



# StockQuotes: Animal Health Newsletter

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## INSIDE THIS ISSUE

State Veterinarian Notes	1
Equine Infectious Anemia Investigation	2
Chronic Wasting Disease Surveillance	3
Bovine Tuberculosis	4
Human Brucellosis	5
Veterinary Diagnostic Laboratory Update	6

## CALENDAR OF EVENTS:

**Board of Livestock Meeting:**  
January 23, 2018

**MVMA Meeting:**  
January 26-27, 2018

**Deputy Veterinarian Training:**  
January 17, 2018  
June 20, 2018

Quarterly Newsletter from the Animal Health Bureau of the Montana Department of Livestock

## State Veterinarian Notes

Best wishes for the new year. We've experienced a number of changes in the last 12 months that may be worth recapping.

**Department Reorganization:** The Bureaus of Animal Health, Milk & Egg, Meat & Poultry Inspection, and Veterinary Diagnostic Laboratory now make up the combined Animal Health and Food Safety Division. Brands Enforcement Division, which is focused on livestock theft prevention and fraud investigation, is the other main division.

**Personnel:** There has been a significant personnel change with the retirement of Evaleen Starkel at the beginning of September. Anyone who has called the state veterinarian's office for the last 32 years, has likely spoken with Evaleen. Evaleen has served the department and the state of Montana with quiet, understated excellence for many years, and will be missed.

Dr. Bill Layton, who has served as the director of the veterinary diagnostic laboratory since 2001 has retired as of the end of the calendar year. Dr. Steve Smith has been named the interim director while we conduct a search for a permanent replacement.

**Disease Updates:** We're continuing to see disease challenges both internal and external. Most recently, we've been investigating several cases of equine infectious anemia (EIA) on a single premises in Gallatin County; we can be thankful that the disease does not seem to have spread beyond the single facility. The facility owner has been cooperative in resolving the current incident and should be released from quarantine in the spring.

Chronic Wasting Disease (CWD) has been found in Montana deer harvested in Carbon

County and in north central parts of the state. While the finding is unfortunate, it's not entirely unexpected based on the disease being present in states to the south and in Canada. More on CWD in this newsletter on page 3.

South Dakota has announced yet another tuberculosis (TB) affected herd. The herd, with fewer than 500 head, was detected in November and was found to be heavily infected with several dozen animals having lesions compatible with tuberculosis found at slaughter. Unlike the herd detected in South Dakota earlier in 2017, there don't seem to be any movements or purchases (traces) associated with Montana. Nevertheless, this latest finding serves as an important reminder of the importance of continued TB surveillance, diligent caudal fold tuberculin (CFT) testing by private practitioners, and awareness of animal health regulations for animal movement. Please see the TB column (page 4) for an explanation of how we monitor TB testing by private practitioners.

Lastly, you may find the brucellosis column of interest. Several cases of vaccine-induced *Brucella abortus* infections in humans have been recently confirmed. Brucellosis in humans is difficult to diagnose based on the nonspecific symptoms, extended incubation, and rare occurrence. Vaccine strain is yet more challenging because it was specifically designed to not be detected through standard serological testing which allows easy differentiation between naturally infected and vaccinated animals.

The recent cases of the disease in humans highlight; a) the vital role of milk pasteurization, b) the need to perform risk analysis prior to vaccinating animals outside the Greater Yellowstone Area, and c) the importance of a close working relationship between veterinarians, animal owners, and physicians.

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## WHAT'S NEW:

1. Equine Infectious Anemia (page 2)
2. Chronic Wasting Disease (page 3)
3. Human Brucellosis (page 5)

# Equine Infectious Anemia

In October, the Montana Department of Livestock (MDOL) announced the detection of several EIA positive equids belonging to a single owner in Gallatin County. The positive animals were tested for an upcoming out of state movement. The premises and all associated equids was placed under quarantine and MDOL began the process of tracing movements in and out of the herd.

EIA is a retroviral disease of equids. While most animals will show very mild or inapparent clinical signs, the disease may be characterized by fever, anemia, edema, and cachexia. The disease is transmitted mechanically on the

mouthparts of biting insects, primarily horse and deer flies. Symptomatic horses, associated with a higher viral load, are more likely to transmit the disease. It is estimated that only one fly bite out of six million to an inapparent carrier is likely to result in a competent transmission risk. The virus can also be transmitted by blood transfusion or on contaminated needles, dental instruments, or surgical equipment.

