

A STATE VETERINARIAN'S EXPERIENCE WITH, AND PERSPECTIVE ON RECENT TB CASES

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1. Discuss the importance of zoonotic diseases
2. Determine the modes of transmission
3. Assess the risk of exposure
4. Discuss the importance of pasteurizing milk

OBJECTIVES

- Zoonotic disease: an infection or disease that is transmissible between animals and humans. When transmitted to animals from humans, it may be called a reverse zoonosis, or anthroponosis.
- Extensive list of diseases
- A zoonotic agent may be bacterial, viral, parasitic or fungal
- According to the CDC, 6 of 10 known infectious diseases in people are spread from animals, and 3 out of every 4 new or emerging infectious diseases in people are spread from animals



Direct contact: Contact with saliva, blood, urine, nasal secretions, feces or other body fluids of an infected animal.

Indirect contact: Contact with areas where animals live and roam or objects/surfaces that have been contaminated with germs (e.g. aquarium tank water, pet habitats, coops, plants, soil, food and water dishes).

Vectorborne: Mosquito, tick, flea or other vector bite.

Foodborne: Ingestion of unpasteurized milk, undercooked meat and eggs or unwashed fruits and vegetables that are contaminated with feces from an infected animal



MODES OF TRANSMISSION

IMPORTANCE OF ZONOTIC DISEASES

Affects mostly cattle, can be transmitted to other warm-blooded animals.
Agent: *Mycobacterium bovis*

Clinical signs in animals: difficult to diagnose on clinical signs alone.

Early stage: no clinical signs

Late stage: emaciation, lethargy, weakness, anorexia, low-grade fever, and pneumonia with a chronic, moist cough. Lymph nodes may be enlarged

Mode of Transmission:

Through saliva of infected animals and spread through airborne particles from the respiratory tract.

Feed or watering sites contaminated with saliva, urine, and manure
Drinking raw, unpasteurized milk from infected animals.

Risk of exposure is greatest in enclosed areas, such as barns with poor ventilation and milking parlors.



BOVINE TB

TB can be introduced into a herd by infected animals or people.
Such as:

- Purchase of or exposure to infected cattle
- Exposure to infected free-ranging wildlife
- Exposure to infected people



Clinical signs in humans:

- Active form: chronic cough, bloody sputum, fever, weight loss
- Latent form: no clinical signs

Risk: Approx. 33% of the world's population is infected with TB. New infections occur in about 1% of the population each year (WHO, 2002).

Human transmission: coughing, sneezing, speaking, singing or spitting. One sneeze releases up to 40,000 droplets. Each droplet may transmit the disease: the inhalation of less than 10 bacteria may cause an infection (Nikas et al. 2005).

BOVINE TB

Minimize the Risk

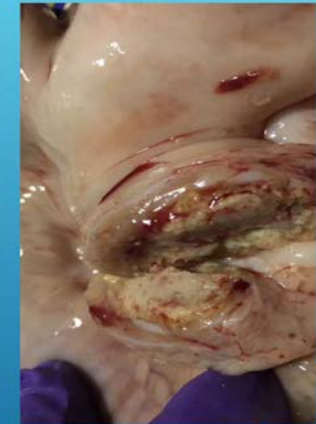
- Keep a closed herd and raise replacement stock.
- Buy animals from an accredited TB-free herd.
- Test new animals prior to purchase, isolate them for 60 days and retest before commingling.
- Restrict/eliminate contact between your herd and other herds.
- Disinfect trailers or facilities that housed newly purchased animals or animals not originating from your herd.
- Keep on-farm visitors away from your herd.
- Keep fences in good condition to separate your herd from wildlife.
- Have a comprehensive new employee hiring protocol that includes TB testing.



BOVINE TB

Young calf that ingested unpasteurized milk from an *M. bovis* positive cow. Intestinal lymph node with pyogranulomatous TB lesion.

115 head of young calves(+) caudal fold test. 12 calves thoracic lesions, 37 calves abdominal lesions, 2 calves thoracic and abdominal lesions, 1 calf head and abdominal lesions, and 1 calf head and thoracic lesions.



BOVINE TB



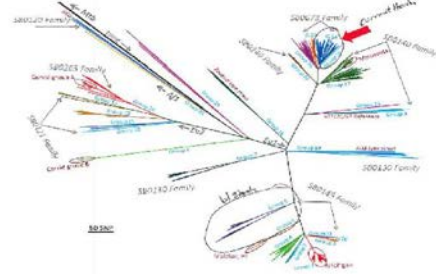
THORACIC LYMPH NODE ON LEFT,
ABDOMINAL ON RIGHT



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Figure 1. The resolution tree of *M. avium* isolates. The isolate of interest is located in Gray 24 (indicated by the red arrow).



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- ▶ Take Home Messages!
- ▶ Educate yourself and your staff.
- ▶ Test all new employees for TB before they start. Test annually.
- ▶ Do not allow your employees to drink raw milk.



QUESTIONS?

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