

Tuberculosis (*Mycobacterium tuberculosis, bovis, africanum*)

DISEASE IN ANIMALS

There are several species of Mycobacterium bacilli that cause disease in animals and humans. Those that cause tuberculosis are spread between humans and animals are true zoonoses. There are other mycobacteria that can cause similar illness in humans and animals but are considered primarily environmental pathogens (see Mycobacterium other than Tuberculosis or MOTT).

AGENTS ASSOCIATED WITH MYCOBACTERIUM TUBERCULOSIS COMPLEX		
AGENT	PRIMARY HOST	COMMENTS & TRANSMISSION
<i>M. tuberculosis</i> <i>M. africanum</i> <i>M. canetti</i>	Humans, primates Humans	Primarily human to human Host unknown
<i>M. bovis</i>	Cattle, goats, cervids, bison	Zoonotic: through milk & inhalation. Ohio is accredited as a tuberculosis free state for <i>M. bovis</i> .
<i>M. microti</i>	Voles	
<i>M. pinnipedii</i>	Seals (pinnapeds)	

Reporting: This is a reportable animal disease in Ohio and all suspected cases of tuberculosis in any mammal must be reported to the Ohio Department of Agriculture (ODA), Division of Animal Industry at (614) 728-6220 or (800) 300-9755 or the USDA APHIS Veterinary Services at (614) 856-4735 or (800) 536-7593. As a diagnosis of tuberculosis in animals may raise zoonotic concerns, voluntary reporting of presumptive animal cases to the [local health department](#) (LHD) is encouraged.

Transmission: Routes of exposure include inhalation, ingestion and breaks in the skin. The agent is relatively resistant to many disinfectants and can survive for a long time in the environment.

Clinical signs: The nature and extent of disease varies with the route of exposure. In cattle and other animals, aerosol spread of tubercle bacilli frequently leads to involvement of lungs and thoracic lymph nodes. Exposure by ingestion of contaminated food and water often results in primary foci in lymph tissues associated with the intestinal tract. The bacilli can form granulomas that develop into tumor-like masses called tubercles. The progression of the disease is slow and most common clinical presentation is a progressive emaciation and signs of pulmonary compromise.

Diagnosis: Contact ODA Animal Disease Diagnostic Laboratory for diagnostic assistance for any suspected TB case in animals.

- Tuberculin skin tests are useful in cattle, sheep, goats, deer; somewhat useful in swine, primates and possibly some other hoofed animals; unreliable in horses, dogs and cats.
- Radiographs: supports diagnosis, especially in dogs and cats
- Cytology: demonstration of acid-fast bacilli in tissue or secretions
- Culture: on selective media, results can take up to 8 weeks

Case classification:

- Suspected: a clinical case with signs consistent with tuberculosis.
- Probable: a clinically suspect case with laboratory evidence from a screening or unvalidated test.
- Confirmed: a case that meets confirmatory testing criteria determined by a state or federal diagnostic laboratory.

DISEASE IN HUMANS

Reporting: Report by the end of the business day after the human case or suspected case presents and/or a positive laboratory result to the county TB control unit where the patient resides. If unknown, report to the county TB control unit of the health provider or laboratory. *Mycobacterium tuberculosis* is the cause of most human tuberculosis cases but differentiation based on clinical picture alone is not possible. Humans with *M. bovis* who had exposure or work with livestock should be voluntarily reported to ODA so the animal exposure can be evaluated.

Human illness: Indications of tuberculosis range from a significant PPD test in an asymptomatic patient to fever, diaphoresis, weight loss, productive cough, hemoptysis and extensive infiltration with cavitation in the lung on chest x-ray in the very ill patient. *Mycobacterium tuberculosis* complex can cause disease in any organ of the body. Most patients will experience symptoms of malaise, fatigue, anorexia, productive cough and a low-grade fever. More specific symptoms will depend on the organs involved and the extent of disease process.

Transmission: *M bovis* in humans has virtually been eliminated in the U.S. with the pasteurization and implementation of a national eradication plan. It is still occasionally seen in recent immigrants and slaughter workers.

Personal protection: Use respiratory protection if working in contaminated environments or handling infected animals in poorly ventilated quarters. Wear gloves and cover exposed skin. Samples taken for testing should be considered infectious. Avoid consuming unpasteurized dairy products or undercooked meat products if acquired out of the U.S.

FOR MORE INFORMATION**Reportable Animal Diseases in Ohio**

[OAC Chapter 901:1-21 Dangerously Contagious or Infectious and Reportable Diseases](#)
[USDA Animal and Plant Health Inspection Service Animal Diseases](#)

Disease in Animals

[OIE Manual of Diagnostic Tests](#)
[The American Veterinary Medical Association Zoonosis Updates](#)
[Iowa State University Center for Food Security and Public Health Animal Disease Factsheets](#)

Disease in Humans

[ODH Infectious Disease Control Manual](#)