

Drug sensitive and resistant tuberculosis and zoonotic infections as causes of lymphadenitis in 2 provinces in Papua New Guinea



Key details

Location

Fiji, Papua New Guinea

Duration

Start Apr 2019

End Jun 2023

Budget

AUD 250,000

Commissioned organisation

Burnet Institute

Partners

Burnet Institute; Papua New Guinea Institute of Medical Research; Papua New Guinea National Department of Health; Victorian Infectious Diseases Reference Laboratory (VIDRL) Australia

Project Leader

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Program

Livestock Systems

Project code

LS/2018/217



Overview


This project aimed to determine the proportion of presumptive Tuberculosis (TB) lymphadenitis attributable to Mycobacterium TB complex and the proportion of confirmed TB lymphadenitis attributable to Mycobacterium bovis.

TB is now the leading cause of death among infectious diseases worldwide. In the Pacific region it is an important health issue. Papua New Guinea (PNG) is listed by the World Health Organization as one of 30 high TB burden countries, with an estimated incidence rate of 432 per 100,000 population, and an incidence of multi-drug resistant TB of 23 per 100,000.

The Mycobacterium TB complex is a group of closely related acid-fast bacilli including Mycobacterium TB and Mycobacterium bovis. Both domestic and wild

animal species are hosts for *Mycobacterium bovis*. While *Mycobacterium TB* is avirulent in cattle and transmission back to humans is extremely rare, *Mycobacterium bovis* can infect humans and humans can infect livestock.

This project addressed two major gaps in TB care and response in PNG. Firstly, defining what proportion of clinically diagnosed TB lymphadenitis is due to drug-sensitive and drug-resistant TB, which will have implications for clinical and programmatic management of TB. Secondly, this may demonstrate that a large proportion of clinically diagnosed cases are negative for TB by molecular and culture methods, suggesting that other pathogens may be responsible and requiring a change in clinical diagnostic algorithms.

This project is part of the [Research for One Health Systems Strengthening Program](#)  co-funded with DFAT addressing zoonoses, antimicrobial resistance and systems strengthening within the Asia Pacific.

Project outcomes

- Determined the proportion of presumptive TB lymphadenitis attributable to *Mycobacterium tuberculosis* complex in East New Britain and Eastern Highlands provinces.
- Determined the proportion of confirmed TB lymphadenitis attributable to *Mycobacterium bovis* in East New Britain and Eastern Highlands provinces.
- Explored animal-human interactions that may pose a risk for zoonotic infections.
- Developed a prospective cohort study of presumptive TB lymphadenitis.
- Explored ethnographic research into animal-human interactions that may pose a risk for zoonotic infections.
- Established a stored bank of lymph node and blood samples for future studies on other potential causes of lymphadenitis.

Summary of achievements to date

2021–22

EZARET (Exploring Zoonotic Association and Risks for Extrapulmonary Tuberculosis in Papua New Guinea) is a research study aiming to evaluate the proportion of lymphadenitis attributable to tuberculosis, what proportion of detected tuberculosis is resistant to standard treatment, and whether there are any cases of *Mycobacterium bovis* detected, which can have important implications for public health management strategies.

The research is also examining whether there are important human-animal interactions that may pose a risk for zoonotic infections in the study community. The key partners for this project are the National TB Program, PNG Institute of Medical Research, the Burnet Institute, Port Moresby General Hospital, East New Britain Provincial Health Authority, Eastern Highlands Provincial Health Authority and the Victorian Infectious Diseases Reference Laboratory.

The lymph node sampling aspect of the study was completed at the Port Moresby site, nearly completed in the Eastern Highlands site, and about to start in the East New Britain site.

Focus group discussions with community members exploring animal-human interactions were held in two sites and have been analysed, and interpretation and reporting proceeded. In-depth interviews with people who provided fine needle aspirate samples have not yet commenced. The study has been challenged by repeated delays mostly resulting directly or indirectly from the COVID-19 pandemic.



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