

DIAGNOSTIC INSIGHTS

KSVDL Launches New Mobile Device App So Clients Can Track Progress on Diagnostic Samples for Animal Patients

By Joe Montgomery

Diagnostic results are now within touch at the Kansas State Veterinary Diagnostic Laboratory (KSVDL) — thanks to the launch of a brand-new app for mobile devices. The lab anticipates the new app will improve customer service and efficiency at delivering results to veterinarians across the country.

Gary Anderson, director of the KSVDL in the College of Veterinary Medicine at Kansas State University, said the new app is a significant step forward in helping to deliver results.

“This is a major advancement in being able to provide diagnostics to practicing veterinarians out in the field,” Anderson said. “Traditionally, we have used a variety of methods of delivery, from snail mail, telephone, fax and email. This app will give veterinarians a way to track the results as soon as they are received here in the lab. It will save time for everyone involved and is a real win-win for veterinarians and their clients who are seeking the best in medical care for their animals.”

Gregg Hanzlicek, director of production animal field investigations for the KSVDL, said that the app was specifically designed to meet client needs.

“We meet with so many of our veterinarians at conferences and events, and they have really prompted the demand to get results quicker and more easily,” Hanzlicek said. “We’re very excited we were able to figure out a way to merge the technology in our lab with the type of programming needed to create this type of an app for mobile devices. We’re breaking new ground because there wasn’t really anything else like this for us to emulate. We’re fortunate to have the right people in our college to develop the application and test it for reliability.”

Justin Wiebers is the director of client connections in the College of Veterinary Medicine.

“We studied what our veterinarians needed and looked at how the best mobile apps in other areas delivered on those types of needs,” Wiebers said. “Then our programmers here in the college went to work.”

Wiebers said push notifications are sent to veterinarians when their samples arrive in the lab and when their test results are ready. The



Veterinarians Dr. Brady Luke and Dr. Charles Luke access diagnostic results in the field on a cellphone using a new app developed by the KSVDL.

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Accredited by the American Association of Veterinary Laboratory Diagnosticians

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

5th Annual KSVDL Continuing Education Conference

February 6, 2016 • Bluemont Hotel • Manhattan, Kansas

8:00 am: Registration

8:50 am: Welcome: Dr. Gary Anderson

9:00 am: Dermatoses of the Paws and Claws: *You can lick these hands-down!* - Dr. Dana Liska

9:50 am: Break

10:00 am: Controversies and Dilemmas in Veterinary Allergies and Infections - Dr. Dana Liska

10:50 am: Break

11:00 am: Case Presentations of Common Dermatoses: *Bring your phone. It's interactive!* - Dr. Dana Liska

11:50: Lunch and Special guest presentations:

KSU College of Veterinary Medicine Update: Dr. Tammy Beckham

USDA update on Small Animal Exports: Dr. Kim Kirkham

KSVDL Mobile Apps: Mr. Justin Wiebers

Core Vaccine Diagnostic Testing: Dr. William Fortney

1:00 pm: Parasites & Pruritus: A Practical Approach: Dr. Dana Liska

1:50 pm: Break

2:00 pm: Feline Alopecia - Dr. Mary Bagladi

2:50 pm: Questions & Answers

3:00 pm: Adjourn

Approved CE:

6 Hours of
Small Animal
Dermatology

For more information call the
Continuing Education Office at
785-532-4528 or visit
www.vet.k-state.edu/KSVDL-Conf/.

Featured Speakers:



Dr. Dana A. Liska received her Doctor of Veterinary Medicine from Kansas State University. Following graduation she completed an internship in medicine, surgery, and critical care at Mission MedVet in Mission, Kansas. Dr. Liska then practiced general, small animal medicine for four years in Helena, Montana. In 2004 she began a dermatology residency at the University of Florida College of Veterinary Medicine. Upon completion of her residency she remained at the University of Florida CVM as a clinical instructor of Dermatology until she moved to the Dallas area to join the Animal Dermatology Referral Clinic. She gained Diplomate status in the American College of Veterinary Dermatology in 2006. Currently she practices at the Animal Dermatology Referral Clinic in Grapevine TX.



