

Utah Veterinary Diagnostic Laboratory

NEWSLETTER

SUMMER 2026

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UVDL UPDATES

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In honor of National Lab Week, 4/19 – 4/25, we celebrated the hard work and dedication of our team through nautically themed games and activities.



UVDL Staff Members



UVDL Decorated Doors

UNDER
Construction

The construction for our new molecular section in the Spanish Fork branch is making great progress, and should be open by fall of 2026. The Logan location will also be under construction the end of June as they upgrade the necropsy area. Collectively, laboratory personnel appreciate your ongoing support while we upgrade our facilities.

Please check our website, www.usu.edu/uvdl/, for updates on tests offered, online payments, and for information on sample submissions.

College of Veterinary Medicine
UtahStateUniversity.

CASES IN FOCUS

What is Q-Fever ?

-Tiffany Tolbert, DVM, MPH

Q fever is a disease known to cause illness in both animals and humans. The causative agent for Q fever is *Coxiella burnetii*, an obligate intracellular, gram-negative bacteria that is found throughout the animal kingdom. The main reservoir for this disease is domestic ruminants such as goats, sheep, and cattle. Q fever is a disease of importance because it is zoonotic and can negatively affect the reproductive rates of a herd.

Transmission can occur in several ways. Most commonly, it occurs through inhalation of desiccated aerosol particles from the soil, direct contact with infected individuals, and contact with reproductive tissues of infected animals. Other causes include bites from wildlife species and ticks, or contact with products from infected animals such as wool.



Prevention is the best way to manage the disease

Disease is most apparent during the birthing season. Commonly, it may present as abortion storms, sporadic abortions, and dead or weak offspring. It can also cause infertility and metritis, adversely affecting the reproductive capabilities of a flock or herd. Animals can be subclinical carriers and shed the bacteria in their oral/nasal secretions, excrements, and aborted material, making it difficult to identify.

There are a variety of testing options available including immunofluorescence test, ELISA, complement fixation test, PCR, and culture. Samples that are typically accepted include stillbirths, placenta, vaginal discharge, milk, and aborted fetal tissues, but other samples can be appropriate. Discuss with your veterinarian, or submitting laboratory, about what samples to take and how before submission. Unfortunately, there is no true treatment in the US at this time. Although some sources note antibiotic treatment as an option, the efficacy remains undetermined. Since it is a reportable disease within the state of Utah, it must be reported to the state veterinarian and options to control disease spread will be discussed.



Figure 1: Placenta from animal who tested positive for Q fever.

Prevention is the best way to manage the disease. If a herd is known to be uninfected, minimizing new introductions is recommended. Other methods include segregating birthing area from the rest of the flock, good manure management, implementing a tick control program, and proper disposal of the placenta.

Because of the zoonotic potential of Q fever, it is recommended to use caution when working with infected or suspect herds. Disease in humans can vary from subclinical infection up to endocarditis leading to hospitalization. Treatment can last from weeks to years depending on the severity. To mitigate risk of contracting the disease, individuals should use personal protective equipment, not spreading manure on windy days, and if you are at increased risk, such as pregnant or immunocompromised, it is best to avoid exposure completely.

References:

1. Center for Food Security and Public Health. Q Fever. Disease Information - Q Fever. 2017. https://www.cfsph.iastate.edu/Factsheets/pdfs/q_fever.pdf.
2. World Organisation for Animal Health. Manual of Diagnostic Tests and vaccines for Terrestrial Animals 13th edition. Codes and Manuals. 2024. <https://biosecuritycentral.org/resource/core-guidance-and-recommendations/terrestrial-manual/>.

CASES IN FOCUS

Campylobacter spp. abortion in sheep

- E. Jane Kelly, DVM, MS, MPH, DACVPM, DACVM

Recently, two stillborn lambs were necropsied. One of the lambs had classic lesions in the liver indicative of *Vibriosis* (Campylobacteriosis) and a culture of the liver and lung tissue of the lambs confirmed *Campylobacter jejuni* as the causative agent. The gross lesions of *Campylobacter* sp. abortion in small ruminants are typically described as multifocal, pale, irregular circular shaped lesions of 1-3 or 4 cm in diameter seen in the fetal liver.

