

# Wyoming State Veterinary Laboratory Newsletter – June 2010

## University of Wyoming

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## MESSAGE FROM THE DIRECTOR

Some say that life is about change and we will certainly be experiencing life to the fullest in the next several months. Alternatively, people resist change; I hope that we can survive the stress. The new addition is almost complete and phase 2 renovations to the existing building will start some time in July. This summer there will be some important changes that you should make note of.

## Faculty and Staff Changes

First, the best news in a long time is that Dr. Myrna Miller began work as the new virologist on May 28. Myrna received her DVM from Colorado State University and her PhD from Cornell. Most recently, Myrna worked for the USDA-ARS Arthropod Borne Animal Diseases Research Laboratory (ABADRL). It is our good fortune that Dr. Miller chose to remain in Laramie rather than accompany the ABADRL move to Kansas. Myrna has hit the ground running and will be a great asset for the WSVL.

With the imminent completion of the BSL-3 Laboratory, we have hired Dr. Charlie Stith to fill a newly created position of Biosafety / Biocontainment Manager. Charlie received his DVM from Kansas State University and earned a PhD from the University of Wyoming. Charlie has had training and experience in BSL-3 Laboratory operations and will be invaluable as we work to attain CDC certification for the new facility.

Our top candidate for the Epidemiologist position will have a return visit the weekend of June 19 to introduce his new wife to Laramie. We are optimistic that he will accept the position with a start date of late fall or early winter 2010.

There will be new faces and voices in the administrative office later during the summer. Barb Garrett and Louise Smithson will be retiring in June after many years of service to the University, Department of Veterinary Sciences, and the WSVL. They will certainly be missed and we wish them the best. We are in the process of filling both positions as soon as possible. There will be some lapses as we try to maintain the administrative office with only 1 person, Beth Howell. I hope you will remain patient as we try to fill both positions this summer.

### **New Telephone System**

Although some strong-arm tactics were employed to convince us to change, we will be converting to a new 'University' telephone system to coincide with opening of the new addition in late June or early July. Everyone, not just some of us, will have new telephone numbers when this conversion takes place. Although we hope to minimize down time, there may be a short period during the conversion when you will experience difficulty in accessing us by telephone. Again, we request your patience. As soon as new telephone numbers have been established, these will be posted on the Veterinary Sciences and the WSVL websites:

<http://uwadmnweb.uwyo.edu/VETSCI/>

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

### **Laboratory Information Management System (LIMS) for the WSVL**

It has been a struggle to maintain our existing LIMS, VisuaLab, for the WSVL. For about two years we have been working with Advanced Technologies to customize a new LIMS (LIMsPro) for our use. Current plans are to begin the process of going live July 1. We will incrementally increase the proportion of cases entered into LIMsPro during the remainder of the summer and expect that by September 1, we will

be entering all cases in the new LIMS. After using VisuaLab for about 10 years the change to the new system is causing considerable angst on the part of faculty and staff. From your perspective, expect the appearance of the WSVL diagnostic reports to be different. This will be a change for you. If you encounter problems with reports in the new system, do not hesitate to contact us. One obvious advantage of the new system will allow us more flexibility in delivery of reports to you. Faxing and mailing reports and phoning results will remain an option but we hope that many of you will opt to receive and manage your reports by email. If you have not already done so, please contact Mark Davidson (307-742-6681 ext 105; [anthrax@uwyo.edu](mailto:anthrax@uwyo.edu)) with your preferences. Web access to your LIMsPro case reports is also ready to go but will be tweaked during the next several weeks. To initiate and access your reports electronically, please contact Mark Davidson also. Again, this applies only to LIMsPro reports.

### **Swine Testing**

As you know, the WSVL is a member of the National Animal Health Laboratory Network (NAHLN). Through the NAHLN, we are able to perform surveillance and diagnostic testing for high-impact diseases that could seriously affect animal production or human health. Although commercial operations in Wyoming are few, the state still has a decent swine population. Classical swine fever (hog cholera) is one disease we are currently approved to test for. In the past, the WSVL has had difficulty meeting our testing quota. This year, our quota is only 12 cases but even this number has been problematic in the past. This year, the NAHLN testing agreement allows us to credit \$50.00 to those who submit the first 12 pig cases to the WSVL for diagnostic work-ups. The initial criterion is that they be SICK pigs. A second criterion is that the pigs should meet the case definition if at all possible:

- Acute-illness in 12wks and under & non-responsive to antibiotics (fever, skin

discoloration, conjunctivitis, hind limb weakness, diarrhea)

- Acute infection, brief recovery, then relapses of fever, anorexia leading to wasting/death in 1-3 mo
- Piglets appearing normal for several months & dying or born w/congenital tremors

The CSF testing is done at no charge; what this means is that you will receive \$50.00 credit for any additional testing we do as part of the diagnostic work-up on the case. If you have questions regarding submission of your swine cases for this surveillance program, please contact our new virologist, Dr. Myrna Miller ([MillerMM@uwyo.edu](mailto:MillerMM@uwyo.edu); 307-742-6638; 307-742-6681 ext 161)) or me. Your support will be greatly appreciated.

