



NDSU Veterinary Diagnostic Laboratory

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Diagnostic Trends (2013)

A newsletter about diagnostic trends at the laboratory, animal health topics, interesting cases and new test offerings.

www.vdl.ndsu.edu

We welcome comments, questions and suggestions. Please email us at vetlab.ndsu@ndsu.edu or call the laboratory at (701) 231-8307.

Welcome to the NDSU-VDL newsletter!

Fall/early winter was busy, with the laboratory receiving large numbers of accessions for export and annual herd health testing. In addition to performing the daily testing workload, section laboratories have developed and validated many new tests, as well as improved existing tests such as urine cultures.

Another item of interest at the laboratory is a national search that is under way for a faculty microbiologist. This person will supervise the bacteriology, virology and serology sections of the laboratory and be available for consultation on microbiology cases.

We also have begun working on a new website that, in addition to a searchable catalog of test information, will have many additional helpful features. We hope these changes to the website will greatly improve the accessibility of information pertaining to tests that we offer and allow you to look up comprehensive test information easily from your computer or mobile device. We are striving to have the website up and running by the end of spring.

The goals of this newsletter are to keep you abreast of diagnostic trends at the laboratory, highlight important animal health topics, share interesting cases and describe new test offerings. I hope you will find the information pertinent and of interest. Please do not hesitate to contact me with any comments, suggestions or questions.

Sincerely,

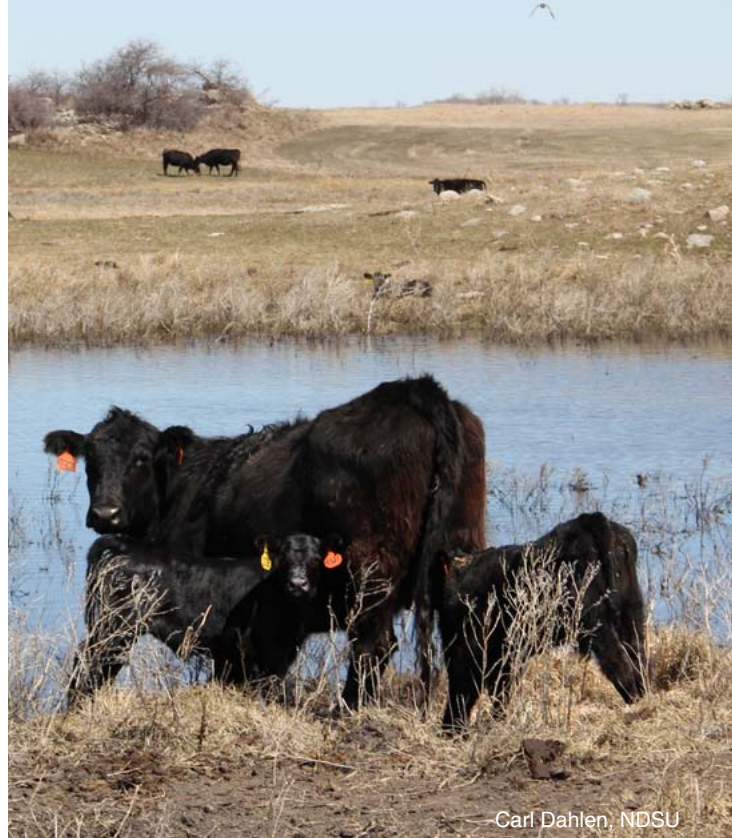
Brett T. Webb, D.V.M., Ph.D., D.A.C.V.P.
Veterinary Pathologist
NDSU Veterinary Diagnostic Laboratory

NDSU VETERINARY DIAGNOSTIC
LABORATORY
North Dakota State University

New Tests

The molecular diagnostics section of the laboratory has optimized and validated many new PCR (polymerase chain reaction) assays. Please call the lab for information on submitting samples for testing or for pricing information on large numbers of samples. Beginning in 2014, the lab again will offer serum neutralizing assays in-house for BVDV1, BVDV2, IBRV and BRSV.