This lesion is rarely seen. It has only been identified a handful of times over the past few years at the Spanish Fork facility. In this case, two lesions were seen in one of the lambs' livers and they were not very distinct. It is a highly suggestive lesion if seen, but not pathognomonic because *Flexispira rappini* (an occasional cause of abortion) produces similar lesions. A variety of microscopic lesions have been reported. In this case, one of the lambs had multifocal areas of purulent necrosis in the liver (see Figure 1).

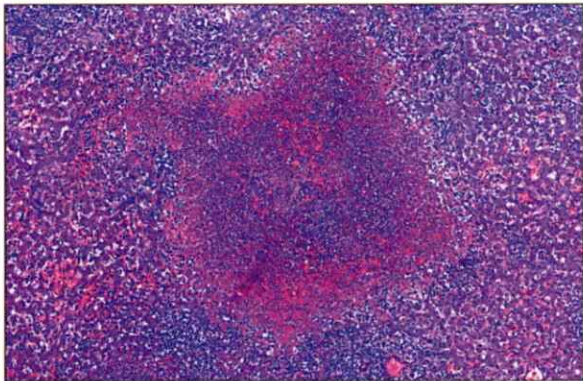


Figure 1: Multifocal areas of purulent necrosis in the liver

Campylobacter spp. are microaerophilic, fastidious, slow-growing bacteria that are Gram-negative thin, curved rods. They are not an unusual cause of abortion in sheep. However, as time has gone on, there have been changes in various aspects of the disease. For example, traditionally (and as it was taught in vet school in the past), it causes late term abortions. Increasingly we see that it also causes stillborn lambs and even lambs that are born alive but weak, then die soon after birth. We used to see *Campylobacter fetus* subspecies *fetus* as the more common cause of abortion, but now *Campylobacter jejuni* is just as commonly associated with ovine abortion as *C. fetus*, if not, more so (3). It is interesting how diseases, pathogens, and even vectors evolve over time. The transition to *C. jejuni* over *C. fetus* subsp. *fetus* as the predominant cause of ovine abortions in this country is believed to be primarily due to rapid multiplication of a genetically identical strain of *Campylobacter*: a hypervirulent tetracycline-resistant *C. jejuni* clone (3).



Campylobacteriosis is more commonly seen in sheep than goats in the United States, but it should be considered as a potential cause of goat abortions as well as in other livestock. *Campylobacter fetus* ssp. *venerealis* is a significant cause of reproductive disease in cattle. It is transmitted during breeding and may cause metritis in cows and occasionally abortion.

It is important to distinguish which species of *Campylobacter* is causing abortions in sheep because some of the vaccines available do not include *C. jejuni*. Strict hygiene is necessary to stop an outbreak. The disease tends to be cyclical in sheep flocks with outbreaks every few years as infected ewes that abort develop immunity. The bacterium resides in the intestine of sheep, some birds, and dogs. Occasionally guardian dogs that ingest aborted fetuses or placenta may shed the organism in their feces, which is one reason why it is important to burn or bury any of the tissues associated with abortions. Ewes that abort may shed the organism in vaginal discharge for several days after abortion. It is important to separate aborting ewes from the rest of the flock to minimize transmission during an abortion storm.

Traditionally, veterinarians working with producers with *Campylobacter* spp. abortions in their flocks have advised treating exposed ewes with tetracycline to reduce incidence of abortion even in the face of an outbreak. However, with the increasing prevalence of tetracycline-resistant *Campylobacter jejuni* variants, this practice is likely much less effective than in years past.

Importantly, *C. jejuni* is zoonotic and may cause mild to severe enteritis in people. *Campylobacter jejuni* is one of the most common bacteria-caused diarrheal illness in the United States. Most commonly, it is caused by consumption of unpasteurized milk or raw/undercooked meat and poultry. However, exposure to aborted fetuses and weak lambs, as well as sheep feces, may also cause infection. Immunosuppressed people, young children and the elderly are more susceptible to infection.