Dr. Mary Bagladi-Swanson received her Doctor of Veterinary Medicine from Kansas State University. She then completed a Dermatology Residency at Cornell University. She gained Diplomate status in the American College of Veterinary Dermatology in 2006. Dr. Bagladi-Swanson is Clinical Associate Professor in the Kansas State University College of Veterinary Medicine.

Too Much of a Good Thing...Over Supplementation of Minerals in Cattle

By Dr. Jamie N. Henningson, DVM, PhD, DACVP

Minerals and vitamins are essential nutrients required for a diverse range of daily functions of the body. Minerals are important in cattle for maintaining health and reaching optimal growth and reproductive rates. The levels of minerals needed depend on age, stage of production, diet, and environmental availability. High quality forages and grains can provide large amounts of required minerals, and cattle need both macrominerals and trace minerals. Macrominerals include calcium, magnesium, phosphorus, potassium, sodium, chlorine and sulfur, while trace minerals include iron, manganese, copper, zinc, selenium, cobalt, iodine, chromium, molybdenum and nickel. Many minerals are available in the soil and therefore the need for supplementation can vary by geographic region.

At KSVDL we have recently seen several cases of acute hepatic necrosis in which the common thread in the history is mineral supplementation, sometimes higher than labeled recommendations. In case 1, calves were processed which included vaccination and supplementation with an injectable mineral product at 2.5 times the labeled dose. Within 48-72 hours, three calves died and the third one was submitted for necropsy. The cows had been supplemented with an oral mineral source. Case 2 consisted of cows with chronic wasting and a history of a liquid supplement being used. Case 3 was two calves that died 2 days after vaccination and administration of an injectable mineral supplement at higher than the labeled dose.

Over supplementation of minerals can cause various clinical signs, lesions and death. Acute selenium toxicosis is usually evident within a

few hours to two days after overconsumption or injection. Major lesions can include pulmonary edema, pulmonary congestion, pulmonary hemorrhage, hepatic necrosis, myocardial necrosis, myocardial hemorrhage, and renal necrosis. Acute copper toxicity often causes severe hemorrhagic gastroenteritis and congestion of the liver, kidneys and spleen, while chronic copper toxicity results in gunmetal-colored kidneys, port-wine-colored urine, icterus, an enlarged spleen, and hepatic and renal necrosis. Toxicity from iron can result in enteritis, liver necrosis, icterus and hemoglobinuria. In addition, toxicity from zinc will result in lesions of gastroenteritis, renal necrosis and liver necrosis.

Many mineral toxicities can cause liver necrosis, and we have seen cases of this at KSVDL with histories that indicate mineral over supplementation. In many cattle operations, cows are supplemented with an oral source and calves are given an injectable. Multiple sources of mineral



Figure 1. Liver from case 1 that is soft and swollen. In some cases, gross lesions are not seen.

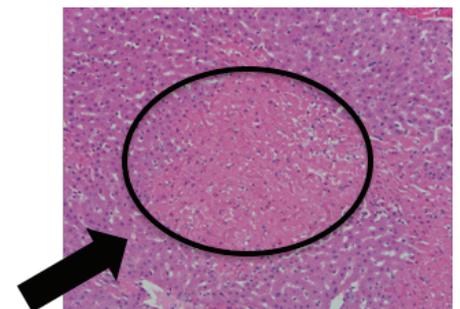


Figure 2. A central area of liver necrosis (pink area with loss of cellular detail.) Coalescing with another area of necrosis in the lower right corner present in a cow from case 2.

