

DIAGNOSTIC INSIGHTS

Feed Grade Antibiotics

By Dr. Brian Lubbers

It is nearly impossible to attend a CE meeting or open a veterinary publication without seeing these three letters: V - F - D. And yes, I have contributed to the discussions too because now is the time to prepare for the changing regulations, not December 2016. (A link to an example discussion follows: http://www.bovinevetonline.com/vfd-newsletter/age-accountability?ss=vfd_newsletter).

In talking with practitioners, many are focused on the logistics of implementing the veterinary feed directive. "How will I address the record-keeping requirements?" and "Which VFD form do I use?" are common questions that we, as a profession, are working through. But in the spirit of preparedness, I think there is another question we should also be asking: "How will I deny a VFD?". The use of feed grade antibiotics for extra label purposes has never been legal. This means that antibiotics cannot be used in feed for anything not specifically on the drug label, including:

- Different species
- Different production classes
- Different disease indication
- Different dose, route, duration or frequency
- Different drug combinations (or any combination, if none are specifically approved)

For example, there are currently no feed-grade tetracycline products labeled for treatment of footrot in cattle. This has never been a legal use and under the new regulations both veterinarians and feed distributors are responsible for denying such use.

One of the opportunities that will come with the new antibiotic regulations is that we, as veterinarians, will have is a more detailed knowledge of what is

being done on our producer's operations. The real opportunity to understand what clients are using for which diseases is now, not when the herd

health problem occurs (and becomes compounded by unfamiliarity with a regulatory process). Issuing a valid VFD isn't the only goal; it is another tool in helping our clients raise a safe, wholesome, and profitable food product.

Brian Lubbers, DVM, PhD is the director of the KSVDL Microbiology Laboratory and a board certified clinical pharmacologist at KSVDL.



In this Issue

Feed Grade Antibiotics	1
Maximizing Skin Biopsies	2
Molecular Diagnostics	4
New KSVDL Tests	4
KSVDL Personnel Activities	5
New KSVDL Videos and Resources	6
CE and Holiday Schedule	7

Accredited by the American Association of Veterinary Laboratory Diagnosticians

TO SET UP AN ACCOUNT GO TO:
www.ksvdl.org/accounting-and-billing/

Maximizing the Diagnostic Potential of Skin Biopsies

Dr. Gordon Andrews

For dermatological cases, properly obtained and interpreted skin biopsies can be the cornerstone of establishing a definitive diagnosis, or a differential diagnosis list that can be refined by additional diagnostic testing. To be successful, this requires effort by both the submitter and pathologist. The following guidelines are suggested to ensure that your pathologist has appropriate biopsies to examine and clinical information to interpret the biopsies and put the histological lesions into context to establish a diagnosis.

STOP medication if possible: When feasible; withhold the patient from drugs, particularly steroids, prior to obtaining biopsies. Steroids are anti-inflammatory and can alter the histologic lesions and nature of the inflammatory cell infiltrate.

DO NOT prep the biopsy sites: The pathologist needs to see the crust, scale, or exudate on the skin surface. Crust, scale or exudate on the surface may be the only change in some skin diseases, or may be part of a combination of lesions in other diseases. Etiological agents such as mites, yeast or bacteria may be in the surface crust. Pustules and vesicles are fragile and easily ruptured by prepping the skin.



ALWAYS use sharp dissection to obtain biopsies: Skin punch biopsy instruments are preferred. They are inexpensive, easy to use and take uniform clean tissue samples. They come in sizes from 2–8 mm diameter.

Use the largest punch practical for the anatomic site. 8 mm is recommended for general use. Smaller biopsies may be needed for sensitive areas such as the nose, around the eyes, and feet. Small biopsy sites can be left open to heal. Larger sites can be closed with a single suture. If lesions have discrete borders, use a scalpel to take an elliptical biopsy

with the long axis of the ellipse perpendicular to the edge of the biopsy. Never use laser or electrocautery to obtain skin biopsies. These instruments will burn tissue. Small skin biopsies can be completely burned and rendered useless for histopathology. Handle tissues gently. Crush artifact alters microscopic anatomy and destroys cellular detail. Label this biopsy as lesion border. Color differences that are grossly obvious can disappear when the tissue is fixed.