Pregnant women should avoid working with small ruminants during abortion storms. Though Campylobacteriosis is only rarely a cause of reproductive loss in women, some of the other potential causes of small ruminant abortion (such as *Chlamydia abortus*, *Toxoplasma gondii*, *Coxiella burnetii*, and *Listeria monocytogenes*) pose a significant risk to pregnant women.

References:

1. Markey B, Leonard F, Archambault M, et al, editors. Clinical Veterinary Microbiology, 2nd edition, 2013 Mosby Elsevier, Chapter 24 Campylobacter, Arcanobacter and Helicobacter species, pages 335-343.
2. Pugh DG. Sheep & Goat Medicine, 2002 W. B. Saunders, Chapter 6 Theriogenology of Sheep and Goats, pages 178-185.
3. Sahin, O, Yaeger M, Wu Z, et al. Campylobacter-Associated Diseases in Animals. Annu. Rev. Anim. Biosci. 2017. 5: 21-42

CASES IN FOCUS

Anthrax Reemerges in the Intermountain West: A Reminder to Stay Vigilant

-Chloe Stenkamp-Strahm, DVM, MS, PhD



Anthrax is a rare but serious disease of grazing livestock that periodically reappears in the western United States. Recently, anthrax was diagnosed in a cow submitted for necropsy to the UVDL Logan branch from a southern Idaho operation after multiple sudden deaths occurred over a short time. Similar to Utah, anthrax had not been documented in Idaho livestock for decades prior to this event. However, cases had been seen in Carbon County, Wyoming as recently as August 2024.

Anthrax is caused by *Bacillus anthracis*, a spore-forming bacterium that releases toxins and can persist in soil. Outbreaks are often associated with environmental 'disruptions' such as drought followed by heavy rainfall, flooding, excavation, or other soil disturbance. Grazing animals become infected primarily through ingestion of spores from contaminated soil or vegetation, though biting flies may also contribute to transmission when carcasses are left exposed.

Clinical Signs/Disease Progression

Disease severity varies by species and route of exposure, but cattle, sheep, goats, bison, elk, and antelope are particularly susceptible to rapidly fatal anthrax septicemia. In ruminants the progression is typically acute to peracute, with death often being the first, and only, sign. The incubation period for anthrax is 3–7 days. When clinical signs are observed prior to death, they may include:

- Fever
- Weakness or staggering
- Difficulty breathing
- Subcutaneous edema
- Bloody diarrhea
- Abortion



Carcasses may show incomplete or absent rigor mortis (normal stiffening after death), and unclotted blood may leak from the nose, mouth, or rectum. This unclotted blood may contaminate the surrounding environment with additional bacteria that sporulate. Luckily, anthrax is not contagious animal-to-animal. In the recent Idaho case, early deaths were initially attributed to natural causes or common toxicities, as affected animals appeared normal shortly before they died. This type of presentation - multiple sudden deaths with little to no warning - can delay recognition of anthrax, particularly on operations that have never encountered this disease. Awareness that anthrax frequently presents without preceding illness is important to minimize further exposure and losses.

Diagnosis / Treatment (Animals)

If anthrax is suspected, do not open, move, or handle the carcass. Exposure of tissues to oxygen allows vegetative bacteria to sporulate, increasing environmental contamination and risk to people and other animals.

Diagnosis is typically confirmed through laboratory testing performed under strict biosafety protocols at laboratories approved to handle anthrax. The Utah Department of Agriculture and Food (UDAF) has recently created a guide for veterinarians, which includes sample collection and submission recommendations: <https://ag.utah.gov/animal-industry/animal-health-program/anthrax/>

In animals that are alive or potentially incubating infection, early treatment with penicillin or oxytetracycline may be effective, and treatment of at-risk animals may help to limit losses. Vaccination of susceptible animals is required for infected herds and is strongly recommended for all susceptible animals within 6 miles of an outbreak. Producers should be aware that the anthrax vaccine does carry a 42-day meat withdrawal, but market value of animals should not be affected.

