Paratuberculosis

General Disease Information Sheets

What is Paratuberculosis?

Paratuberculosis, also known as Johne's disease, is a chronic, contagious bacterial disease of the intestinal tract that primarily affects sheep and cattle (most commonly seen in dairy cattle), goats as well as other ruminant species. The disease has also been reported in horses, pigs, deer, alpaca, llama, rabbits, stoat, fox, and weasel.

Paratuberculosis is characterized by a slowly progressive wasting of the animal and increasingly severe diarrhoea.

The disease is caused by a bacterium called *Mycobacterium avium* subsp. *paratuberculosis* (*M. paratuberculosis*). It was first described over 100 years ago in Germany.

Paratuberculosis is a disease listed under the World Organization for Animal Health (OIE) *Terrestrial Animal Health Code*. Identification of this disease is notifiable and must be reported to the OIE (OIE *Terrestrial Animal Health Code*).

Where is the disease found?

Paratuberculosis has a global distribution. The organism is resistant to heat, cold, and drying and can survive for extended periods in soil (greater than a year) and even longer in water.

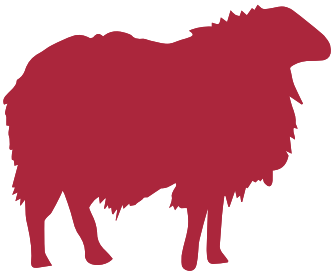
How is paratuberculosis transmitted and spread?

Infected animals shed the bacterium in manure, colostrum, and milk. Infection is most commonly acquired in young animals through contamination of the environment or ingestion of contaminated milk from an infected cow. It can also be transmitted from an infected pregnant animal to its foetus. Fecal shedding of the bacteria begins before clinical signs are noticeable, so these'silent' carrier animals are important sources of transmission.

A non-infected herd generally becomes exposed through herd expansion or replacement purchases of animals that are carriers of the disease. Adult animals that are exposed are much less likely to become infected; however, young animals are highly susceptible.

What is the public health risk associated with this disease (if zoonotic)?

Paratuberculosis has not been demonstrated as a zoonosis. However, the organism that causes Johne's disease (*M. paratuberculosis*) has been found on occasions in patients with Crohn's disease. Crohn's disease is a chronic, painful, diarrhoeal inflammatory disease of the intestinal tract in humans that resembles Johne's disease.



What are the clinical signs of Paratuberculosis?

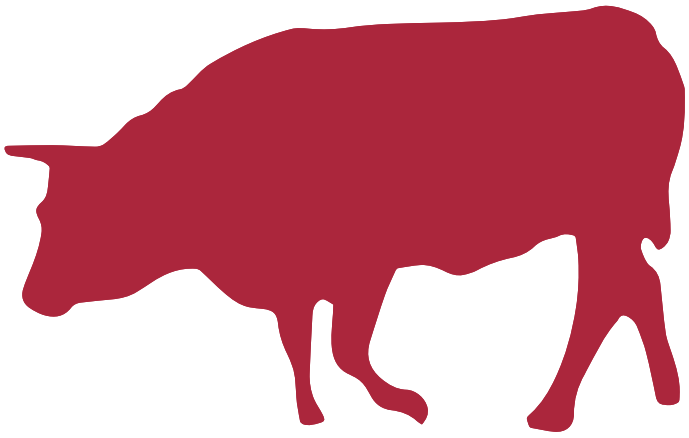
Because of the slowly progressive nature of the infection in cattle, clinical signs usually first appear in young adulthood (4-7 years old), but the disease can occur in animals at any age over 1-2 years.

The organism causes chronic enteritis (inflammation of the intestines) characterized by diarrhoea, unthrifty animals and progressive weight loss despite a good appetite and normal body temperature. In sheep, goats, and other ruminants, the diarrhoea may not be present. The organism affects the intestinal tract causing the intestine walls to become thickened and inflamed. These intestinal wall lesions are responsible for leakage of proteins and make it less able to absorb protein, which leads to muscle wasting and low milk yield. This may also cause what is known as‘bottle jaw,’ a swelling under the jaw. The disease symptoms become gradually more severe and lead to malnutrition, debilitation, and eventually death.

How is the disease diagnosed?

The disease may be suspected based on clinical signs with confirmation made through prescribed laboratory tests (OIE *Terrestrial Animal Health Code* and OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*).

For diagnosis in a clinically suspect animal, many laboratory tests are available. However, the single largest problem in paratuberculosis control is the difficulty of detecting infected animals that are not showing signs of illness. Fecal culture, although technically difficult and time consuming, will detect infected animals 6 months or more before they have developed clinical signs, which is very important since this disease has a slow progression and many animals are non-clinical carriers of disease.



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What is being done to prevent or control this disease?

Prevention and control measures

There is no known treatment for the disease. Control involves good sanitation and management practices including screening tests for new animals to identify and eliminate infected animals and ongoing surveillance of adult animals.

In herds affected with paratuberculosis, calves, kids, or lambs should be birthed in areas free of manure, removed from the dam immediately after birth, bottle-fed pasteurized colostrum (or tested disease free colostrum), and raised separate from adults until at least one year old. This reduces the chance of transmission of disease to this most susceptible population. Also, reducing fecal contamination in animal housing areas by elevating food and water sources is recommended.

There are some vaccines for this disease; however they are used only in very well defined situations and under strict regulatory control. Vaccination of young calves has shown a reduction in disease incidence but it does not prevent shedding or subsequent new cases in the herd. Vaccination may interfere with eradication programmes that are based on detection and subsequent elimination of infected animals and vaccination against Paratuberculosis can also interfere with tests for bovine tuberculosis.

More Information?

References:

1. OIE *Terrestrial Animal Health Code:*
   www.oie.int/en/international-standard-setting/terrestrial-code/access-online/

2. OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animal:*
   www.oie.int/en/international-standard-setting/terrestrial-manual/access-online/

3. OIE Technical Disease Card:
   www.oie.int/en/animal-health-in-the-world/technical-disease-cards/

4. The Center for Food Security and Public Health, Iowa State University
   www.cfsph.iastate.edu/

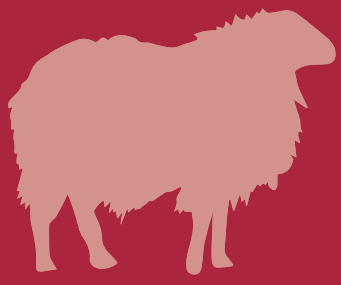
5. Merck Veterinary Manual:
   www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/toc_50000.htm

6. *Atlas of Transboundary Animal Diseases Animales Transfronterizas*
   P. Fernandez, W. White; Ed.: 2011

Ask our experts:

List of Reference Laboratories:
www.oie.int/en/our-scientific-expertise/reference-laboratories/list-of-laboratories/

List of Collaborating Centres:
www.oie.int/en/our-scientific-expertise/collaborating-centres/list-of-centres/



Key Facts

- Paratuberculosis is a worldwide disease affecting developing as well as developed countries in Europe, North America, South America, Asia, Australia, and Africa.
- It was discovered and identified in 1894, however as early as 1826 there has been a recognized chronic debilitating intestinal disease of cattle.
- Johne's disease gets its name from the veterinarian Dr. H.A. Johne who was working at the Veterinary Pathology Unit in Dresden, Germany who isolated and identified the organism in 1894. The name paratuberculosis comes from the initial description of the bacteria as appearing very similar to the bovine tuberculosis bacteria.
- There is no treatment or cure for this disease.

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