for our use and I

believe most of us now have at least a modicum of comfort with LIMsPro. This conversion to a new platform was necessitated by lack of computer support for VisuaLab but I believe it will be a good system for WSVL as development continues.

LIMsPro has two features that I hope you will take advantage of. First, the system allows automatic reporting via email. In fact, due to a number of issues with sending reports via FAX, including you not receiving them (which we are trying to address as problems arise), email is our preferred way of sending preliminary and final reports. If you have an email address, please give emailing of reports a try. Mark Davidson (307-766-9965, anthrax@uwyo.edu) can set this up for you. The WSVL may need to add a nominal FAX charge to help cover the cost of faxing reports in the future.

Another feature is web-based access to your WSVL reports. This is something that several of you requested and I'm happy that this is now available. The Web address is:

<http://limsproweb.uwyo.edu/wsvl.html>

Again, you will need to contact Mark Davidson to help set this up. This is also a work in progress and will be up-dated as needed.

Regulatory Serology Testing

There are legal requirements surrounding most of the testing done in Regulatory Serology. Apart from being trained and proficiency tested, the WSVL and Staff of this section must comply with certain rules that must be followed to the letter for us to be approved to offer these tests. Although we have tried to be accommodating to the extent possible, one rule must be followed. NOTE: we must have the official, complete and appropriately filled out forms in order to begin testing. This can either be the original forms or copies thereof but, no bones about it, the rules specifically state that no testing will begin without the official forms. Noncompliance could result in our not being able to offer these tests. You and your clients must plan

ahead and get the forms and blood samples to the lab well ahead of the needed date.

As you know, the Wyoming Livestock Board will reimburse you and your clients for supplies and brucellosis testing of cattle originating from the Designated Surveillance Area (DSA) in northwest areas of the state. This includes producers that use land in the surveillance area for summer grazing. When submitting samples from cattle in the DSA, please note this on the submission. Otherwise, a charge may erroneously be entered. If this happens, please notify the laboratory.

In closing, I would just like to say that it has been rewarding and enjoyable to serve the State, the WSVL, and you, our clients, in an administrative capacity. It has been a great opportunity. I do, however, look forward to continuing this service by returning to the lab as a diagnostic pathologist.

Don Montgomery, Director
Soon to be an honest pathologist again!

INTERESTING CASES FROM WSVL AND OTHER TIDBITS

An outbreak of canine distemper originating in a large-scale canine breeding facility

In September, 2010 WSVL began receiving an increased number of canine distemper virus (CDV) cases clustered in southeast and central Wyoming. Diagnosis of infection was made by fluorescent antibody or polymerase chain reaction from conjunctival smears ante-mortem or by necropsy and associated laboratory tests postmortem. WSVL pathologists contacted state veterinarian Dr. Jim Logan to report a possible disease outbreak.

By the end of the outbreak in October, samples from 24 CDV-positive dogs were submitted to

WSVL from veterinary clinics in Laramie, Cheyenne, Douglas, and Casper. All puppies were between 8-14 weeks of age. Of 11 puppies with case histories submitted, respiratory signs (coughing, oculonasal discharge) were observed in 8, GI signs (vomiting, diarrhea) were observed in 6, and CNS signs (seizures or tremors) were observed in 8.

All cases originated in two pet stores in Casper and Cheyenne with the same owner. The outbreak was traced to a large canine breeding facility in Kansas. There were many biosecurity failures at the breeding facility, including overcrowding of animals, exposure to wildlife (which can harbor CDV), inappropriate isolation and quarantine procedures, and a lack of breeding, veterinary, and vaccination records. The facility was quarantined by the state of Kansas. Over 1400 dogs were euthanized by the Kansas Animal Health Department due to the inability of the breeder to care for this number of dogs while under quarantine. This case highlights the need for appropriate biosecurity at breeding facilities and pet stores, and for veterinarians to be aware of CDV as a potential diagnosis for any unvaccinated dog. A manuscript documenting the episode has been submitted to JAVMA. We thank the veterinarians in the four affected towns for help investigating the episode.