The Uniform Methods and Rules (UMR) for EIA produced by the United States Department of Agriculture (USDA) outline the following components for epidemiological investigations:

- EIA reactors (AGID positive) must be quarantined and separated from other equines by no less than 200 yards.
- Quarantine of EIA reactors is required until animals die or are euthanized.
- Following removal of EIA reactors, by euthanasia or by spatial separation, all remaining animals on the premises must be tested at 30-60 day intervals, until no new cases are found.
- Quarantine release of exposed animals can occur once remaining equines have

tested negative for a minimum of 60 days.

- All equines within 200 yards of the affected premises must also be placed under quarantine and undergo testing.

MDOL has identified 7 contact premises that have either been exposed to the index herd or have received animals from the index herd. At this time, 2 premises remain under quarantine pending completion of EIA testing. No additional positive premises have been identified.

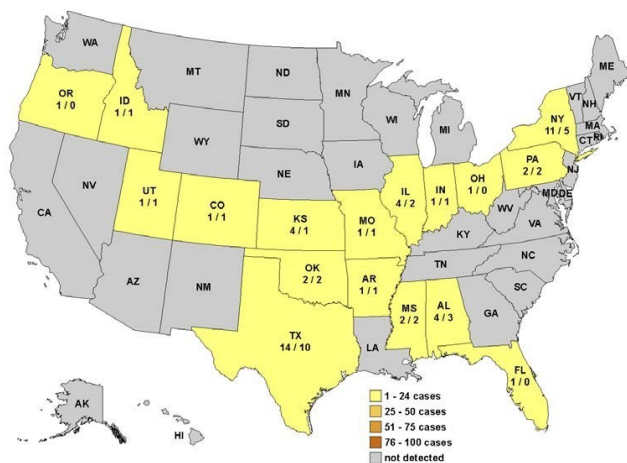
The source of introduction of EIA has not been determined, although the investigation is ongoing. The herd is geographically isolated and all recent introductions have tested negative.

At this time, the plan for the expected herd includes:

- Euthanasia of EIA reactors
- Euthanasia of a foal born to one of the EIA reactors – the test out process for foals born to EIA reactors can take up to one year due to the presence of maternal antibodies that may produce false positive results in weaned animals, and quarantine on the entire herd must be maintained for the duration of that testing.
- Three whole herd tests of remaining animals – two of these tests will occur prior to quarantine release. The third test will occur approximately 6 months later (following vector season) to ensure that no animals have gone on to seroconvert. One recent study suggests the time it takes infected animals to seroconvert may exceed the previously established time of 60 days.

MDOL and the local veterinarian have been working with the USDA and Gluck Equine Research Center in Kentucky to determine if any of the EIA reactors meet the screening criteria for their EIA reactor research herd. Ongoing research in the United States is primarily focused on the advancement of diagnostics testing capabilities. ☒

By Tahnee Szymanski



**FIGURE 1:** Reported numbers of horses and premises testing positive for EIA, 2016.

[https://www.aphis.usda.gov/animal\\_health/downloads/animal\\_diseases/2016\\_eia\\_annual\\_final.pdf](https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/2016_eia_annual_final.pdf)

# Chronic Wasting Disease

Fish, Wildlife & Parks (FWP) has recently detected chronic wasting disease (CWD) for the first time in wild, Montana deer. FWP is conducting CWD testing as part of a surveillance plan for the disease after it was detected in several neighboring states and provinces. The goal of the CWD surveillance plan is to determine the distribution and prevalence of CWD in Montana. FWP implemented the plan with the 2017 general hunting season. Each season testing efforts will be focused in different high-risk parts of Montana, with one location targeted each year.

The initial 2017 CWD focus area was in south-central Montana where positive animals had been detected just south of the WY state line. Future target areas include the Hi-Line along the Canadian border, eastern Montana along the border with South Dakota and Wyoming, and Phillipsburg where a CWD positive captive cervid herd was depopulated in 1999.

FWP identified several CWD positive mule deer and one CWD positive white-tailed deer as part of their initial sampling efforts during general season in south-central Montana. An additional single positive mule deer was found in north-central Montana. There are special hunts occurring in both regions in hopes of collecting enough samples to define the prevalence of CWD infection in those deer herds.

