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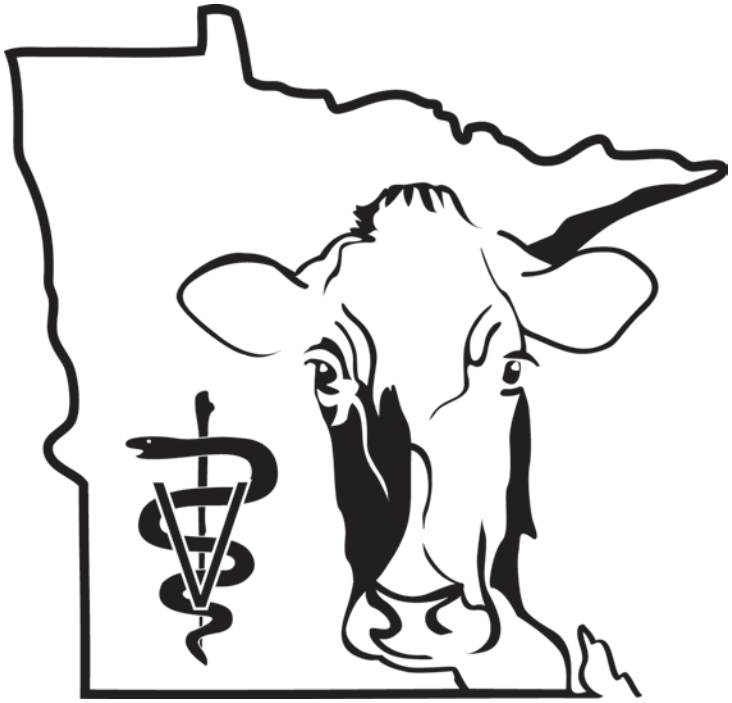

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Public Health Concerns from *Mycobacterium bovis*

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Mycobacterium bovis transmission from cattle to humans has been virtually eliminated as a result of national disease control programs in cattle herds and regulations to encourage pasteurization of raw milk. Human cases continue to occur especially among immigrant groups who consume unpasteurized cheese products, such as queso fresco. With the recent identification of *Mycobacterium bovis* in wildlife and domestic animals in Michigan and Minnesota, additional public health concerns have been raised. This brief summary will describe *Mycobacterium* tuberculosis (TB) complex surveillance in Minnesota (*M. tuberculosis* and *bovis*), sources of human infection, and a review of recent *M. bovis* cases from Michigan.

TB Surveillance in Minnesota

Even though the number of reported TB cases continues to decrease nationally, the incidence of TB in Minnesota has increased. This is largely due to identification of cases among persons born outside the US (foreign-born). In 2004, there were 199 cases of TB (3.9 cases per 100,000 population) reported in MN; 163 (82%) occurred among foreign-born persons. Most of these individuals were from sub-saharan Africa. Drug-resistant infections are a growing concern among these cases, because of disease recrudescence. Current methods at the Minnesota Department of Health do not differentiate the species of *Mycobacterium tuberculosis* complex. It is possible that some of these infections identified in Minnesota are due to *M. bovis*, especially among the foreign-born.

Transmission

Mycobacterium tuberculosis is transmitted by a person with active disease coughing tiny aerosolized droplets. Person with repeated, prolonged contact are more likely to develop infection. Conversely, bovine tuberculosis (*M. bovis*) generally results from ingestion of contaminated unpasteurized milk or dairy products. These infections usually result in extrapulmonary (e.g. outside the lungs) infections.

Recent *M. bovis* infections in Michigan

In Michigan, bovine tuberculosis has been found in a number of wildlife species, especially white-tailed deer. As a result, there are increased risks to hunters, trappers, taxidermists, and venison processors. Since 1994, 2 human cases have been linked to the endemic *M. bovis* infection among Michigan wildlife. Enclosed is a brief description of both cases. In 2002, a 74 year-old male resident of Alpena County was diagnosed with pulmonary TB. The strain of *M. bovis* matched the current strain common to Michigan livestock and wildlife. This individual, as a youth had drank unpasteurized milk and also had a history of hunting.

An additional case was identified among a bow-hunter. While field dressing a deer the hunter punctured on his left finger with a knife. The hunter noticed signs of bovine TB when opening the chest cavity of the deer and notified authorities. Two and half weeks later, the hunter sought medical treatment when his finger became hot, swollen and painful. Culture results grew *M. bovis* and genotyping confirmed the isolate as the endemic Michigan strain. This case emphasized the importance of hunter education about TB recognition and precautions to prevent human infection.

Conclusions

The potential risks to *M. bovis* transmission from Minnesota cattle to humans are remote. TB transmission through infected wildlife is rare; however, persons should refrain from consuming unpasteurized milk and dairy products. Hunters should be aware of clinical signs in deer and report suspicious cases to the Minnesota Department of Natural Resources and take precautions (i.e. wear gloves, thoroughly cook venison) to prevent transmission.

References

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