	Age	Lesion	Sample	High Mineral Values
Case 1	Calf	Acute hepatic necrosis	Liver	Selenium: 18.6 (Ref Range: 1.5-3.5)
Case 2	Cow	Acute hepatic necrosis	Serum and Liver	<ul style="list-style-type: none"> • Selenium, serum: 116 (Ref Range 70-100) • Selenium, liver: 1.9 (Ref Range .6-3.3) • Zinc, liver: 836 (Ref Range: 90-500) • Molybdenum, Liver: 5.78 (Ref Range 1.8-4.7)
Case 3	Calf	Acute hepatic necrosis	Liver	Iron, Liver: 1042 (Ref Range: 170-750)

supplement and/or a large injectable dose can result in an overdose leading to acute liver necrosis and/or other lesions described above. It is important to

Over Supplementation of Minerals *(continued from previous page)*

consult a bovine nutritionist when considering mineral supplementation. If you suspect a case of mineral over supplementation, samples of formalin-fixed liver and kidney, fresh liver and kidney, and serum should be submitted to KSVDL to adequately evaluate lesions and mineral levels in the case.

References:

1. Merck Veterinary Manual, <http://www.merckvetmanual.com/mvm/toxicology/>.
2. Maxie, G. Pathology of Domestic Animals. Fifth edition. Volume 2: Liver and biliary system. 2007.
3. Osweiler, Gary D. Toxicology. Chapter 17: Metals and Minerals. 1996. Pg 179-212.

Mobile App *(continued from page 1)*

veterinarians can then view and share those results wherever they happen to be working.

"It's a very intricate system to get information from our diagnostic lab database to the individual clients who are using a variety of Android, iPhone, and iPad devices," he said. "We're very excited to help our veterinarians be more productive while breaking new ground in the field of mobile apps for K-State."

The app is available at the App Store and at Google Play; just search for "KSVDL Mobile." Clients can get more information about the app by contacting the KSVDL at clientcare@vet.k-state.edu, 866-512-5650 or visit ksvdl.org.



KSVDL on YouTube

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

- How to Download the KSVDL App for Android Devices
<https://www.youtube.com/watch?v=ad79hSnh3sg>
- How to Download the KSVDL App for iPhone
<https://www.youtube.com/watch?v=3RCE0fqJzKA>
- How to Download the KSVDL App for iPad
<https://www.youtube.com/watch?v=eGcdB7oV87w>
- Tissues for Bovine Abortion Diagnosis
<https://www.youtube.com/watch?v=xlqHjIQ3Sps>



**Subscribe to the KSVDL
YouTube® channel:**

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

KSVDL Personnel Activities

Previous Activities:

- Dr. Jamie Henningson attended the American Veterinary Consultants Meeting in Kansas City.
- Dr. Lalitha Peddireddi co-authored a publication accepted by the journal Ophthalmology titled Evaluation of conjunctival bacterial flora in a herd of goats in the Midwestern United States. Veterinary Ophthalmology (co-authors included Drs. Jessica Meekins; Michael Apley; Brian Lubbers; Amy Rankin.)
- Dr. Megan Niederwerder presented a poster at the North American PRRS Symposium in Chicago, IL, entitled "Association of clinical outcome with microbiome and immunological response following co-infection with porcine reproductive and respiratory syndrome virus (PRRSV) and porcine circovirus type 2 (PCV2)."
- Dr. Jamie Henningson attended the Plum Island Foreign Animal Disease Course
- Dr. Gregg Hanzlicek, with Dr. Nora Schrag, CVM Clinical Instructor investigated weaned calf health issues on a north central Kansas dairy.
- Dr. Jamie Henningson completed Online course training of "Zoonoses: Protecting People and Their Pets" through the Center for Food Security and Public Health.
- Dr. Gregg Hanzlicek presented at a producer meeting in Beloit Kansas sponsored by K-State Research and Extension.