New PCR Tests	Price
Small animal	
Feline herpesvirus	\$40
Feline respiratory panel (FHV, FCV)	\$60
Feline panleukopenia virus	\$45
Canine distemper virus	\$45
Canine parvovirus	\$45
Canine adenovirus 1,2	\$40
Canine herpesvirus	\$40
Large animal	
Bovine coronavirus	\$40
Bovine rotavirus	\$45
Clostridium hemolyticum	\$35
Bovine herpesvirus 1	\$35
Bovine herpesvirus 4	\$35
Bovine leukosis virus	\$35
Bovine respiratory panel (BVDV, BRSV, IBRV)	\$60
Equine viral arteritis virus	\$40
Multiple species	
Cryptosporidia sp.	\$35
Lawsonia intracellularis	\$45



— Carl Dahlen, NDSU

Free Vitamin A and E Analysis for Bovine Abortions and Perinatal Mortalities

The diagnostic laboratory will be offering vitamin A and E analysis this year at no additional cost for specific cases. The free analysis is only available on cases submitted for general investigation (discretion of the laboratory), and the general investigation fee still will apply.

Whole fetuses and neonates (less than 2 days of age), as well as tissue samples from such cases, are eligible for free vitamin A and E analysis.

To qualify for the free analysis, please include maternal age, maternal nutrition (type and amount of feed and any vitamin/mineral supplements) and gestational age (if breeding dates are known). For cases of perinatal mortality, please include age in hours and whether the calf suckled.

Vitamin analysis will be performed only on liver samples, so be sure to include liver along with a complete set of tissue samples (see submission tip in this issue). Contact Brett Webb at the laboratory with any questions.

Diagnostic Laboratory Calendar

The diagnostic laboratory will be closed on the following holidays:

- Jan. 20, Martin Luther King Jr. Day
- Feb. 17, Presidents Day

Noteworthy Cases

Pigeon fever

Corynebacterium pseudotuberculosis was cultured from a swab submitted from a 10-year-old quarter horse gelding with a large abscess on the chest. Antibiotic susceptibility indicated intermediate susceptibility to only Ceftazidime; other MICs (minimum inhibitory concentrations) were at or near the lowest concentration tested. Aerobic culture of aspirated exudate is useful for confirmation.

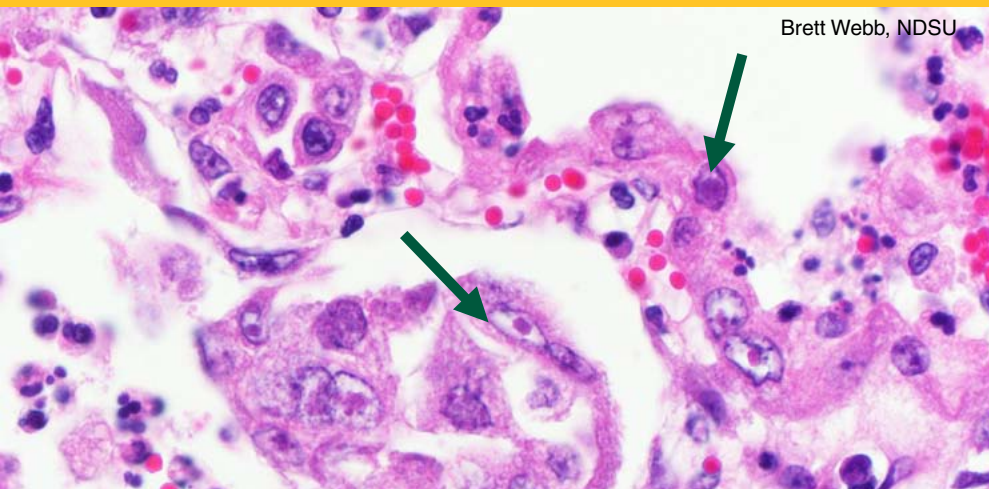
Pneumonia in a kitten

An 11-week-old female short-haired kitten was presented for necropsy following a brief history of open-mouth breathing. Gross findings were limited to the respiratory tract with prominent bronchopneumonia and ulcerative tracheitis. Histologically, severe, subacute necrosuppurative bronchopneumonia with intranuclear inclusion bodies (arrows) and necrosuppurative tracheitis with intraluminal *Eucoleus* (*Capillaria*) aerophila were observed. *Mycoplasma* sp. was cultured from the lung and PCR for feline herpesvirus was positive.

