

Diseases Transmitted by Small Ruminants

Our topics for this week are:

- Key zoonotic diseases of small ruminants
- Sanitary practices when handling small ruminants

Apparently healthy domestic small ruminants pose little risk of transmitting disease to healthy adult handlers who practice conventional personal hygiene. The risks of physical injury are greater than the risks of acquiring an infectious disease.

Direct Transmitted

Systemic Disease

Brucellosis is a bacterial disease that can cause abortions in goats and sheep and is transmitted to humans by exposure to body secretions (saliva, urine, fetal fluids) or eating meat from infected goats or sheep or drinking unpasteurized milk from goats. The disease in humans is influenza-like and called undulant fever. It is now rare in the United States. Most cases are associated with imported goats.

Rabies in small ruminants cause signs of the disease, i.e., drooling, depression, inappetance, before the transmissible stage. Transmission is not associated with normal-appearing sheep, goats, or South American camelids.

Anthrax is a spore-forming bacteria that can cause blackened skin infection and death in humans. Small ruminants with anthrax can transmit the disease to humans by body secretions, contaminating soil with anthrax spores, or exposure to infected animal's wool or hide. Most (95%) of anthrax in humans is cutaneous and characterized by painless ulceration, fever, headache, and possible septicemia. Other forms are pulmonary from airborne infected wool, hide, or hair and gastrointestinal from ingesting infected meat. Another name for pulmonary anthrax in humans is "Woolsorter's disease."

Listeriosis can cause generalized disease in immunosuppressed humans that includes an atypical pneumonia and meningitis. It is transmitted by contaminated meat, milk products, or raw vegetables or fruit. Transmission is not associated with direct exposure to normal appearing small ruminants.

Leptospirosis is a bacterial disease of small ruminants that is transmitted in infected small ruminant urine. The organism from urine or urine contaminated food or water can be transmitted by gaining entrance into a human's mouth, breaks in the skin, or eyes.

E. coli 0157:H7 is a bacterium that is in the feces of healthy cattle. If ingested by young or elderly people, it can cause bloody diarrhea and less commonly, kidney failure. Most cases in humans are from ingesting undercooked, contaminated ground beef. Small ruminant handlers may be at risk if their immune system is suppressed and poor hygiene leads to ingesting the bacteria from small ruminant feces contamination of their hands or face.

Vesicular stomatitis virus in small ruminants causes blisters in the mouth and nostrils and on the feet and teats. Handlers of animals with vesicular stomatitis blisters can become infected.

Small ruminant tuberculosis (*Mycobacterium bovis*) is usually transmitted to people by drinking raw infected milk, although it can be transmitted by aerosol over long distances and inhaled. *M. bovis* is now rare in the United States.

Respiratory Tract Disease

Coxiellosis (Q Fever) is a bacterial disease that is transmitted by inhalation of dust contaminated by the body secretions of sheep or goats (urine, milk, feces, etc.) infected with *Coxiella burnettii*. The carrier animals may appear healthy.

Digestive Tract Disease

Salmonellosis is a bacterial disease of the digestive system that can invade the blood stream and become systemic. Most cases are acquired by eating undercooked eggs, poultry, pork, or beef or handling reptiles or rodents and carrying the bacteria to the mouth. It is a rare zoonosis from small ruminants.

Campylobacteriosis is one of the most common causes of bacterial diarrhea in humans. Contact with infected ruminants, usually lambs or calves, can be a source if the bacteria gain access to a handler's mouth. Most human cases are from unpasteurized milk or undercooked poultry.

Skin Disease

Contagious pustular dermatitis (soremouth, orf, scabby mouth) is a poxvirus primarily of sheep and goats, although camelids are susceptible. Humans are also susceptible and can acquire the disease when exposed to secretions of infected small ruminant nose and mouth. This is most common on handler's hands after drenching sheep or goats. Dermatophilosis, a bacterial disease of the skin, is transmitted by contact or by stable flies. Ringworm is a fungal infection that can be transmitted by direct contact.

Vector-Borne

No significant vector transmitted zoonotic diseases from healthy-appearing small ruminants are known.

Sanitary Practices

A handler of small ruminants should wear appropriate dress to protect against skin contamination with hair and skin scales or saliva, urine, and other body secretions. Gloves should always be worn when handling the mouth or nose of sheep and goats due to the risk of *contagious ecthyma* (soremouth, orf). Ticks should be controlled. Basic sanitation should be practiced, such as keeping hands away from eyes, nose, and mouth when handling small ruminants, in addition to washing hands after handling them.

Special precautions are needed if sick small ruminants are handled, and sick small ruminants should be isolated from apparently normal small ruminants. New herd members should be quarantined for at least 2 weeks to reduce the risk of transmitting a disease that new animals could be incubating before introducing to the rest of the herd.

Contact with wildlife should be controlled, especially rodents.

Now let's recap the key points to remember from today's episode:

- 1. Adult rams, buck goats, and stud camelids can be dangerous to handlers, particularly during breeding seasons. Physical injuries from handling small ruminants are more common in developed countries than infectious diseases.**
- 2. Gloves should be worn anytime a small ruminant is handled around its mouth due to the risk of contagious ecthyma or vesicular stomatitis.**

More information on animal handling is available in my book, *Animal Handling and Physical Restraint*, published by CRC Press. It is also available on Amazon and from many other fine book supply sources.

Additional information is available at: www.betteranimalhandling.com

Don't forget, serious injury or death can result from handling and restraining some animals. Safe and effective handling and restraint requires experience and continual practice. Acquisition of the needed skills should be under the supervision of an experienced animal handler.