TAKE multiple biopsies: Multiple biopsies increase the probability of obtaining an accurate diagnosis. The diagnosis is seldom present in a single biopsy. Obtain biopsy samples from lesions that have differing gross appearances. Multiple biopsies may provide additional information about secondary problems like superficial pyoderma in addition to an immune mediated skin disease. In some cases (particularly diseases characterized by alopecia) a biopsy of clinically normal appearing skin can be helpful for comparison. Diagnostic microscopic lesions can be present in clinically normal appearing skin. Label this biopsy as normal appearing skin.



PUT the tissues in formalin as soon as possible: Desiccated tissue has altered staining characteristics and histologic appearance. Identify the anatomical location of each biopsy. Label each biopsy. Submitting the individual biopsies in tissue cassettes is ideal if you have them. These can be obtained from the diagnostic laboratory. Another method is to place the tissue in a gauze pouch and secure the pouch with string or suture.

CONSIDER performing additional diagnostic procedures: Perform a deep skin scrape to check for

Continued from previous page

mites. Skin cytology can be performed by scraping or imprinting. Stain the slide and examine it yourself. Send an air-dried unstained slide to the lab for a clinical pathologist to examine. Would a bacterial or fungal culture be appropriate?

SHIPPING the sample: It is essential to ship this slide in a separate mailing container from the formalin fixed tissue. Formalin vapors from even sealed formalin containers fix the cells on the cytology slide and render the slide useless for cytologic examination. Ship the slide in a box to protect from breakage. **DO NOT** use cardboard slide mailers in an envelope. The slide will arrive broken. Obtain a fresh tissue biopsy for bacterial or fungal culture if you suspect infectious agents.

DOCUMENT the gross lesion(s): Today, digital cameras, computers, and web access are ubiquitous. Keep a digital camera in your exam room. Print the photos and send with the biopsy submission. Keep a set in the patient's medical record. If your records are completely electronic, keep the digital files in the medical record. Alternatively, email digital images to us: receiving@vet.k-state.edu.

Indicate you are submitting biopsies to go with the photos. Identify the patient and owner and we will get the photos into the case file. Use your smart phone to take photos and email us with the same device.

FILL out the submission form completely:

You should treat this case as a referral to a histopathologist. Fill out the submission form yourself. The more information your pathologist has, the more helpful they can be. Pertinent clinical information should include lesion distribution and gross characteristics (photos help greatly for this), duration and progression of lesions, presence of pruritus or pain, response or lack of response to therapy, specific drugs used, dose and duration of therapy if known, results of ancillary tests: (CBC, Chemistry panel, Endocrine testing, Cytology, Skin scrape), signs of systemic illness or other medical conditions (pancreatitis, liver disease, neoplasia, etc).

Dermatological conditions are among the most frequent presentations to companion animal practitioners. The skin is the largest organ of the body and is the easiest organ from which to obtain biopsy samples. Gross lesions are visible to the unaided eye without any specialized equipment and are easily documented by photography. Every veterinary practitioner has the ability to obtain high quality skin biopsies and provide a good clinical history so that the practitioner/pathologist team can establish an accurate as possible diagnosis.

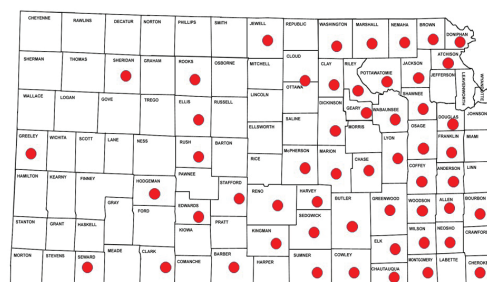
Gordon Andrews, DVM, PhD, Diplomate of the American College of Veterinary Pathologists is a professor in the KSVDL.

Diagnostic Disease Trends Maps for Kansas

Updated weekly at www.ksvdl.org!

