

The costs of active tuberculosis case-finding (ACF) from the health system perspective – implications for policy and practice in Nepal

Issue brief for the National Tuberculosis Center



BACKGROUND

The World Health Organization's (WHO) End TB Strategy aims to end tuberculosis (TB) by 2035. Yet, low-income countries such as Nepal are unlikely to achieve this goal without a dramatic increase in technological, financial and human resources.

In Nepal, an estimated 10,000 people per year are suffering from TB, but never diagnosed and treated by the National TB Programme. Active case-finding (ACF) is an essential component of a comprehensive strategy to find those "missing cases", treat and prevent TB. In Nepal, the National TB Center (NTC) and organizations such as the Birat Nepal Medical Trust (BNMT), HERD, JANTRA and Save the Children have piloted different models of ACF, but there is no complete national coverage.

In June 2019, the WHO Joint Monitoring Mission Expert Review team recommended Nepal move towards using GeneXpert nationwide as the first diagnostic test for TB. GeneXpert is an automated molecular diagnostic test that can identify *Mycobacterium tuberculosis* DNA and resistance to rifampicin. Using GeneXpert may increase case notifications and achieve the goal of diagnosing 20,000 additional cases by 2025, as outlined in the National Strategic Plan.

The IMPACT TB project evaluated the health systems costs and yields of ACF using either GeneXpert or smear microscopy as the primary diagnostic test in Nepal.

PROBLEM STATEMENT

Evidence on the costs of ACF from the health system perspective is needed to inform the design, financing and implementation of ACF.

KEY FINDINGS

1. ACF using GeneXpert plays an important role in finding the "missing cases" and achieving the End TB Strategy as it detects more cases than ACF using smear microscopy.
2. Using smear microscopy for ACF costs on average 513 USD per TB case detected compared to 909 USD using GeneXpert.
3. Removing import duties and taxes and decreasing calibration costs on GeneXpert cartridges would reduce the cost of ACF using GeneXpert from 909 USD to 681 USD on average per case detected.
4. Maintenance costs are high and utilization low on GeneXpert machines due to current the lack of a systematic network for maintenance and logistics.

REFERENCE

Gurung SC et al. Economic evaluation of using sputum smear microscopy or GeneXpert testing for active tuberculosis case finding in Nepal. *Infectious Diseases of Poverty*, submitted.



PRIORITY ACTIONS

- 1.** Apply to the Ministry of Health and Population (MOHP) for tax-free import of GeneXpert machines and cartridges to Nepal to reduce costs of recommended screening approach.
- 2.** Implement systematic logistics, and maintenance of GeneXpert networks to ensure optimal utilization of existing GeneXpert capacity.
- 3.** Improve systematic health worker and volunteer training on use of GeneXpert testing and technician training on machine maintenance to increase utilization of existing capacity.
- 4.** Consider the evidence from previous studies to inform implementation and prioritize further research questions.

IMPACT TB

IMPACT TB aims to find and treat cases of TB in communities in both Nepal and Vietnam. It is funded by the European Union's Horizon 2020 programme. www.impacttbproject.org

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IMPLEMENTATION CONSIDERATIONS

1. Apply to the Ministry of Health and Population for tax-free import of GeneXpert machines and cartridges :

- Draft an application to the MOHP for tax-free import of GeneXpert machines and cartridges to Nepal.

2. Implement systematic logistics, and maintenance of GeneXpert networks:

- Strengthen laboratories including smear microscopy, supervision and systems for quality assurance;
- Develop an automated logistics management system for cartridges;
- Negotiate with Cepheid the provision of calibration services, and the establishment of an in-country store of GeneXpert cartridges, replacement modules and expertise to facilitate rapid deployment and eliminate stockouts; and
- Draft an application to the Global Fund for the establishment of logistic management system for cartridges, and continuous warranties on all GeneXpert machines in Nepal.

3. Improve systematic health worker, technician and volunteer training:

- Draft an application to the Global Fund for training health workers, volunteers and technicians.

4. Consider data and evidence:

- Advocate for high priority (implementation) research topics among national and international researchers, and research funders to further strengthen the evidence base.

