

Notes From the Diagnostic Center

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Did You Know??

- - The only two animals that can see behind themselves without turning their heads are the rabbit and the parrot.

- -The world's smallest mammal is the bumblebee bat of Thailand, weighing less than a penny.



Dr. Seth Harris has recently passed the board examination for the American College of Veterinary Pathologists and can now proudly add the letters of DACVP (Diplomate of the American College of Veterinary Pathologists) behind his name. This is a very arduous task and we congratulate Dr. Harris on this accomplishment!

At the annual fall meeting of the AAVLD in Buffalo, New York, Dr. Elisa Salas, a pathology resident at the Veterinary Diagnostic Center, won the Award for the Best Oral Presentation. Dr. Salas' presentation was titled, "Hypovitaminosis D in a Swine Herd".

Every five years, in order to remain an accredited laboratory, the Veterinary Diagnostic Center must go through a site visit by a team from the American Association of Veterinary Laboratory Diagnosticians. The process took place on Oct. 24 and Oct. 25. It involved review of the SOP's of the various labs of the Diagnostic Center in order to be sure that we are following the steps as written in our SOP's; examination of all documents created for a case including the financial statements, education and training requirements of staff; and solicitation of outside opinions regarding the operation of the Laboratory and perceived quality of its diagnostic services. Included as part of the site visit and to gain a view of user perception, the review team visited with members of the NVMA, University Liaison Committee, State Veterinarians and Federal Veterinarians. Representing the NVMA were Drs. Rick Cockerill, Ron Wallman, Missy Girard-Lemon and Henry Cerny. Dr. Roger Dudley and Dr. Kathy Akin, USDA/ APHIS represented the various offices of the State and Federal Veterinarians, respectively. In their preliminary report, the review team was impressed with the operation of the Diagnostic Center, particularly its turn-around time, adherence to SOP's and dedication of its staff; however, the Committee noted instances where the SOP's needed correction or modification in order to be compliant with new AAVLD regulations. A detailed final report is expected in late February or early March from the accrediting body of the AAVLD after the preliminary report is submitted.

As we approach the end of 2011, we would like to thank all of our clients for your continued support and wish you all the best for 2012!



PLEASE NOTE: *The Diagnostic Center will be closed on Monday, Dec. 26, 2011 and on Monday, Jan. 2, 2012 for the holidays.*

Abortion Diagnosis

The loss of income from abortions averages \$500-900 per calf lost. In swine, abortion affects the total US industry at an estimated \$600 million annually. Of these, approximately only 25% of abortions submitted to a diagnostic laboratory yield a definitive diagnosis. This is partially attributed to incomplete sample submission and to the fact that many abortions are due to non-infectious or sporadic in cause. The purpose for sending diagnostic tissues is the identification or elimination of an infectious etiology. Should an infectious agent be identified early, management strategies can be implemented to prevent additional losses in the herd. The most favorable outcome in a case of sporadic abortion is not identifying an etiology of herd concern.

If infection, rather than sporadic mutation or toxic cause, is suspected, identification of the causative agent is key. In order to identify such agents, tissue sampling becomes critical for diagnosis. The rate of diagnosis is purported to increase by 40% if fresh and fixed placenta are included in the sample submission.

Placenta is likely the most difficult tissue to obtain after an abortion, but it is one of the most diagnostic. Fresh and fixed samples should be submitted. Culture can help identify causes of abortion such as *Campylobacter*, *opportunistic bacteria*, or fungi. In small ruminants the placenta is also utilized for diagnosis of *Toxoplasma*, *Coxiella*, and *Chlamydia*.

Tissues for submission should include:

Brain: Examination of brain can help identify *Neospora*, *Toxoplasma*, or rare cases of IBR.

Heart: This is a common organ affected by *Neospora caninum* in cattle. Pigs with circovirus infections can develop myocarditis.

Lung and Stomach contents: Lung and stomach contain aspirated and ingested amniotic fluid in a relatively uncontaminated environment. As such, they are ideal for culture. Histological examination of lung can be reflective of lesions in the placental. Additionally, fetal distress is identified by visualization of meconium. Testing for PRRS and Parvovirus can be performed on lung.

Thymus: Thymus is helpful for detection of BVDV.

