

Current status of bovine TB/zoonotic TB & Brucellosis [BHUTAN]

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Brucellosis

CURRENT SITUATION

- In Bhutan, Brucella spp. infection in cattle is currently sporadic, with a low prevalence of less than 5%. At present, it is detected only in bovines. To control the spread, we employ a "test and cull" strategy.
- In 2017, a risk-based sero-survey was conducted nationwide which revealed seroprevalence of 2%. All positive reactors were culled during the nationwide containment program towards eliminating Brucellosis
- The mass surveillance in eastern region was done in year 2021 were nine positive cases out of 585 samples tested which are disposed off following the standard protocols.
- Currently, mandatory testing of inter-district movement of cattle is carried out all the District Veterinary Hospital provide RBPT test before the translocation of animals.
- Mortality from the disease is not reliable as all the positive animals are culled.
- Significant impact on production based on field observations but no socio-economic studies has been carried.
- Only few zoonotic cases were detected and was treated using standard treatment regimen by Ministry of Health.

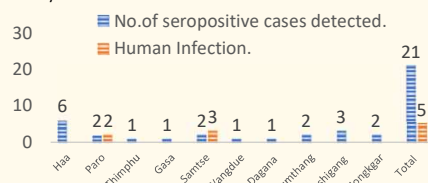


Figure 1: No of human and animal cases detected 2017, sample size (n)=1099
National sero-survey in 220 milk cooperatives.

DIAGNOSIS, SURVEILLANCE, CONTROL

DIAGNOSIS

Test facilities/capacity available in Bhutan for diagnosing Brucella infection in animals:

1. Rose Bengal Test (RBT).
2. Indirect-Enzyme linked Immunosorbent Assay (I-ELISA).

SURVEILLANCE

1. Test and cull—mandatory testing of animals before inter-district movement
2. Public awareness and advocacy
3. Routine Monitoring and evaluation by NCAH

Control measures taken

1. Testing and culling of positive reactors
2. Testing and monitoring of inter and intra-district movement of animals.
3. Outbreak declaration and ban on movement of animal and animal products.
4. National Bovine Brucellosis Prevention, Control and Elimination Plan-2022.

Preventive strategy

1. Regulated import of animals.
2. Testing and monitoring of inter and intra-Dzongkhag movement of animals.
3. Outbreak declaration and ban on movement of animal and animal products.
4. "National Bovine Brucellosis Prevention, Control and Elimination Plan-2022"

..National-Brucellosis-PCEP-2022.pdf

ONE HEALTH APPROACH

- Brucellosis is one of the top 10 zoonotic disease of greatest concern prioritized through One Health Zoonotic Disease Prioritization process using a multisectoral, One Health approach including human, animal, and environmental health ministries and other relevant sectors.
- Next step would be to develop joint surveillance plan in animal health and human health, and also conduct joint field investigation and risk assessment during outbreak

CHALLENGES AND WAY FORWARD

CHALLENGES

1. Lack of CFT facility at NCAH (National Centre For Animal Health)
2. Lack of screening in multiple species (coverage and financial burden)
3. Risk from cross border movement and grazing
4. Cull strategy "Religion sentiments"

WAY FORWARD

1. Routine screening in multiple species
2. CFT establishment at NCAH
3. Initiation of Brucella lab twinning with NIAH Thailand
4. Public awareness on zoonotic significance
5. Strengthen collaboration and adopt one health approach to prevent, control and eliminate Brucellosis



Figure2.Culling procedure



Bovine TB/Zoonotic TB

CURRENT SITUATION

- Bovine tuberculosis (bTB) is a chronic zoonotic infection caused by Mycobacterium tuberculosis complex, primarily by Mycobacterium bovis (M.bovis). While the disease predominantly affect cattle, other domestic animals, some species of wild animals, and humans.
- While bTB has very low prevalence in Bhutan, the disease is highly prevalent in neighboring countries of India, Bangladesh, and Pakistan.
- In Bhutan, there is a limited published data on the prevalence and incidence of bTB in cattle, however the prevalence is low comparatively.

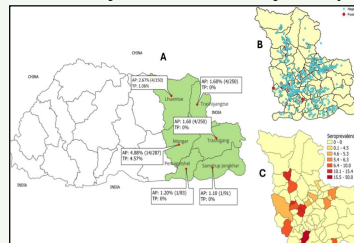


Figure 1. Apparent prevalence(AP) and True prevalence(TP) of bTB in cattle in six eastern district. Wangmo et al

RESEARCH ARTICLE Seroprevalence and risk factors associated with bovine tuberculosis in cattle in Eastern Bhutan

Karma Wangmo^{1*}, Ratna B Gurung², Tshering Choden³, Sangay Letho⁴, Narayan Pokhrel⁵, Lungten Lungten⁶, Tashi Zangmo⁷, Sonam Peldos⁸, Kinzang Chedup⁹, Sylvia Jaya Kumar¹⁰, Thirney Dorji¹¹, Sangay Tshering¹², Kinzang Dorji¹³, Tenzin Tenzin¹⁴

DIAGNOSIS, SURVEILLANCE, CONTROL

DIAGNOSIS

Test facilities/capacity available in Bhutan for diagnosing bTB

1. Indirect-Enzyme linked Immunosorbent Assay (I-ELISA).

SURVEILLANCE ,CONTROL

1. Screening initiated by NCAH (2024-2025)
2. Field practitioner- district focusing on dairy cooperatives and animals showing respiratory signs.
3. Import of the animals from only recognized government farms from neighboring countries.

ONE HEALTH APPROACH

- Tuberculosis is the zoonotic disease of greatest concern prioritized through One Health Zoonotic Disease Prioritization process using a multisectoral, One Health approach including human, animal, and environmental health ministries and other relevant sectors.
- Next step would be to develop joint surveillance plan in animal health and human health, and also conduct joint field investigation and risk assessment during outbreak.

CHALLENGES AND WAY FORWARD

- Key challenges in maintaining disease-free status:

1. Only ELISA test is performed for bTB detection and lack of resources to carry out other sensitive test.
2. Increasing shift in Bhutan's cattle rearing practices from extensive free grazing to more intensive indoor stall-feeding systems, which may contribute to increase in zoonotic transmission.
3. Illegal movement of cattle from across the border area.

WAY FORWARD

1. Develop policies and regulations for the prevention, control, and management of bTB in Bhutan.
2. Use of more sensitive test like Single intradermal tuberculin test (SIT).
3. Provide training programs for veterinary professionals and laboratory personnel to improve their capacity for bTB detection, diagnosis, and control measures.
4. Public awareness on bTB transmission, and preventive measures, such as farm biosecurity, regular testing of cattle against bTB, proper hygiene practices, boiling/ pasteurization of milk for human consumption, to minimize the spread of bTB and other zoonotic diseases.
5. Strengthen One Health collaboration to enhance surveillance and response capabilities.
6. Foster collaboration with international organizations and research institutions to share knowledge, resources, and best practices for bTB control and prevention.