Diagnostic submission and coordination with state animal health officials likely limited the loss of additional cows in the recent Idaho case. Once anthrax was considered and confirmed, rapid use of antibiotics, vaccination, quarantine, and appropriate disposal of carcasses helped prevent further spread within the operation and to neighboring herds.

Anthrax Reemerges in the Intermountain West:

A Reminder to Stay Vigilant

Human Health Considerations



Although anthrax is a disease of animals, people can become infected through contact with infected animals or contaminated animal products (hides, wool, hair, meat), or by the inhalation of spores. Anthrax is not contagious and does not spread person-to-person, and the risk to the public is extremely low. Those that may be at an increased occupational risk include veterinarians, livestock producers, diagnostic laboratory personnel, and others who work with animals or animal products.

The Centers for Disease Control and Prevention (CDC) publishes detailed, regularly updated clinical guidelines for prevention and treatment of anthrax in adults and children. Medical examination is ideal if exposure is suspected. Post-exposure prophylaxis (PEP) with antibiotics, and in some cases vaccination, can prevent illness in people when started early. Treatment regimens tend to depend on the route of exposure and disease severity. In the Idaho case, PEP antibiotics were prescribed for individuals that managed the affected herd. Diagnosticians at UVDL were vaccinated and treated with antibiotics as well.

Preventing Spread

To reduce the spread of anthrax in suspected cases, the following guidelines are recommended:

- Do not open suspect carcasses
- Remove live animals from potentially contaminated pastures
- Follow quarantine protocols and dispose of carcasses (typically burning in place or deep burial) according to state guidance
- Clean contaminated equipment using hot water and detergent; a 10% bleach solution with a 10-minute contact time is also effective
- Work closely with your veterinarian and state animal health officials



Anthrax Reporting in Utah

Veterinary diagnostic laboratories, veterinarians, livestock owners, and inspectors are required to report suspected or confirmed anthrax cases to the State Veterinarian at UDAF. Suspected human anthrax must be reported within 24 hours to public health authorities. Rapid reporting allows coordinated animal and public health response to protect producers, veterinarians, and the broader community.

Stay Informed

Those involved in the recent anthrax investigation emphasized that the disease did not look the way they expected. Animals died suddenly, so routine explanations were considered first, and concerns about anthrax occurred after losses accumulated. Their experience highlights the importance of contacting a veterinarian promptly after any cluster of unexplained deaths, even in cases where animals appear healthy beforehand.

If you suspect anthrax, contact your veterinarian. Early detection, appropriate response, and coordinated reporting are essential to limit the spread of this bacterium.

References

1. Wyoming Game & Fish Department (WGFD). Anthrax Detected in a Moose Near Elk Mountain. Accessed April 9, 2026. <https://wgfd.wyo.gov/news-events/anthrax-detected-moose-near-elk-mountain>
2. Utah Department of Agriculture and Food (UDAF). Anthrax Guidance. Accessed March 20, 2026. <https://ag.utah.gov/animal-industry/animal-health-program/anthrax/>
3. Merck Veterinary Manual. Anthrax in Animals. Accessed March 20, 2026. <https://www.merckvetmanual.com/infectious-diseases/anthrax/anthrax-in-animals>
4. Centers for Disease Control and Prevention (CDC). Clinical Overview of Anthrax. Accessed March 31, 2026. <https://www.cdc.gov/anthrax/hcp/clinical-overview/index.html>
5. Bower WA, Yu Y, Person MK, et al. CDC Guidelines for the Prevention and Treatment of Anthrax. 2023. MMWR Recomm Rep. 2023;72(6).

CASES IN FOCUS

Disseminated histiocytic sarcoma in a dog

-Dr. Cecilia Degiovanni, DVM, MPH

Clinical history:

A 10-year-old female German shepherd dog with a clinical history of hyporexia and lethargy was submitted for necropsy.