Disease trend maps include:

- Anaplasmosis
- Canine Brucellosis
- Canine Leptospirosis
- Johne's
- Rabies
- Rocky Mountain spotted fever
- Trichomoniasis
- Tularemia



Molecular Diagnostics at KSVDL

Dr. Jianfa Bai

The Molecular Diagnostic Lab at KSVDL develops molecular diagnostic assays (primarily polymerase chain reaction or PCR) and provides diagnostic services for the detection of animal, zoonotic, and foodborne pathogens.

The PCR assays amplify a small piece of pathogen specific nucleic acid (RNA or DNA). Most of KSVDL's PCR assays use real-time PCR technology. This technology results in the quantification of the pathogen load in the original sample. The results are reported as CT values, called threshold cycle. The LOWER the CT value, the higher the concentration of pathogens that were present in the original submitted sample. The CT values can be helpful for field diagnostics. For example, analyzing the CT values can help discern vaccine associated organism

load from field exposure associated pathogen load for several diseases including bovine respiratory disease.

The Molecular Diagnostics Laboratory at KSVDL has been busy developing PCR test-panels. Test-panels are a set of test assays that look for multiple specific. For example, KSVDL's latest panel that is under development is a bovine enteric panel. This panel will include K99 E. coli, Rota virus, Corona virus, Cryptosporidia, and Salmonella sp. Panels such as the enteric panel decrease turnaround time and help reduce overall test costs.

Stay tuned for more information on new tests as they become available!!!

Jianfa Bai, MS, PhD, is the director of Molecular Research and Development at KSVDL.

Available Tests

Seneca Valley Virus PCR

Recently, Seneca Valley virus (SVV) has been reported in multiple breeding herds in the upper Midwest. This is a vesicular disease associated with the acute loss of neonatal pigs. Clinical signs can be confused with other vesicular diseases, including FMDV, swine vesicular disease, and vesicular stomatitis.

Target: Seneca Valley virus

Test: Quantitative PCR (results are reported as Negative and Positive with Ct values)

Test days: Monday through Friday

Anticipated turnaround: 1-2 days

Samples: Fresh nasal or fecal swabs or feces

Sample media: Sterile container containing 0.5 ml of PBS or sterile saline

Cost: \$31.00

For more information on these test options, please contact KSVDL Client Care at clientcare@vet.k-state.edu or 866-884-3867.

Join the conversation online!



Facebook.com/KSVDL



Twitter.com/KStateVDL



bit.ly/KSVDLYouTube

KSVDL Personnel Activities

Previous Activities

- Dr. Kelli Almes attended the Animal Health Research Symposium at the Central Veterinary Conference in Kansas City, MO, Aug. 30 and 31.
- Dr. Jamie Henningson completed the continuing education course titled: Emerging and Exotic Diseases of Animals Online Continuing Education Course. Completed Sept. 7, 2015, offered by the Center of Food Security and Public Health.
- Dr. Kelli Almes hosted a Brown Mackie Veterinary Technician Intern at KSVDL, Sept. 1-11.
- Dr. Kelli Almes participated in the Equine Health, Animal Science and Industry laboratory tours on Sept. 10 and 15.
- Dr. Gregg Hanzlicek participated in Johne's disease risk assessments on two Kansas cow-calf operations in September.

Upcoming Activities

- Drs. Chanran Ganta, Gary Anderson, George Kennedy will be talking about Bovine Respiratory Disease at the K-State Stocker Field Day on Sept. 24 in Manhattan, KS.
- Dr. Bill Fortney and Beth McQuade will be representing KSVDL at the Southwest Veterinary Symposium from Sept. 24-27 in Fort Worth, TX.
- Jianfa Bai will present, at the American Association of Veterinary Laboratory

Diagnosticians Annual Meeting in October in Providenc, RI, a study summary titled: "Application of ORF5 sequencing in PRRS management" Investigators were Drs. Jianfa Bai, Steven Henry, Elizabeth Poulsen, Lisa Tokach, Megan Potter, Dick Hesse, and Gary Anderson.