Upcoming Activities:

- Dr. Lalitha Peddireddi will help interview the KSU-CVM Class of 2020 prospective veterinary students.
- Dr. Megan Niederwerder will present a poster during the Research Topics session at the 2016 annual meeting of the American Association of Swine Veterinarians in New Orleans, LA, entitled "Association of growth performance with clinical signs following co-infection with porcine reproductive and respiratory syndrome virus (PRRSV) and porcine circovirus type 2 (PCV2) in nursery pigs."
- Dr. Gregg Hanzlicek will participate in the K-State Research and Extension Calving School in Smith Center, KS.
- Dr. Gregg Hanzlicek will present at the 2016 Winter Ranch Management Seminar Series in Emporia and Lawrence, KS.
- Dr. Bill Fortney will represent the KSVDL at the Oklahoma Veterinary Medical Association Conference in Stillwater, OK and the Missouri Veterinary Medical Association Conference in St. Charles, MO.
- Dr. Mike Moore will represent the KSVDL at the Nebraska Veterinary Medical Association Conference in Kearney, NE.

New Resources

Visit the KSVDL Disease Trend Map and BRD Antimicrobial Resistance Pattern pages

www.ksvdl.org



COMING
SOON!

Within the next few weeks, KSVDL clients will be able to make and print UPS labels from their clinic computer. This will eliminate the need to call KSVDL client care to request labels be shipped to you for use.

Watch the KSVDL website, www.ksvdl.org, for more information.

Available Tests

Bovine Neonatal Diarrhea PCR Panels

KSVDL now offers three bovine enteric diarrhea PCR panels:

- For all three panels either 5 gms of feces or 1 gm fresh intestine can be submitted in a sterile container.
- This PCR is completed Monday through Friday and expected Turnaround Time is 1-2 days.
- The results are reported out as Positive, Negative, Suspect, with Ct values.

1. Bovine Neonatal Diarrhea PCR Full Panel

This PCR detects:

<u>Viral pathogens:</u>	<u>Bacterial & Protozoal pathogens:</u>
Coronavirus	<i>E. coli</i> K99
Rotavirus (group A)	Salmonella sp.
	Cryptosporidia sp.

Price: \$60.00

2. Bovine Neonatal Diarrhea PCR Viral Panel

This PCR detects:

<u>Viral pathogens:</u>	Coronavirus
Price: \$38.00	Rotavirus (group A)

3. Bovine Neonatal Diarrhea PCR Bacterial:Protozoal Panel

This PCR detects:

<u>Bacterial and Protozoal pathogens:</u>	<i>E. coli</i> K99
	Salmonella sp.
	Cryptosporidia sp.

Price: \$38.00

Bovine Abortion Tissue PCR Panel

KSVDL is now offering a panel that includes testing for five *Leptospira* serovars (*L. canicola*, *L. grippityphosa*, *L. hardjo*, *L. icterohaemorrhagiae*, *L. pomona*), IBR, BVD type 1 and 2, and *Neospora caninum* in fetal tissue.

Specimens to submit:

1 gm fresh tissues that include: liver, kidney, skeletal muscle, spleen, lung, placenta

Days tested: M-F

Estimated turnaround: 1-2 days

Cost: \$42.00

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



DVM Dx is a software system designed for remote and digital diagnosis of sick or dead animals.

Features: Web and smart mobile technology to gather photos, notes, and other related data fields needed to aid in case diagnosis remotely.

DVM Dx provides veterinarians the ability to collect, analyze, store, and share diagnostic information from any location, making it easy to collaborate with laboratories and producers so they can improve cattle health through rapid disease identification and tracking

For more information, please contact KSVDL Client Care at 866-512-5650 or clientcare@vet.k-state.edu.

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/

February 6, 2016

**5th Annual KSVDL Continuing
Education Conference**

Bluemont Hotel • Manhattan, Kansas
[http://www.vet.k-state.edu/education/
continuing/](http://www.vet.k-state.edu/education/continuing/)

February 13, 2016

KVMA Annual Winter Meeting

Hilton Garden Inn • Manhattan, Kansas
<http://kvma.org>

February 18, 2016

KSU CVM Bull Management Conference

Stanley Stout Center • Manhattan, Kansas
[http://www.vet.k-state.edu/education/
continuing/conferences/Bull-Management-
Conf16/](http://www.vet.k-state.edu/education/continuing/conferences/Bull-Management-Conf16/)

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:

Memorial Day: Closed: Monday, May 26th

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

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