Kansas State Veterinary
DIAGNOSTIC LABORATORY

DIAGNOSTIC *INSIGHTS*

SEPTEMBER 2017

Chronic Wasting Disease (CWD) Testing in Cervids

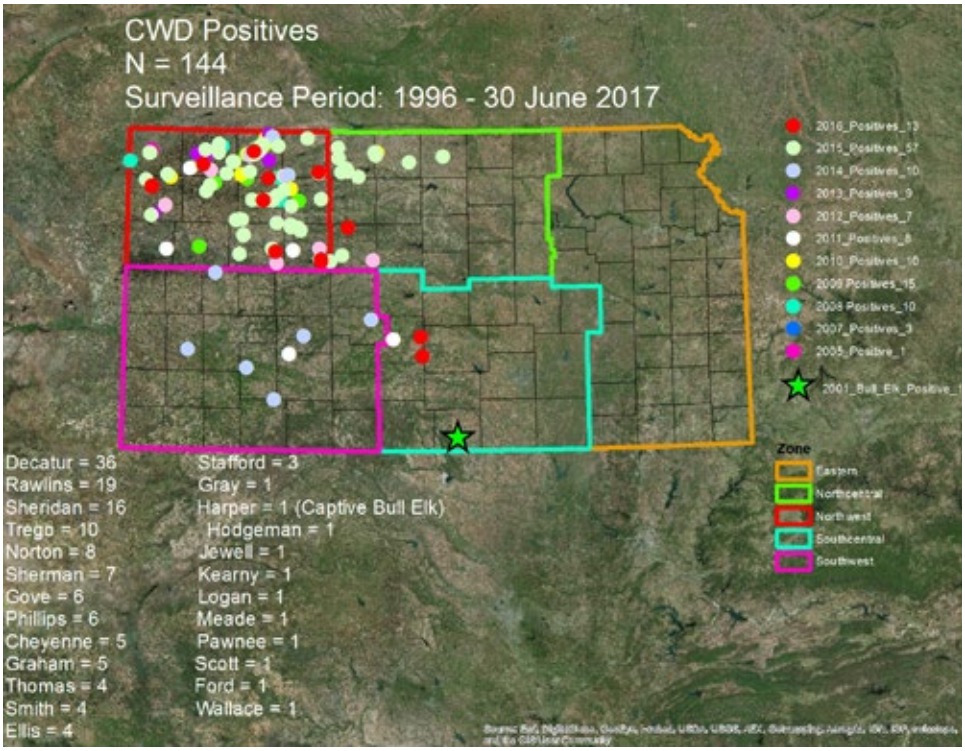
Because of the possibility that CWD is a zoonotic disease, the CDC and Kansas Department of Wildlife, Parks and Tourism recommend that deer and elk be tested for this disease before human consumption if the animal was harvested from an area known to have CWD-positive animals. Over the last few years positive deer have been found in many Kansas Counties (see map below).

In order to make testing easier, KSVDL is offering free CWD test kits to all hunters, veterinary practitioners, and producers. CWD test kits include sample collection instructions, containers of formalin, packaging material, a shipping container, and test submission forms.

There is no charge for the kit. There is a $7.00 charge for shipping the kit from KSVDL. To order a kit please call KSVDL Client Care at 866-512-5650 or email at clientcare@vet.k-state.edu.

Kansas State Veterinary Diagnostic lab offers the CWD test for $28.00 per animal (turnaround time is approximately 3-4 days). For submissions containing whole cervid heads, an additional processing charge of $15.00 per head will be added.

For further instructions on how to collect and package samples for CWD testing, please follow this link to the KSVDL YouTube channel (https://www.youtube.com/watch?v=jzmFN6tVa_k).



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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/

West Nile Virus in Kansas

By Drs. Mike Moore and Katie Delph

History

Since its introduction into North America in 1999, West Nile Virus (WNV) has spread and is now endemic across the US and parts of Canada and Mexico.