Don Montgomery  
Director and Pathologist  
montgome@uwyo.edu

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## INTERESTING CASES FROM WSVL AND OTHER TIDBITS

### **Mycoplasmosis in Domestic Cats**

*Mycoplasma* species are part of the normal flora of the conjunctiva and upper respiratory tract of cats. However, some of these mycoplasmas can cause feline diseases such as feline conjunctivitis, lower respiratory tract infections, and polyarthritis. Among them, *Mycoplasma felis* has been shown to be one of the probable causes of feline conjunctivitis and respiratory diseases. It is important that the *Mycoplasma* species be correctly identified so that the appropriate treatment is given earlier. For example, there are many causes of feline conjunctivitis and discharge from the eyes. These include allergy, bacterial infections (especially *Chlamydia psittaci*), fungal infections and other viral infections (especially feline calicivirus). Of course treatment of viral or fungal infection with

antibiotics doesn't help so it is important to nail down a diagnosis if possible.

Conventional detection of *Mycoplasma felis* in cases of feline conjunctivitis and ulcerative keratitis has been based on clinical presentation but this is limited because of similar presentations by other agents. Identification of *M. felis* in clinical samples is done in some laboratories by cultivation of "fried egg-shaped" colonies on mycoplasma-specific media in 2–3 days. This is followed by biochemical testing to confirm glucose fermentation, absence of arginine hydrolysis, digitonin sensitivity and phosphatase activity. Confirmation of *M. felis* identification to the species level is then achieved by either growth inhibition with specific anti-sera, fluorescent antibody staining, or use of an immunobinding assay. Additional serological testing can confirm a recent or active infection by detecting rising antibody titers to *M. felis* with an indirect haemagglutination assay. These testing methodologies are cumbersome and expensive when all costs are added up. However, molecular detection by PCR is the most sensitive and specific way of detecting the bacteria. It is also much faster than culture.

Dr. Blair Gustafson of Sheridan has reported several cases of *M. felis* in cats. All were clinically ill with ocular and upper respiratory signs including ocular and nasal discharge, sneezing and/or coughing. The animals had all originated from or had exposure to animals from a shelter or pet shop. Testing was essentially negative for pathogens except for being PCR positive for *M. felis*. Some had been treated previously with amoxicillin and Clavamox without response. All animals responded to doxycycline treatment and were PCR negative for *M. felis* 2 to 4 weeks post doxycycline treatment. Although there are questions about the pathogenic potential of this organism these present a pretty strong case for significance.

After considering the information the bacteriology section at the WSVL decided to offer a PCR to

specifically ID *M. felis*. This is in addition to our normal general Mycoplasma PCR that does not differentiate species. The preferred sample is discharge in a red top tube rather than a swab.

Ken Mills, PhD  
Bacteriology Section

Directors Note: Communication is a two-way street. Faculty and staff of the WSVL are attuned to the needs of our clientele. If you are seeing unusual cases or have identified gaps in the variety of tests we offer for animal disease diagnosis, please let us know. Testing for **M. felis** is a case in point. The WSVL became aware of the association between *M. felis*-positive PCR testing and doxycycline responsiveness made by Dr. Gustafson after it was reported to his Regional Veterinary Coordinator. Thanks Dr. Gustafson!

### **Reading the Small Print: Presumed Iatrogenic Abortion Due to BHV-1 in Well-vaccinated Heifers**

A producer in Wyoming vaccinated 78 pregnant heifers with a modified live vaccine for, among other agents, bovine herpesvirus-1 (BHV-1). The heifers were vaccinated on three previous occasions: at weaning, branding and pre-breeding. The pre-breeding vaccines containing MLV for BHV-1 and were made by the same manufacturer. Four heifers aborted (4/78; 5%) 3 and 4 weeks after being vaccinated for a 4<sup>th</sup> time. Tissues from one fetus were submitted by the attending veterinarian to the WSVL. It was infected with BHV-1, based on typical histological lesions, positive FA staining, and positive immunohistochemical findings. We were unable to isolate the virus. No bovine viral diarrhea virus was detected by virus isolation or immunohistochemistry.