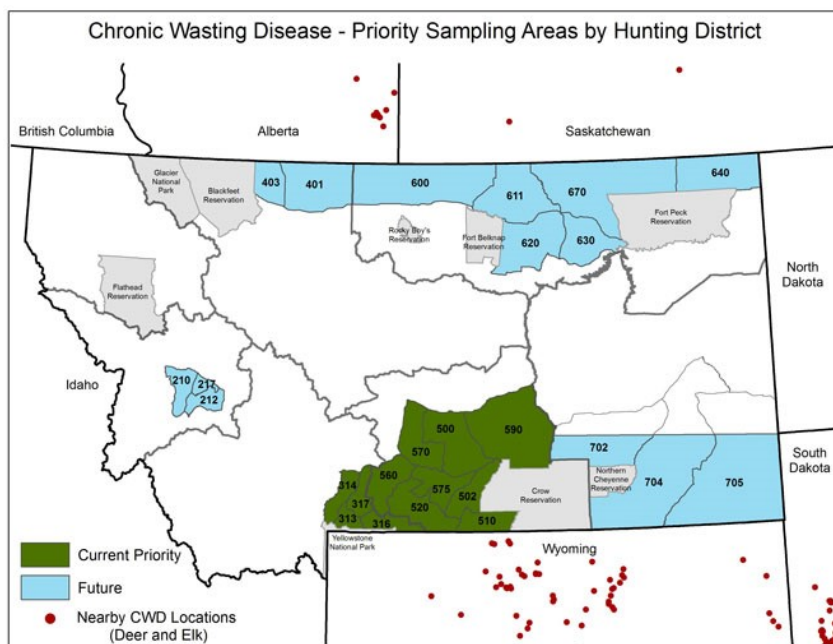
There is currently no evidence that CWD is transmissible to cattle or sheep; there is some new research that suggests swine may be susceptible to infection with CWD. There have, as yet, been no documented cases of CWD in people, but a recent study in macaques has raised concerns that humans may be susceptible to the disease. The Centers for Disease Control and Prevention (CDC) recommends that people not consume meat from an animal known to be infected with CWD, and the CDC encourages hunters who harvest an animal in a CWD endemic area have the animals tested prior to consumption.

CWD has devastating impacts on captive cervids, and the United States Department of Agriculture (USDA) requires captive cervid herds that want to ship animals interstate to participate in a CWD Herd Certification Program. As part of this program, Montana requires all captive cervid herds to test all animals over 12 months of age that die or are slaughtered for CWD. The rules governing

CWD testing in alternative livestock are found in the Administrative Rules of Montana (ARM) 32.4.1302-1303.

While there is much that is still not understood about the transmission of CWD, it is clear that wild cervids infected with CWD pose a risk to captive cervids. Several states have found CWD positive cervid herds that were most likely infected by wild deer.

There are several steps that producers can take to discourage fence-line contact between wild and captive cervids including: mowing down all brush and grass on either side of the fence to remove cover attractive to deer, feeding and watering captive animals on the interior of pens away from the outside fence, installing a layer of electric fence on either side of the exterior fence, or even double fencing with a minimum of 3 feet in between fences.



At this time, the Montana Department of Livestock (MDOL) is not considering any changes to CWD testing requirements. CWD detections in wild deer may affect the ability of alternative livestock producers to export animals to other states based on the rules set by those state's animal health officials. Please feel free to contact MDOL (406-444-2043) with any questions or concerns about this emerging disease in Montana. ✕

By Emily Kaleczyc

**FIGURE 2:** Map of CWD sampling areas from FWP.

<http://fwp.mt.gov/fishAndWildlife/diseasesAndResearch/diseases/chronicWastingDisease/management.html>

# Bovine Tuberculosis Surveillance

Recent detections of Bovine tuberculosis (TB) in cattle “close to home” – South Dakota beef herds – are important reminders of the need for continued surveillance efforts here in Montana. Adequate surveillance is a key component of any successful disease eradication program. Private veterinary practitioner involvement through administration of the Caudal Fold Tuberculin (CFT) test on cattle is the cornerstone of our state surveillance efforts.

Minimum guidelines for CFT test performance have been established by USDA-APHIS-Veterinary Services (USDA-APHIS-VS) using validated statistical methods based upon the tests known sensitivity and specificity. A known false positive rate, of approximately 1 percent or greater, means that each practitioner (and all practitioners as a whole) should report one responder per 301-473 cattle or bison tested. This evaluation of compliance in administering the CFT test serves as part of established Federal surveillance standards necessary to substantiate the national TB status claim.

