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## *Mycobacterium bovis*

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*Mycobacterium bovis*, the causative agent of bovine tuberculosis, is the principal etiology of zoonotic tuberculosis. The disease is distributed worldwide.

*M. bovis* causes the same clinical forms and pathological lesions in humans as human *M. tuberculosis*. Historically extra-pulmonary forms have been most prevalent. This predisposition for extra-pulmonary lesions is usually directly related to gastrointestinal exposure from consumption of milk. Pulmonary tuberculosis in humans can also be caused by *M bovis*, but this is most common in persons whose occupations involve contact with infected cattle (in areas where *M bovis* remains prevalent).

*M. bovis* is transferred to humans through ingestion of un-pasteurized milk or other dairy products. Incident cases of *M. bovis* continue to be reported from areas in which bovine tuberculosis has been eradicated, however most of these cases occur in immigrants from countries in which consistent pasteurization is not practiced or where consumption of un-pasteurized milk or other dairy products is still common. Non-immigrant cases usually arise from populations born prior to eradication; however human to human transmission is a possibility, although the concept remains controversial. Human to human transmission does occur, but few cases have been satisfactorily confirmed. Some experts theorize that *M. bovis* eliminates fewer bacilli in sputum. Eradication campaigns in cattle have tremendously reduced the incidence in corresponding human populations, indicating that, by far, the most important mode of transmission is through milk.

Human to bovine transmission can also occur. This type of transmission has been seen in areas where bovine tuberculosis is eradicated. Often ranch hands emigrate from areas where transmission of *M. bovis* from dairy products is still relatively common. Humans can also transmit the disease to other animals, especially monkeys and dogs.

How are cows infected? The bacillus enters the body primarily through inhalation of infectious aerosols from other cattle. Calves are often infected through nursing. The most common lesions occur in the lungs and associated lymph nodes, although dissemination may give rise to military tuberculosis or localized lesions in lungs, liver, kidney and spleen. The disease is chronic. Many cattle live an entire lifespan without significant signalment of disease. The disease appears primarily in older cattle due to the chronic nature of the disease and increased opportunity for exposure through the passage of time.

Bovine tuberculosis has been eradicated in most of the United States. Routine testing of livestock herds is still performed. In 1969, 0.06% of 4.5 million cattle examined reacted to tuberculin. Reactors are sent to slaughter. In 1969, most reactors showed no signs of tuberculosis on post-mortem examination.

Bovine tuberculosis is considered eradicated from Louisiana cattle. Cattle over one year of age entering the state must show a negative tuberculin test within thirty days prior to entry, however cattle originating from other certified-free herds from areas also considered free of bovine tuberculosis are excluded from testing. Cattle consigned to slaughter are also exempt from the requirement. Federal and state inspectors in slaughter facilities conduct routine surveillance for *M. bovis*.