



Accelerating to Zero Transmission of Leprosy in Nepal

BACKGROUND

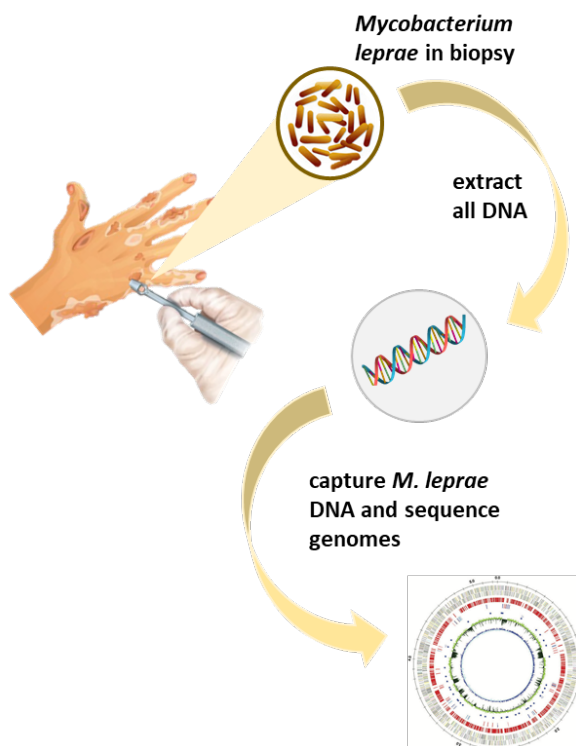
Leprosy, a neglected tropical disease of the skin, is severely stigmatized, causes long term disability, socioeconomic and mental health issues. It is treatable and preventable, yet persists among the world's poorest and most neglected citizens.

Major gaps exist in our understanding of leprosy transmission which limit the efficiency of interventions to prevent infections and achieve zero transmission.

The leprosy program in Nepal has made substantial progress, however cases are again rising and 16 districts have reported prevalence above 1/10,000 population. The proportion of Grade 2 disability and child proportion among new cases are also high. There is an urgent need to expand and strengthen the early case detection and treatment activities to accelerate towards the goal of zero transmission of leprosy.

OBJECTIVES

- ❖ Establish the true prevalence and geospatial epidemiology of leprosy in the two model districts (Banke and Mahottari) by intensified case finding
- ❖ Whole genome sequence (WGS) and GIS mapping of 2,000 *M. leprae* strains from multi-bacillary and paucibacillary leprosy patients, to decipher endemic transmission, introduction across the porous border from India, transmission hot-spots, and relative virulence of strains.
- ❖ Develop mathematical models informed by transmission data to optimise future targeted active case finding.
- ❖ Engage government, affected community, NGO partners and other stakeholders to conduct policy dialogues and contribute to evidence-informed policy revisions in the five year national strategic plan for leprosy (2025-2030).



KEY INTERVENTIONS

- ❖ Intensified contact tracing case finding, working to supplement existing activities in the district to increase coverage and depth.
- ❖ Sample collection for next generation sequencing and drug resistance mapping.
- ❖ Geospatial mapping to provide data for transmission models.
- ❖ Community awareness and advocacy.
- ❖ Comprehensive healthcare worker training in two districts using government training module.
- ❖ Advocacy and awareness events with local stakeholders and affected communities.
- ❖ Developing and disseminating evidence to stakeholders through Policy dialogue and developing recommendations for translation into the 5-year national leprosy strategy post 2025.

EXPECTED OUTCOMES

- ❖ Improve early case detection and treatment to decrease proportion of cases diagnosed at grade 2 or later, and break transmission chains.
- ❖ Improved understanding of local leprosy epidemiology and improved targeting of case finding strategies, informed by data from sequencing and geospatial mapping.
- ❖ Understanding of seeding and transmission of leprosy strains within and between local communities, to improve interventions and awareness.
- ❖ Understand prevalence, emerging patterns and types of Drug resistance in *Mycobacterium leprae* strains circulating within Nepal to optimize treatment and prophylactic strategies.

PROJECT LOCATIONS

COLLABORATION

Funded by: Leo Foundation

Collaborator: University of Melbourne Doherty Institute

Partners: Ministry of Health and Population, Epidemiology and Disease Control Division, Provincial Health Directorate, Provincial Public Health Laboratory, Centre for Molecular Dynamics Nepal, Lalgardh Leprosy Hospital and Service Centre - Dhanusha, Shining Hospital - Banke, Health Offices and Municipalities



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