Brant Shumaker, Epidemiologist
Myrna Miller, Virologist
Donal O'Toole, Pathologist
Todd Cornish, Pathologist

Abortion due to BoHV-1 following vaccination with MLV multivalent vaccines

Drs. Hana Van Campen (Colorado State University) and Donal O'Toole published a letter in JAVMA last August on the risks of using vaccines containing modified live virus (MLV) BoHV-1 in pregnant cattle, particular heifers. Since then we continued to see abortions 1 – 3

months after pregnant heifers were vaccinated with MLV BoHV-1 (Table 1).

Table 1. BoHV-1 abortions, WSVL 2005 – 2011

| Year | Location | Label Use | FA | VI |
|------|--------------|-----------|----|----------|
| 2005 | Afton | ? | + | Negative |
| 2005 | Torrington | ? | + | Negative |
| 2005 | Torrington | ? | + | BoHV-1 |
| 2007 | Powell | ? | + | Negative |
| 2007 | Meeteetse | ? | + | Negative |
| 2007 | Fort Bridger | ? | + | BoHV-1 |
| 2009 | Cheyenne | ? | + | BoHV-1 |
| 2010 | Thermopolis | Yes | + | Negative |
| 2010 | Pine Bluffs | ? | + | Negative |
| 2010 | Cheyenne | ? | + | Negative |
| 2010 | Uinta | Unsure | + | BoHV-1 |
| 2010 | Laramie | Yes | + | BoHV-1 |
| 2010 | SW CO | Unsure | + | Negative |
| 2011 | Buffalo | No | + | BoHV-1 |
| 2011 | Wheatland | No | + | Negative |

FA = fluorescent antibody test
VI = virus isolation

Practices selling MLV vaccines intended for use during pregnancy should ensure that clients wishing to use BoHV-1 products labeled for fetal protection follow label directions exactly. Otherwise abortions may occur. Clients may be out of luck seeking compensation, as this constitutes off-label vaccine use.

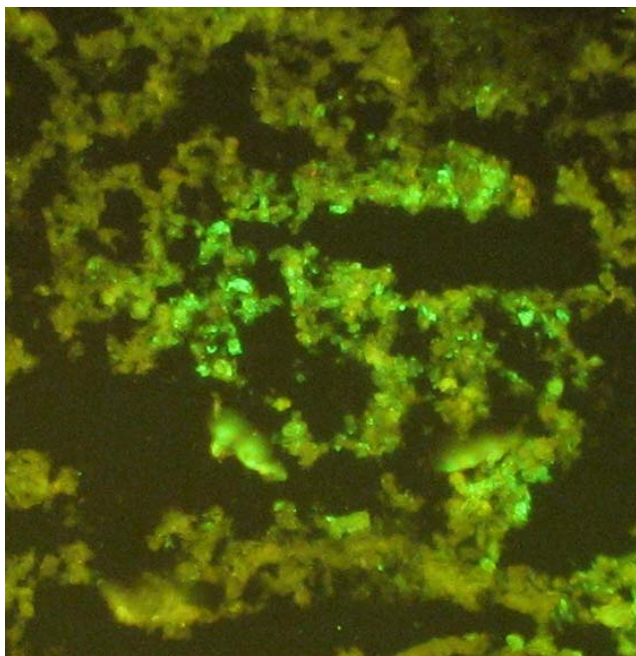


Figure 1. FA-positive staining for BoHV-1 in the lung of a bovine fetus.