Montana is currently classified as a TB Accredited-free State by USDA-APHIS-VS. TB Accredited-free status means cattle may be moved interstate with no federal restrictions for tuberculosis. To maintain TB Accredited-free status, Montana must continue to prove it meets the CFT performance standards outlined above each year. While Montana accredited veterinarians met the state-wide performance

Individual veterinarians who do not meet the performance standard will be contacted by a State of Federal veterinarian to review proper CFT testing technique, which may include a site visit to observe CFT injections and/or 72-hour observations. VS-MT and MDOL veterinarians are available to offer on-site mentoring or “refresher training” to any interested practitioners!

Bovine Tuberculin (PPD Bovis) is available in 1.0 ml (5-6 CFT tests), 5.0 ml (35-40 CFT tests), and 10.0 ml (75-80 CFT tests) vials. Please evaluate your PPD Bovis needs for scheduled or anticipated TB testing and take into consideration the availability of the three different PPD vial volumes – place tuberculin orders based on the vial volume best suited for the scheduled or anticipated testing. Tuberculin orders should be placed through the MDOL at (406) 444-2043.

PPD Bovis should be stored and handled according to the following guidelines:

- Store between 35° F and 45° F.
- Do not allow to freeze – tuberculous proteins will precipitate. PPD Bovis that has frozen should not be used.
- Store in a dark place – tuberculous proteins are denatured if exposed to light.
- Discard vials 2 weeks after initial use – tuberculous proteins become denatured (oxidized) when exposed to air (i.e. needle hole(s) in stopper).
- Vials should be gently rocked or inverted 5 to 10 times prior to use – tuberculous proteins tend to adhere to the inner surfaces of vials.



**Table 1. Summary of Tuberculosis Caudal Fold Tests Performed by Accredited Veterinarians (AVs) (Cattle and Bison only) – Montana, Federal Fiscal Year 2017**

Fiscal Year (October 1 – September 30)	Number of CFT tests performed	Number of expected responders	Number of responders reported	Number of AVs conducting CFT tests	Number of AVs conducting >300 CFT tests annually	Number of AVs meeting or exceeding performance standard
2017	6658	52	76	83	4	2

standard in FY2017, not all individual practitioners met the expected CFT response rate.

USDA-APHIS-VS in Montana (VS-MT) and the Montana Department of Livestock (MDOL) work together to review all TB surveillance data, including CFT response rates by practitioners conducting TB testing in Montana.

We appreciate your vigilance and continued work to protect Montana’s livestock herds and producers! ☘

By Thomas Linfield



# Human Cases of Brucellosis

Brucellosis has been in the national news lately due to several cases of human exposure.

**Texas:** A Texas patient reportedly drank raw milk in June 2017 from a legally permitted raw milk dairy with fewer than 50 head of Jersey cows. Texas allows the sale of raw milk only at the farm of origin. The Centers for Disease Control and Prevention (CDC) helped identify around 800 households that were potentially exposed to RB51 after receiving milk from this dairy. According to the CDC, this was the first documented case of a human RB51 infection from drinking raw milk in the U.S.

RB51 infections present diagnostic challenges because the vaccine strain does not elicit an antibody response detectable with typical brucellosis tests such as serology and brucellosis ring testing of bulk milk samples. The cows shedding RB51 were only detected when individual milk samples from each cow were collected for culture at the National Veterinary Services Laboratory (NVSL) in Ames, IA. Two of the cows were culture and PCR positive for strain RB51. Strain RB51 was also cultured from bottled milk from the dairy. Whole genome sequencing correlated the case patient's blood culture with the cultures from the two cows.

Both cows were in their second lactation and had not received RB51 since their initial calf-hood vaccination between 7-8 months of age. At necropsy, RB51 was cultured from lymph nodes of both cows, and one cow had gross lesions in her udder and several lymph nodes. Both positive cows were removed from the string and milk sales resumed following numerous individual animal milk cultures and additional serologic testing.

The reason for RB51 colonization and shedding continues to be investigated. Reasons for colonization and shedding could include other compromising conditions such as increased susceptibility due to genetics, or vaccine lot or administration issues. Other factors could include immunosuppressive diseases such as BVD or BLV.