Liver: Liver is an excellent tissue for diagnosis of IBR, *Listeria*, or *Campylobacter*. Mineral analysis can be performed in cases of suspected selenium or vitamin A deficiency.

Kidney: Leptospirosis, if present, can be identified in kidney, and fetal stomach contents

Serum: Paired serology with a four or greater increase in antibody titer from the dam can be quite helpful for evaluating a cause. Samples should be taken, if possible, at the time of abortion and 10-14 days later. The vaccination history of the dam should be included in the history. A single sample can be difficult to adequately evaluate unless there is a dramatic increase in the herd baseline titer.

Other tissues: Some bacterial or mycotic agents can be identified from evaluation and culture of eyelid.

In summary, ideal tissues for abortions include

<u>Tissue</u>	<u>Fresh</u>	<u>Fixed</u>
Placenta	X	X
Brain	X	X
Heart	X	X
Lung	X	X
Kidney	X	X
Liver	X	X
Thymus	X	X
Stomach contents	X*	
Paired Sera (from	X	

*(in non-separator red top tube or plastic sterile tube)

Contributed by - - Elisa Salas, DVM and Seth Harris, DVM PhD Diplomate ACVP

News from Virology

It has been a very busy year for the Virology laboratory. It really feels as if the “busy season” never ended. After the usual springtime calf diarrhea season ended, we launched into testing for export of 3,500 heifers to Russia. Many thanks to everyone we worked with on this project and for being such a great bunch of people to work with. After that experience we are totally sold on electronic animal ear tags; it really made the job a lot easier.

The VDC also just completed an accreditation site visit by an AAVLD team of auditors. It was a lot of work preparing for this visit and they had a lot of good comments and helpful suggestions.

Right now we are gearing up for CWD testing in deer. We do this project every year in conjunction with the Nebraska Game and Parks Commission and we will be testing 2,000 animals this fall. The VDC has received money for the Classical Swine Fever Surveillance Program. In order to comply with the program, nasal swabs or tonsils for CSF PCR need to be submitted. In return, the USDA/APHIS will pay the referring practitioner \$50.00 for each sample submitted (call the Lab for more details).

We have also welcomed a new member to the lab, Ellen Duysen, who came to us from the UNMC (University of Nebraska Medical Center) in Omaha and has been an outstanding addition to the group.

As always, if there is anything we can do to facilitate your testing needs, please do not hesitate to call and let us know.

- - submitted by Judith Galeota, Virology Supervisor

Meet New Our Employee

Ellen Duysen is a new employee in our Virology laboratory where she is employed as a Research Technologist II. Ellen is originally from Phoenix, Arizona. Ellen has a BS in Microbiology and a MPH in Environmental Health. Ellen and her husband have spent many years in the livestock business raising hogs, cattle and sheep. Ellen and her husband currently reside in Omaha, NE and are currently raising a herd of cats! Ellen’s hobbies include gardening, horseback riding, bicycling, hiking and she is anxiously anticipating grandkids! We welcome Ellen to the VDC staff!



Ellen Duysen

Farewell to Dr. Jon Ayers

After eight years as a diagnostic pathologist at the Veterinary Diagnostic Center, Dr. Jon Ayers has bid us farewell. Dr. Ayers retired and immediately left for North Dakota State University to work as a diagnostic pathologist at their Veterinary Diagnostic Lab. Prior to coming to UNL, Dr. Ayers was employed by Kansas State University College of Veterinary Medicine as well as by private industry. We miss Dr. Ayers and wish him all the best for the future!



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The Nebraska Veterinary Diagnostic Center is accredited by the American Association of Veterinary Laboratory Diagnosticians

All regulatory testing for export is done in compliance with the code of federal regulations and technicians performing the test have been tested annually by the USDA through the National Veterinary Services Laboratories check-testing program. Additional assays within the lab regarding toxicology, microbiology and parasitology are assessed annually by check testing through the Veterinary Laboratory Association. Positive and negative control samples are included in all serologic and toxicologic testing protocols that require them.

Ancillary testing is reviewed by a single case coordinator who assures that test results are in agreement and any unusual test results are investigated to ensure that standard operating procedures are followed and that results can be replicated. Standard operating procedures are on file in each of the laboratories and available for inspection. A copy of our Quality Manual is available upon request.

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