



Te Niwha

Research Project Impact Case Study

Project Title

Mahi Tahi: Decreasing transmission and improving diagnosis of Tuberculosis to reduce health inequities

Short Research Title

Mahi Tahi: Decreasing transmission and improving diagnosis of Tuberculosis to reduce health inequities

Key researchers

Department of Microbiology and Immunology, University of Otago, Dunedin, New Zealand

SSIF Areas of research impact.

Please indicate with an X which statement in each row best describes your project.

Impact area	No impact expected	Future impact possible	On pathway for future impact	On pathway for actual impact achieved by end of project	Actual impact achieved
Value extraction from existing science			X		
Improvements in public policy advice				X	
Economic impact					
New/improved products and services			X		
Reduced operating costs or commercial risk					
New job opportunities.					
Improved business and industrial processes					
Environmental impact					
Reduced or mitigated environmental impact					
Reduced or mitigated environmental risk					
Improved condition of an environmental asset					
Better understanding of the environment, and characterisation and management of natural capital					
Health & Wellbeing impact					
Improved population health and health status for disadvantaged groups				X	
Reduction in health maintenance costs			X		
Early detection and mitigation of health risks				X	
Improved wellbeing through development of human and social capital, and removal of institutional barriers				X	
Social impact					
Increased knowledge and interest in science			X		
Understanding of and resilience to real or perceived communal risk			X		
Stronger social and infrastructure systems and improved techniques for delivery of public services				X	
Vision Mātauranga					
Indigenous innovation: economic growth through distinctive R&D.					
Taiao: Sustainability through iwi and hapu relationships with land and sea					
Hauora/Oranga: improved health and social wellbeing			X		
Mātauranga – explore indigenous knowledge for science and innovation					

Introduction

In Aotearoa, TB affects people of Māori and Pasifika ethnicities (6 and 16 cases per 100,000) disproportionately, when compared to NZ Europeans (1 case per 100,000). This includes Aotearoa-born Pasifika and Pasifika born outside Aotearoa (25% of total overseas-born TB cases in Aotearoa are from the Pacific). Together with the University of Otago researchers and the Communicable Diseases Research Centre (CDRC) at Fiji National University and Fiji National TB Reference Laboratory, this study aims to

- (1) unravel TB transmission in the Pacific and how these are linked to TB cases in Māori and Pasifika communities in Aotearoa through collaborative national and regional cross-border surveillance,
- (2) diagnose drug-resistance patterns and lineages of TB-causing *Mycobacterium tuberculosis* bacteria circulating in the Pacific, and
- (3) develop real-time genotypic resistance testing of *Mycobacterium tuberculosis* that will ultimately network across the Pacific region.

Results

Through this project, we recruited and supported two Fijian postgraduate students (Salote and Timothy) and currently they are writing their theses. Salote developed a point of care diagnostic test for drug-resistant TB. Timothy discovered zoonotic transmission of TB in Fiji and how this may contribute to the poor TB treatment outcome in Fiji. Timothy also uncovered transmission patterns of TB in Fiji and the potential link to TB cases in NZ, hence cross border transmission.

Impact

This project demonstrates how a truly transdisciplinary research response with strong links to clinical care can provide high-quality research that can be used to change clinical practice and develop skills and capacity at both local and regional levels. Fiji National TB Reference Laboratory is responsible for diagnosing TB cases in Fiji as well as from the neighbouring Pacific countries. Therefore, building Fiji National TB laboratory genomics capacity through this project enables better TB surveillance and diagnosis in the Pacific Region. This study will contribute to building technical capacity and the empowerment and development of the next generation of Pasifika researchers and leaders through two Pacific Masters students by applying a With-Pacific-for-Pacific-by-Pacific approach. This research offers a unique opportunity for us to help build sustainable capacity within the wider Pacific region while linking these skills and research to disease impacts in NZ.