- Dr. Lalitha Peddireddi will be a scientific abstract reviewer and will also moderate a Bacteriology Scientific session at the American Association of Veterinary Laboratory Diagnosticians Annual Meeting in October in Providence, RI.
- Dr. Gregg Hanzlicek will moderate an epidemiology session at the American Association of Veterinary Laboratory Diagnosticians Annual Meeting in October in Providence, RI.
- Dr. Jamie Henningson will moderate a pathology session at the American Association of Veterinary Laboratory Diagnosticians Annual Meeting in October in Providence, RI.
- Dr. Kelli Almes will be participating in the American Association of Veterinary Laboratory Diagnosticians NAHLN Exercises and Drills Working Group, Laboratory Emergency Management Committee in October.
- Dr. Brian Lubbers will present "Antibiotic Stewardship: From Metrics to Management" at the National Institute of Animal Agriculture Symposium in November in Atlanta, Georgia.

WHAT'S NEW??

KSVDL on YouTube

We have posted new videos on the KSVDL YouTube® channel covering the following topics:

- Deep Pharyngeal Swab From Live Cattle
<https://www.youtube.com/watch?v=WB3luk1nQjY>
- Bovine Lung Sampling for Bacterial Culture
https://www.youtube.com/watch?v=Ilz_QiXX0II
- Bovine Lung Sampling for PCR Testing
<https://www.youtube.com/watch?v=8fiBz8yKl30>



Subscribe to the KSVDL
YouTube® channel:

[www.youtube.com/c/
KansasStateVeterinaryDiagnosticLaboratory1](http://www.youtube.com/c/KansasStateVeterinaryDiagnosticLaboratory1)

Resources on the website!

The **Disease Trends** link shows where positive samples resulted from Kansas Counties. The diseases indicated include Trichomoniasis, Anaplasmosis, Rabies, Johne's, Tularemia, Canine Leptospirosis, and Rocky Mountain spotted fever.

The **BRD Antimicrobial Resistance Patterns** link shows resistance patterns from submissions to KSVDL from 2006 through 2014 for common BRD associated bacteria.

A screenshot of the Kansas State Veterinary Diagnostic Laboratory website. The header includes the lab's name and logo. A navigation bar contains links for 'About', 'Tests & Fees', 'Submission Forms', 'Resources', and 'Accounting & Billing'. A sidebar on the left lists 'KSVDL Home', 'About KSVDL', 'Tests & Fees', 'Submission Forms', 'Resources', 'Laboratories', and 'Accounting & Billing'. The main content area features a grid of four images with corresponding text boxes: 'Tests and Fees', 'Tests Results Login', 'Submission Forms', and 'How to Submit Samples'. A search bar is located in the top right. Two buttons, 'Disease Trends' and 'BRD Antimicrobial Resistance Patterns', are highlighted with a green border. A small red box highlights the 'Tests & Fees' link in the navigation bar. A small red box highlights the 'Disease Trends' and 'BRD Antimicrobial Resistance Patterns' buttons. A small red box highlights the 'Tests & Fees' link in the navigation bar.

These links can be found at www.ksvdl.org

Developing and Delivering Accurate, Innovative Diagnostic Services

The mission of the Kansas State Veterinary Diagnostic Laboratory (KSVDL) is to develop and deliver accurate, innovative, and timely diagnostic and consultative services to the veterinary and animal health community while providing support for teaching, training and research programs.

**1800 Denison Avenue
Manhattan, KS 66506**

**Phone: 785.532.5650
Toll Free: 866.512.5650**

Continuing Education

www.vet.k-state.edu/education/continuing/

September 17-19, 2015

**American Association of Bovine
Practitioners Annual Conference**
New Orleans, Louisiana
<http://www.aabp.org/meeting/>

September 24-27, 2015

Southwest Veterinary Symposium
Fort Worth, Texas
<http://www.swvs.org/>

December 3-5, 2015

Academy of Veterinary Consultants
Kansas City, Missouri
<http://www.avc-beef.org/>

For more information call the Continuing Education
Office at 785-532-4528.

Test Results and Schedules

**Laboratory results available
online, all the time!**

Holiday Schedule:

Thanksgiving: Closed: Thursday, November 26
and Friday, November 27;
Open: Saturday, November 28

Christmas: Closing at noon: Thursday,
December 24;
Closed: Friday, December 25;
Open: Saturday, December 26

To receive this newsletter by e-mail, contact: ksvdloutreach@vet.k-state.edu.

KANSAS STATE
UNIVERSITY