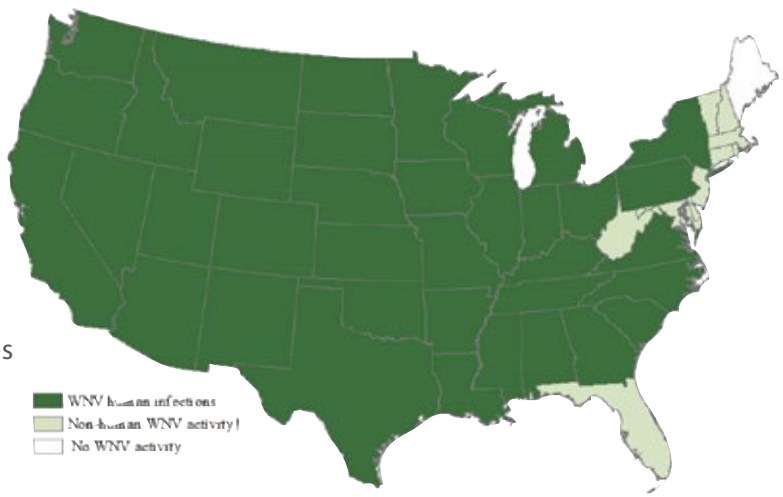
In August 2017, the Kansas State Veterinary Diagnostic Laboratory (KSVDL) confirmed a case of WNV in a horse from Kansas. This adds Kansas to a list of 12 other states confirming 39 recent cases of WNV in horses. This list includes the neighboring states of Colorado and Missouri.

Clinical signs

WNV clinical signs in the horse are highly variable and can include mild fever, feed refusal, and depression without neurologic signs. The neurologic signs that may be present are highly variable, but spinal cord disease and moderate mental aberrations are the most consistent. Spinal cord disease manifests as asymmetric, multifocal or diffuse ataxia and paresis.[1] Less common clinical signs include cranial nerve deficits such as facial nerve paralysis. These signs are difficult to differentiate, without diagnostic tests, from other viral encephalopathies that may be encountered by practitioners, including EEE, WEE, and rabies.

Transmission and Prevalence

WNV is endemic in many reservoir perching-bird populations. Mosquitoes are the vector that transmit the WNV virus from birds to horses and people. Clinical cases in horses tend to cluster in the late summer and fall after increased mosquito activity.



The Centers for Disease Control and Prevention (CDC) reports as of September 5, a total of 47 states and the District of Columbia have reported West Nile virus infections in people, birds, or mosquitoes in 2017 (Figure 1) Overall, 526 cases of West Nile virus disease in people have been reported to the CDC. Of these, 303 (58%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 223 (42%) were classified as non-neuroinvasive disease.[2]

Diagnostics

Ante mortem diagnosis can be accomplished with an IgM ELISA test. This test can be completed on 0.5 ml of serum or cerebral spinal fluid. For neurologic cases, high levels of IgM in the serum, along with clinical signs, can provide a presumptive diagnosis. Elevated IgM in the CSF is definitive.

Post mortem diagnosis is best accomplished by PCR. A one gram sample of brain is required and the estimated turnaround time is two days.

For more information on WNV testing, contact KSVDL at clientcare@vet.k-state.edu or 866-512-5650.

References:

[1] Long, Maureen. "Overview of Equine Arboviral Encephalomyelitis" http://www.merckvetmanual.com/nervous-system/equine-arboviral-encephalomyelitis/overview-of-equine-arboviral-encephalomyelitis#v21432862

[2] CDC "West Nile Virus Activity by State – United States, 2017 (as of September 5, 2017)" https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2017/activitystate.html

Dr. Jamie Henningson appointed interim KSVDL Director

On Aug. 29, 2017, Dean Tammy Beckham appointed Dr. Jamie Henningson interim director of KSVDL.

A long-time resident of Kansas, Jamie was born in Hays and then moved to Topeka where most of her family still resides. She spent most of her time growing up on a 120 acres of land owned by her grandparents and parents north of Topeka. The family owned other areas of land which early on had cattle and corn but was eventually turned into CRP land. She grew up with horses and spent her days running and riding and breaking horses for her dad. Her parents have never had cable television and they didn't get air conditioning until she went off to college, so most of her days were spent outside. She was actively involved in 4-H where she served as president of the local club and was involved in the horse and leatherworking projects. In high school, she competed in running sports and was actively involved in FFA, competing in livestock, horse and poultry judging. Jamie enrolled in Kansas State's College of Agriculture Animal Science program and earned her DVM from Kansas State College of Veterinary Medicine in 2004.

Jamie spent five years in graduate training at the Nebraska Veterinary Diagnostic Laboratory training under Dr. David Steffen and Dr. Clayton Kelling in pathology and virology. Jamie's graduate degree program focused on a vaccine candidate trial for Bovine Viral Diarrhea Virus (BVDV). PhD in hand (2008), she became a junior faculty member at the University of WI-Madison where she worked as a diagnostic pathologist and taught reproductive pathology. In 2009, she passed the American College of Veterinary Pathologists board exam. In 2010, she joined the swine virology group at the National Animal Disease Center in Ames, IA with a primary focus on pandemic influenza and the highly pathogenic PRRSV.