We contacted the company and the USDA's center for veterinary biologics. The CVB pointed out that the heifers were not vaccinated

in accordance with the manufacturer's instructions. A warning on the box (in small print, albeit in bold) specifies which of the company's products must be used in the 12 months prior to vaccinating pregnant cattle. So, even though the heifers were well vaccinated, and received three doses of MLV BHV-1 before vaccination when pregnant, they did not get any of the specific products that have a fetal protection (FP) claim.

Like other laboratories, we are seeing more BHV-1 abortions. In most instances we don't have as good a vaccine history as we had here. We are unsure what is going on to cause the uptick. Dr. Hana Van Campen reported an increase in the number of these abortions at the 2009 meeting of the AAVLD. In her case, CSU is diagnosing combined BHV-1/BVDV abortions. We see BHV-1 on its own, with typical necrotizing lesions in liver, kidney and lung. Our assumption is that some of these are due to vaccine virus. Probably producers – and veterinarians? - are confused about what product to use before vaccinating pregnant animals.

It appears to be more difficult to isolate BHV-1 of vaccine origin. Even if we could, no laboratory I am aware of has the capability to distinguish field strain BHV-1 from vaccine strain. Modified live BHV-1 can induce abortion in naïve pregnant cattle – abortion rates can approach 50%. The abortion rate in previously vaccinated animals (when unsuitable vaccine is used pre-breeding) may be lower, but may still be appreciable. Bottom line:

- When using modified live vaccines in pregnant cattle, read the small print. With pregnant animals, be sure you or the producer used exactly the product(s) recommended by the company pre-breeding
- It is difficult to isolate vaccine strain BHV-1, even when suspected to be present and we see lesions strongly suggestive of herpesvirus infection.

- Even when we isolate BHV-1, which is in <1 of 3 cases of suspected herpetic abortion, we have no way to distinguish vaccine from field strains.

Ref: H. Van Campen, P. Schultheiss, C. Gates et al: 2009, Increased number of bovine herpesvirus-1 (IBR) and bovine viral diarrhea virus (BVDV) combined abortions (2002 to 2009). AAVLD annual meeting, San Diego, CA. Proceedings, p.49.

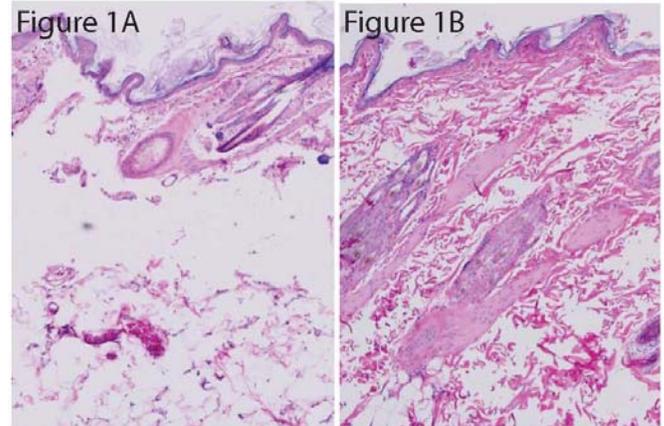
Donal O'Toole  
Pathologist/WSVL

### Feline Acquired Skin Fragility Syndrome

Skin fragility is an uncommon presentation in veterinary species. The best known causes of this are genetic defects in the collagen biosynthetic pathway that have been described in dogs, cats and bovine calves (Ehlers-Danlos syndromes) and manifest early in life. Feline acquired skin fragility syndrome (FASFS), as its name indicates, is an acquired form of skin fragility that is a rare but recognized manifestation of internal disease. While the cause of FASFS is not fully understood it has been commonly associated with iatrogenic and naturally occurring hyperglucocorticoidism, diabetes and excess use of progestational compounds. Severe atrophy of epidermis and dermis makes the skin very fragile resulting in bruising, tears and even shedding of skin.

This case was a 13-year old domestic short haired castrated cat that had a 14-month history of diabetes. The cat presented in pain with significant bruising in the dorsal scruff and thorax 5 weeks after the form of insulin administered had been changed. Due to the severe nature of the skin changes the cat was euthanized and pieces of skin were submitted to WSVL for microscopic evaluation. The most striking change was severe atrophy mainly involving dermis. The epidermis was thin, just one cell thick in most places. Dermis was characterized by a massive loss of collagen fibers and significant thinning (**Fig. 1A**). Further, hair

follicles were atrophic, but erector pili muscles were unaffected as compared to normal feline skin (**Fig. 1B**). There was frequent dermo-epidermal separation. In toto, the findings very closely matched those described in feline acquired skin fragility syndrome.