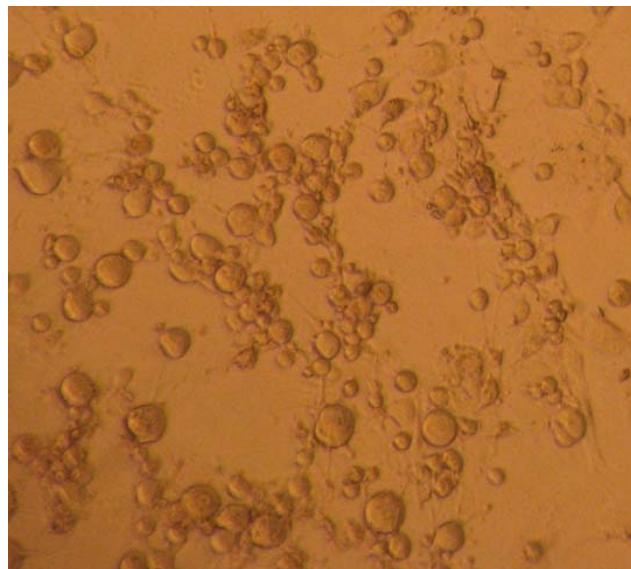


Figure 2. Cytopathic effect (rounding and dispersion of cells) in bovine embryonic testicle cells due to BoHV-1 recovered from fetal calf tissues.

The laboratory is interested in episodes of suspected BoHV-1 abortion, particularly post-vaccination. If you have suspect cases, don't hesitate to contact us.

D O'Toole, Pathologist
M Miller, Virologist
J Cavender, Virology

A Case Report on Liver Flukes in Wyoming

A cattle herd in Sublette County, Wyoming was found positive with liver flukes. In late January, two steers were slaughtered in a meat plant in Hudson, Wyoming and their livers were condemned due to liver flukes. There were 150 cows and 65 heifers in the herd. In February, five fecal samples were submitted to WSVL, four of them were found positive with *Fasciola* spp. eggs (Fig. 3). They are tentatively identified as *F. hepatica* eggs considering adult flukes in the condemned livers of the steers from the same herd.

The owner brought in some calves in 2006 from Montana. She might have introduced liver fluke, *F. hepatica*, to her herd unconsciously by doing so since the parasite is endemic in part of Montana.



Figure 3. A *Fasciola spp.* found in one of the four animals.

At present no information is available on whether or not she got her calves from the endemic region. Liver flukes were reported in cattle or sheep in 26 of Montana's 56 counties with 17.24% of cattle livers condemned in one year period of time in 29 meat-packing plants between July 1, 1989 and June 30, 1990 (Knapp SE et al., 1992). On the other hand, it is possible that liver flukes have been endemic in the area where this positive herd is located. The parasite had been recorded in cattle slaughtered in Lander, Worland, Torrington and Laramie in 1988. Among 208 animals examined between January and December, 9 were infected with *F. hepatica* between September and January, which was 4.3% annual prevalence (Malczewski A et al., 1996). Although a bigger picture of its epidemiological status in the state is lacking, it is believed by word of mouth this disease is more prevalent in Wyoming than most people believe. The owner of this positive herd runs her cattle on a very wet pasture in summer and fall every year. There might be snails serving as the intermediated hosts of the parasite, so the parasite is maintained endemic in that pasture. Animals of her herd are infected by grazing on the pasture. This scenario needs to be confirmed by a field study of the pasture and the herd.

Antemortem diagnosis of liver fluke infections of cattle can be made by finding eggs in feces.

The egg is thin-shelled, oval in shape and brown-yellow in color with an operculum at one end (not always visible) and a small appendage at the opposite end (See photo). Sedimentation techniques or Flukefinder® is preferred to flotation methods. Postmortem diagnosis is made by finding adults in the liver. These flukes are leaf-shaped, grey-brown in color and are 2.5-3.5 × 1.0 cm in size. They have an anterior cone sitting on shoulders.