Late in 2011, Jamie enthusiastically returned to her alma mater as a diagnostic pathologist at KSVDL. Jamie is heavily involved with unraveling interesting diagnostic cases that present to KSVDL and has been the primary pathologist in a number of research projects. Her primary interest is bovine pathology. She is currently the liason between the Academy of Veterinary Consultants (AVC) and American Association of Veterinary Laboratory Diagnosticians (AAVLD) and is participating in the Executive Veterinary Program (EVP) for beef.

Outside of work, Jamie enjoys spending time with her two wonderful kiddos, a girl and boy, 11 and 9 years of age. Her daughter is involved in girl scouts, basketball, running and cyclecross, while her son plays football and wrestles. Jamie is a Girl Scout troop leader and runs a summer youth cycling program in Manhattan to encourage city kids to spend time outdoors.

During this transition period, her goal is to continue to build on the solid foundation of KSVDL built by Dr. Gary Anderson and many other excellent directors of the past. Our mission at KSVDL remains the same and our number one goal is to provide the best service to KSVDL clients. Please feel free to call her with questions and concerns about any aspect of KSVDL, as we cannot continue to grow and improve without valuable clientele input.

KSVDL pathologist Dr. Brad Njaa provides necropsy training to graduate students during Transboundary Animal Diseases course

Dr. Brad Njaa, a KSVDL board-certified pathologist, participated in a 3 credit graduate course entitled Transboundary Animal Diseases (TAD) that was offered this summer at KSU at the Biosecurity Research Institute. Dr. Njaa served as a guest lecturer, and Dr. Dana Vanlandingham, an Associate Professor in Diagnostic Medicine/Pathobiology, was the course coordinator. Dr. Alfonso Torres was the primary course instructor. He is Professor Emeritus of Cornell University College of Veterinary Medicine, the former Director of USDA's Plum Island Disease Center, and is now an Adjunct Professor in Diagnostic Medicine/Pathobiology in the KSU-CVM.

During the morning session, Dr. Njaa performed a calf-necropsy with emphasis on sample collection and potential lesions that could afflict a bovine had it been infected with one of several TADs. Although the ideal scenario would have been to encourage the students to participate in necropsy exams of animals truly infected with TADs at a facility such as Plum Island or NBAF, neither facility was available for participation in this course.

The course focused on understanding the pathology, potential spread, and impact of Transboundary Animal Diseases in the U.S. and worldwide. A few of the diseases discussed included foot and mouth disease, vesicular stomatitis, screwworm, and transmissible spongiform encephalopathies.

As a reminder to practicing veterinarians, if clinical signs suggest a TAD, the first course of action is to call your regional USDA veterinarian. These veterinarians will provide guidance concerning the next appropriate steps, and they will usually conduct any diagnostic sampling and submission activities.

KSVDL YouTube Channel: Timely Videos!

https://www.youtube.com/channel/UCtx-lIIXqj5PAMQYryXaRhA

- Deep Pharyngeal Swab from Live Cattle
  https://www.youtube.com/watch?v=WB3luk1nQjY
- Online Submission From for the Core Vaccine Titer Test
  https://www.youtube.com/watch?v=1TZf_bGFAbc
- Tissue Sampling for Rabies through the Foramen
  https://www.youtube.com/watch?v=aSEyLw79imA
- Nasopharyngeal Wash to Diagnose Streptococcus equi or for Strangles Quarantine Release
  https://www.youtube.com/watch?v=gHm2lWEuQmo
- Using Nasal Swabs for EHV 1 and 4 and Influenza Sampling
  https://www.youtube.com/watch?v=LxlUy5T3Sqo

KSVDL Personnel Publications and Activities

Activities

Drs. Kelli Almes, **Brian Lubbers** and **Megan Niederwerder** participated at K-State College of Veterinary Medicine Birthing Center at the Kansas State Fair in Hutchinson.

Dr. Doug Marthaler attended the Lehman Conference in St. Paul, Minnesota.

Drs. Jamie Henningson, **Mike Moore** and **Gregg Hanzlicek** attended the 50th annual American Association of Bovine Practitioners Convention (AABP) in Omaha, Nebraska.

Dr. Megan Niederwerder presented, "Role of the microbiome in respiratory disease" at AABP.

Dr. Gregg Hanzlicek will present at the KSU Animal Science Beef Stocker Day in Manhattan, Kansas.

Dr. Mike Moore will be representing the KSVDL at the Southwest Veterinary Symposium in San Antonio, Texas.

Dr. Doug Marthaler will be attending the American Association of American Veterinary Laboratory Diagnosticians (AAVLD) meeting in San Diego, California, and co-organizing the symposium entitled, "Next Generation Sequencing: Application in Veterinary Diagnostic Laboratories, A Multidisciplinary Symposium." He will also be co-chairing the Virology Committee.