**New Jersey:** We know less about the human RB51 case in New Jersey. The patient reported consuming raw milk distributed by a company, Udder Milk that advertises raw milk deliveries in New Jersey, New York, Rhode Island, and Connecticut. Udder Milk has not cooperated

with health officials and is refusing to provide information on their source farms and customer distribution lists. Transportation of raw milk across state lines for sale is illegal as is the sale of raw milk in New Jersey and Rhode Island.

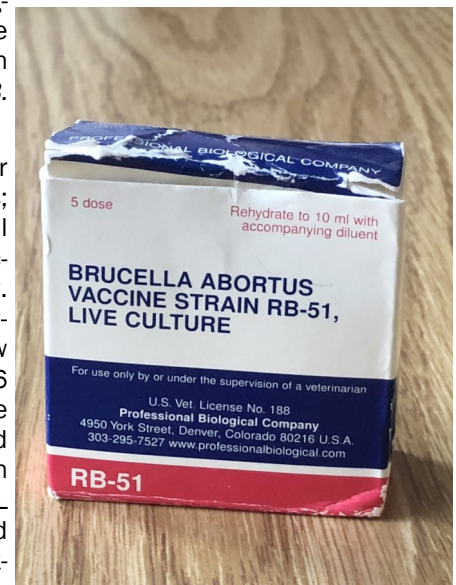
**Wyoming:** In Wyoming, a man was hospitalized while doctors attempted to diagnose the cause of "indescribable pain" between his hips. After 3 months of negative testing, a human infectious-disease expert diagnosed brucellosis through positive serology and confirmed the infection with a blood culture growth of *B. abortus*.

The normal incubation period for brucellosis in humans is 6 weeks; the WY patient had two potential sources of exposure, but both occurred outside that typical window. Two years prior, the patient had travelled to India and consumed raw dairy products. During the 2016 hunting season (10 weeks before symptom onset) in WY the man had cut his hand while field dressing an elk. Genotyping results from NVSL indicate that the bacteria cultured from the patient is most closely related to *B. abortus* cultures from elk in Wyoming's DSA.

This case emphasizes the risks of emerging and re-emerging diseases. The intersection of human, livestock, and wildlife diseases can pose particular challenges that necessitate close working relationships between veterinarians and human physicians.

The cases of exposure to RB51 through raw milk provide an opportunity to review the advisability of vaccination with RB51 outside the Greater Yellowstone Area (GYA). Use of the vaccine poses risks to veterinarians and others exposed through needle sticks or RB51 abortions, as well as to those exposed through consumption of contaminated raw milk. Several states outside the GYA are re-examining their rules governing vaccination with RB51. Human RB51 infections from milk are easily prevented with pasteurization. ☞

By Eric Liska



**FIGURE 3:** *Brucella abortus* strain RB51 vaccine.

# Interim Director at MVDL

Effective January 1, 2018 Dr. Steve Smith will be the interim director of the Montana Veterinary Diagnostic Laboratory (MVDL).

Steve traces his Montana roots back to the 1800's, to a cattle ranch in Wibaux. He developed an early interest in veterinary pathology and worked at the last county-run diagnostic laboratory in the nation while pursuing his pre-veterinary coursework. Steve earned his DVM from the University of California, Davis, in 2008.

Steve spent three years of residency training at Oklahoma State University. While there, he taught pathology to veterinary students and took part in diagnostic investigations for both the veterinary school and the state diagnostic laboratory. He has presented diagnostic case reports at multiple meetings of the American Association of Veterinary Laboratory Diagnosticians (AAVLD). Steve is particularly interested in ocular pathology and infectious diseases.

In 2011, Steve returned to Montana and began work as a diagnostic pathologist for MVDL. At MVDL Steve has developed new policies and standards as laboratory safety officer, spearheaded the transition to a new electronic Laboratory Information Management System, and assisted in laboratory administration and management.

Outside of work, Steve enjoys spending time with his family and in the outdoors, taking advantage of the many opportunities that Montana offers.

Steve is looking forward to building on the solid foundation laid by previous directors of MVDL. With full AAVLD accreditation, the potential for several new test offerings, and a vision for a new laboratory facility, this is truly an exciting time. The MVDL staff is eager to serve clients by providing the best service possible, and looks forward to what the future holds. ☺

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We're on the Web:  
[www.liv.mt.gov](http://www.liv.mt.gov)



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**Montana Department  
of Livestock**