Liver fluke diseases can be treated by Clorsulon alone such as Curatrem or in a combination with ivermectin as Ivomec Plus. However, the dosage level (2 mg/kg) of Clorsulon supplied by the latter is effective only against adult liver flukes. The dosage and effectiveness of anti-liver fluke regimens are shown in the Table 2. Control of liver fluke infections in cattle can be approached in three ways, by reducing populations of intermediate snail hosts, by reducing contamination of pasture by anthelmintic treatment of infected cattle and by avoiding grazing on contaminated pasture. Snail control can be achieved by draining swamps or applying molluscicides on the snail-infested water. However, this may be impractical and ineffective under many conditions. Cattle can be treated in spring before their grazing on pasture with anthelmintics effective for adult worms to reduce risks of pasture contamination, or treated in fall with anthelmintics effective for immature stage to minimize the liver damage from migration. Portion of the contaminated pasture can be fenced off. Alternatively, rotating pasture for grazing to avoid contaminated pasture.

Table 2. Anti-liver fluke treatment regimens and effectiveness.

| Drug | Bile duct Adults | Bile duct Immature | Parenchyma Migratory |
|--|------------------|--------------------|----------------------|
| Clorsulon 7mg/kg | >99% | 96% | - |
| Albendazole 10mg/kg | 75-90% | 33% | - |
| Triclabendazole 10mg/kg Available worldwide, not USA | >99% | >99% | >90% |

Refereneces

Knapp, SE et al., 1992. Epizootiology of fascioliasis in Montana. *Vet Parasitol* 42: 241-46.

Malczewski A et al., 1996. Prevalence and epidemiology of trichostrongylids in Wyoming cattle with consideration of the inhibited development of *Ostertagia ostertagi*. *Vet Parasitol* 64:285-97.

Taylor MA, Coop RL and Wall RL. *Veterinary Parasitology*. 3rd edition. 874 pp.

Chaoqun Yao, Parasitologist

FROM THE WYOMING DEPARTMENT OF HEALTH

Why Veterinarians Should be Aware of Animal Decontamination Procedures and Protocols

Animal decontamination is defined as the removal of a substance or substances from an animal to prevent the occurrence of adverse health effects to the animal or to people exposed to the animal.

Decontamination of animals could be important after an animal's exposure to a variety of substances. In today's society, substances of concern include those released from Chemical, Biological, Radiological, Nuclear, or Explosive (CBRNE) incidents. For example, there would likely be a need to decontaminate animals exposed to radiological fallout after a nuclear disaster including those allowed to be evacuated or sheltered with their owners.

During the response to hurricane Katrina, pet owners refused to be evacuated or taken to shelters without their pets. This led to passage of the Pets Evacuation and Transportation Standards Act of 2006 (PETS Act) requiring state and local emergency preparedness operational plans take into account the needs of

individuals with household pets and service animals before, during and after a disaster.

Because of the Pets Act, veterinarians may be contacted to assist local emergency responders with animal decontamination efforts. On June 17, 2011, there will be a one-day free training on animal decontamination in Jackson, Wyoming. This class will be in conjunction with the Jackson Hole Veterinary Rendezvous (JHVR) that takes place in Jackson from June 17-22, 2011.

Information about the Animal Decontamination Training and JHVR is at <http://jhvr.org/topics.htm> or call 307-777-5825 for more information.

Karl Musgrave, DVM, MPH
State Public Health Veterinarian
karl.musgrave@health.wyo.gov

THE WYOMING LIVESTOCK BOARD

The State of Wyoming fared better this year in its application for approved positions in the Veterinary Medical Loan Repayment Program (VMLRP). Information regarding the VMLRP, positions approved for Wyoming, and how other states fared can be viewed through the link provided on the WSVL website:

<http://wyovet.uwyo.edu/>

I assume, but don't know for a fact, that this will be contingent on availability of funding for the VMLRP. This program, however, has considerable support.

Thanks to former State Veterinarian Dr. Walt Cook, currently brucellosis coordinator for the college, Dr. Jim Logan, his staff at the WLSB, and all others who contributed to this success. Considerable thought and effort went into the application.

Don Montgomery, Director