Fangfeng Yuan, **Dr. Lalitha Peddireddi's** graduate student will present, "Development of a quantitative real time RT-PCR assay for sensitive detection of emerging Atypical Porcine Pestivirus associated with congenital tremor in pigs" (Fangfeng Yuan, Xuming Liu, Jianfa Bai, Gary Anderson, Ying Fang, Bailey Arrud, Paulo Arruda, Lalitha Peddireddi) at the AAVLD meeting.

Dr. Doug Marthaler will be presenting "Molecular epidemiology, clinical relevance and diagnosis of porcine rotaviruses A, B and C at the Western Canadian Association of Swine Veterinarians.

Drs. Gary Anderson and **Mike Moore** will be representing the KSVDL at the American Holistic Veterinary Medical Association Conference in San Diego, California.

Publications

In Print

Tousignant SJP, Bruner L, Schwartz J, Vannucci F, Rossow S, **Marthaler DG**. Longitudinal study of Senecavirus a shedding in sows and piglets on a single United States farm during an outbreak of vesicular disease. BMC Vet Res. 2017 Aug 31;13(1):277. doi: 10.1186/s12917-017-1172-7. PubMed PMID: 28859639; PubMed Central PMCID: PMC5580203.

Diaz A, **Marthaler D**, Culhane M, Sreevatsan S, Alkhamis M, Torremorell M. Complete Genome Sequencing of Influenza A Viruses within Swine Farrow-to-Wean Farms Reveals the Emergence, Persistence, and Subsidence of Diverse Viral Genotypes.J Virol. 2017 Aug 24;91(18). pii: e00745-17. doi: 10.1128/JVI.00745-17. Print 2017 Sep 15. PubMed PMID: 28659482; PubMed Central PMCID: PMC5571239.

Diaz A, **Marthaler D**, Corzo C, Muñoz-Zanzi C, Sreevatsan S, Culhane M, Torremorell M. Multiple Genome Constellations of Similar and Distinct Influenza A Viruses Co-Circulate in Pigs During Epidemic Events. Sci Rep. 2017 Sep 19;7(1):11886. doi: 10.1038/s41598-017-11272-3. PubMed PMID: 28928365.

Sun D, Vannucci F, Knutson TP, Corzo C, **Marthaler DG**. Emergence and whole-genome sequence of Senecavirus A in Colombia. Transbound Emerg Dis. 2017 Oct;64(5):1346-1349. doi: 10.1111/tbed.12669. Epub 2017 Jul 16. PubMed PMID: 28714178.

Ober, R.A., J.B. Thissen, C.J. Jaing, A.G. **Cino-Ozuna**, R.R.R. Rowland, and **M.C. Niederwerder**. 2017. Increased microbiome diversity at the time of infection is associated with improved growth rates of pigs after co-infection with porcine reproductive and respiratory syndrome virus (PRRSV) and porcine circovirus type 2 (PCV2). Vet Microbiol. 208: 203-211

In press or accepted for publication

Chen Z, Collin E, **Peddireddi L**, Clement T, Gauger P, Hause BM. "Genetic diversity of contemporary U.S. porcine reproductive and respiratory syndrome virus influences viral fitness and antigenicity". PLoS One

Louden Wright, David Eshar, James W. Carpenter, Denise Lin, **Aiswaria Padmanabhan**, **Lalitha Peddireddi**, **Giselle Cino**. "Suspected hepadnavirus association with a hepatocellular carcinoma in a blacktailed prairie dog (Cynomys ludovicianus)". Journal of Comparative Pathology

Brian V. Lubbers, David G. Renter, **Richard A. Hesse**, **Lalitha Peddireddi,** M Thomas Zerse, Elizabeth A. Adams, Brent D. Meyer. "Prevalence of respiratory viruses and Mycoplasma bovis in U.S. cattle and variability among herds of origin, production systems and season of year". Bovine Practitioner

Field Investigations

Multiple year epidemic of pasture (summer) pneumonia in two Kansas beef herds

Milk quality issues occurring at a Kansas dairy

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.

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Continuing Education

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

October 21-24, 2017
AHVMA Annual Conference
San Diego, California
https://www.ahvma.org/conference-schedule/

November 30-December 2, 2017
Academy of Veterinary Consultants
Kansas City, Missouri
http://avc-beef.org/meetings/registration.asp

January 11-13, 2018
Kansas Veterinary Medical Association Annual Conference
Manhattan, Kansas
http://www.ksvma.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, Nov. 23 and Friday Nov. 24
Open: Saturday Nov. 25, normal business hours (8 a.m. to 12 noon)
Christmas: Open Saturday, Dec. 23; Closed Monday Dec. 25
New Year's Day: Open Saturday Dec. 30; Closed Monday Jan. 1

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

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