Necropsy findings:

A 33.4 kg (73.6lb) female German shepherd in a moderate state of postmortem preservation and moderate body condition (BCS 3.5/9) was received for necropsy. The liver had multiple white to yellow, firm nodules measuring up to 2 cm in diameter (Figure 1). Approximately 70% of the spleen was replaced by a large, white, firm mass, similar to those present in the liver (Figure 2).

Microscopic findings:

A highly cellular, infiltrative, unencapsulated, and poorly-demarcated neoplasm replaced the normal parenchyma of the spleen and liver. The neoplasm was composed of pleomorphic cells arranged in sheets, streams, and bundles within a pre-existing stroma. Neoplastic cells had large amounts of well-demarcated eosinophilic cytoplasm and often multiple pleomorphic nuclei. Nuclei were central, large, and multiple, with coarse chromatin and large nucleoli. The mitotic count was 20 mitotic figures per ten 400x fields (2.37 mm²). Neoplastic cells exhibited severe anisocytosis and anisokaryosis, and numerous bizarre mitotic figures.

Diagnosis: Disseminated histiocytic sarcoma

Comments:

Histiocytic sarcomas are highly malignant neoplasms that originate from interstitial dendritic cells. Breeds predisposed to histiocytic sarcoma are the rottweiler, golden retriever, and Labrador retriever. Clinical signs are vague and include anorexia, weight loss, and lethargy. Localized lesions can develop in the spleen, lymph node, lung, central nervous system, skin, or joints. Disseminated histiocytic sarcoma occurs when localized lesions disseminate to other organs, mainly the liver and lung. The prognosis of disseminated histiocytic sarcoma is extremely poor.

In this case, the splenic mass was likely the primary lesion that later disseminated to the liver. Disseminated histiocytic sarcoma was the cause of lethargy, hyporexia, and ultimately death observed in this dog.



Figure 1: Affected liver with multiple nodules



Figure 2: Spleen with white mass attached

References:

1. Mauldin E, and Peters-Kennedy J. Integumentary System. In: Maxie MG, ed. Jubb, Kennedy, and Palmer's Pathology of Domestic Animals, 6th ed. Vol. 1. Elsevier, 2016:729-730.
2. Moore P. Canine and Feline Histiocytic Diseases. In: Meuten D, ed. Tumors of Domestic Animals, 5th ed. Wiley Blackwell, 2016:327-328.

EMPLOYEE SPOTLIGHT



SHELBY HANSEN

Hi, I'm Shelby Hansen. Originally, I am from the small town of Thatcher, Arizona. I'm the oldest of two little brothers and our dog, Pepper. I grew up playing softball and dancing. My other hobbies include reading and crafting; my favorite is crocheting plushies. For as long as I can remember, I've been fascinated with animals. I knew from a young age that I wanted to become a veterinarian. In the fall, I will start my second year at USU in the veterinary program. Throughout my first year, I became more fond of large animals. At USU, I am a part of three clubs: Prevet, Animal Science, and The Sheep and Goat Club. Recently, I became a member of the Club Support Committee for the Quinney College of Agriculture and Natural Resources. Throughout the summer, I am working at the UVDL and the OFFLEASH Indoor Dog park. Additionally, I am shadowing at the Animal Medical Clinic in Preston, Idaho.



BROOKLYN LARSEN

I'm originally from Colorado and moved to Logan to attend USU, where I graduated in December with a degree in biochemistry. I've really enjoyed living in Cache Valley and decided to stay after graduation!

What first got me interested in science was wanting to better understand how biological systems work, especially topics related to health and disease. During my undergrad, I had the opportunity to work on protein biochemistry research, which was a really rewarding experience and deepened my interest in the field.

Outside of work, I love spending time outdoors hiking and camping. I've recently gotten into rock climbing and fly fishing, so I'm excited to spend more time practicing both this summer. I also enjoy crafting and sewing, playing guitar, and reading.