Cat with acquired skin fragility syndrome. Note the dramatically thinned dermis in the affected skin (1A) as compared to normal skin (1B).

The mechanism(s) by which diabetes mellitus leads to FASFS is poorly understood. Hyperadrenocorticism, while also rare in cats, has cutaneous manifestations in about 50% of cases that are similar to but usually less severe than FASFS. A high proportion of cats with hyperadrenocorticism are also diabetic due to the insulin-antagonistic effects of corticosteroids. Therefore, it seems most likely that the defects of insulin signaling may be a key factor predisposing to FASFS in feline diabetes and hyperadrenocorticism.

Reference: Skin diseases of the dog and cat (Chapter 15), second edition. Editors: Gross, Ihrke, Walder and Affolter.

Dr. Jonathan Fox,  
Pathologist, WSVL  
Dr. Lori Maness  
Best Friends Animal Health Center

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**FROM THE WYOMING DEPARTMENT  
OF HEALTH**

**Why Not Raw Milk?**

Veterinarians are often asked by clients for their opinion on controversial topics related to animals. The controversy over the health risks and benefits of drinking unpasteurized milk may be one area where veterinarians will be asked to provide some guidance.

An article in the January issue of *Clinical Infectious Diseases* by Jeff LeJeune, DVM, PhD, with the Ohio State University College of Veterinary Medicine, is an excellent resource for veterinarians looking for science based information about raw milk. In the article, Dr LeJeune begins by refuting the claims often heard from raw milk advocates that everyone used to drink raw milk and few developed illness as a result. The article discusses the dramatic impact pasteurization has had in the drop in the incidence of milk borne disease outbreaks from approximately 25% of all food and water borne outbreaks in 1938, to less than 1% at the beginning of the 21<sup>st</sup> century.

The article also documents recent raw milk outbreaks that have unfortunately become more common with the resurgence in the popularity of raw milk. In 2005, 18 cases of *E. coli* 0157:H7 were linked to consumption of raw milk through a cow share program in Washington. Four children were hospitalized with hemolytic uremia syndrome. In 2007 there were 29 cases of *Salmonella enterica* serotype *Typhimurium* due to consumption of raw milk and raw milk products in Pennsylvania. Also in 2007 in Kansas, 87 people became ill with campylobacteriosis after consumption of raw milk from a farm operating a cow share program. Also, note that selling raw milk in Wyoming is illegal and has been for over 30 years.

The article has been posted on the *Clinical Infectious Diseases* web site at:  
<http://www.journals.uchicago.edu/doi/full/10.1086/595007>

LeJeune, JT, and Rajala-Schultz, PJ "Unpasteurized milk: a continued public health threat" *Clin Infect Dis* 2009; 48: 93-100.

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**FROM THE WYOMING  
LIVESTOCK BOARD**

**Wyoming Livestock  
Board Reportable Disease List**

The Wyoming Livestock Board (WLSB) has a list of diseases that must be reported to the State Veterinarian. The purpose of the Reportable Disease List is to prevent the spread of disease. Not all listed diseases result in quarantine, depending on severity of outbreak and disease list category, but the WLSB does want to be notified so that appropriate action (i.e. quarantine, education, C&D, proper disposal of carcasses, etc) can be done.

The WLSB has had several reportable diseases not reported by veterinarians that should have been. The only reason we're aware of them is because the laboratories have reported. However, it is the vet's responsibility to report the diseases listed.

W.S. §11-19-102 outlines the duty of private practitioners and other regulatory veterinarians to report diseases to the State Veterinarian, as well as the penalties for failure to report:

- (a) "Any person or government entity who knows or suspects that there is any contagious or infectious reportable disease among animals owned by or under their

jurisdiction or any veterinarian who knows or suspects any reportable contagious or infectious disease on any premises or in any animal, shall immediately report the same to the state veterinarian.”

(c) “A failure to report, or any attempt to conceal the existence of the disease or to willfully or maliciously obstruct or resist the veterinarian in the discharge of his duty is a misdemeanor. Any person who willfully or maliciously falsifies a report to the state veterinarian is guilty of a misdemeanor. Any person convicted of any of the above acts or omissions shall be punished as provided in W.S. 11-1-103.”

This list is available through the office of the Board (1934 Wyott Drive, Cheyenne, WY 82002; (307) 777-7515) or online at <http://wlsb.state.wy.us/Animal%20Health/book.pdf>.

For further information, please contact Dr. Jim Logan, Wyoming State Veterinarian at (307) 857-4140.