Feline herpesvirus-1 most frequently is associated with upper respiratory tract infections, keratitis and conjunctivitis in cats. Pneumonia due to this virus is less common but occasionally observed. *Mycoplasma* sp., most commonly *M. felis* and *M. gatae*, often can colonize diseased lungs and contribute to morbidity but are not thought to be primary respiratory pathogens.

Eucoleus (*Capillaria*) aerophila is likely an incidental finding in this case due to the low numbers of parasites present. Infestations are associated with only mild catarrhal inflammation of the airways but can, on occasion, predispose animals to secondary bacterial pneumonia.

Antemortem diagnosis in this case could be accomplished with nasopharyngeal swabs submitted for aerobic/mycoplasma culture and feline respiratory PCR (polymerase chain reaction) panel, which tests for feline herpesvirus and feline calicivirus.



Brett Webb, NDSU

This is a section of lung showing inflammatory cell infiltration and attenuation of terminal airway epithelium with some cells containing intranuclear inclusion bodies (arrows).

New Urine Culture Procedures

The bacteriology section is working on methods to improve isolation of bacteria from urine. Isolation of bacteria from urine often is hampered by many factors, including urine pH extremes, death of bacteria in transit, concurrent or recent antibiotic administration and low numbers of bacteria that may be below the threshold of detection by traditional systems.

The later aspect may be particularly important in cases of chronic cystitis, which often have low numbers of bacteria present. The laboratory is investigating the use of urine filtration to concentrate bacteria in samples prior to culturing.

For optimal results, we recommend that 3 milliliters of urine be submitted. The sample should be refrigerated and shipped overnight with an ice pack. If concurrent or recent antibiotic administration cannot be avoided, the BD-BACTEC or BD-BACTEC Plus antimicrobial removal systems can be used to reduce bacteria being killed in transit by antibiotics.

Submission Tip

Because abortion season is just around the corner, we want to stress the importance of submitting a complete set of fresh and formalin-fixed tissues. The most important tissue we can receive for evaluation is the placenta. Submissions that include the placenta typically are twice as likely to result in a definitive diagnosis as submissions without the placenta.

Specimens to include:

- Fresh placenta, brain, thymus, heart, lung, liver, kidney, spleen, abomasal fluid and any tissue with a suspected lesion
- Maternal sera
- Formalin-fixed placenta, brain, thymus, heart, lung, liver, kidney, spleen, conjunctiva, adrenal gland, skeletal muscle and any tissue with a suspected lesion

Next Edition

These are topics that will appear in the next issue of this newsletter:

- Pinkeye diagnostics
- Histophilus somni

Cover photo by Brett Webb, NDSU

Contact Information

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For more information on this and other topics, see
www.vdl.ndsu.edu

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Diagnostic Trends (2013)

Bovine

Respiratory	# of cases
Mannheimia hemolytica	84
Pasteurella multocida	52
Mycoplasma sp.	28
Histophilus somni	30
Bibersteinia trehalosi	11
BRSV	7
BVDV	35
IBRV	3

Neurologic

Rabies	5
Lead toxicity	21
Histophilus somni	44

Gastrointestinal

E. coli	461
Salmonella	61
Clostridium	97
Cryptosporidium	59
Rotavirus	46
Coronavirus	24

Reproductive

Tritrichomonas	6
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Equine

Respiratory

Streptococcus equi	11
Strep. zooepidemicus	36
Influenza	3
Herpesvirus 1, 4	1

Canine/Feline

Respiratory

Feline herpesvirus	1
Feline calicivirus	3

Neurologic

Rabies	1
Canine distemper virus	9

Gastrointestinal

Hemolytic E. coli	62
Campylobacter sp	4
Canine Parvovirus	10
Panleukopenia virus	7
Feline Tritrichomonas	5

Miscellaneous species

Moose	Salmonella sp.
Pig	Rabies