Policy Brief

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Enhancing Integrated Community TB Case-Finding and Prevention Strategies to Reduce the Burden of Tuberculosis in Uganda

A. Mulindwa, R. Amolo, R. Kengonzi, A. Barua and S. Turyahabwe

Community TB screening with mobile clinic in an urban settlement in Kampala

Background

Uganda is ranked among the 30 high TB and TB/HIV burden countries globally. With an estimated TB incidence of 198/100,000 population, approximately 94,000 people in Uganda fall ill due to TB each year (WHO Global TB Report, 2023). This translates to approximately 250 new TB cases and 34 deaths daily, which underscores the public health crisis.

The National TB and Leprosy Programme (NTLP) Strategic Plan (2020/21–2024/25) aims to reduce the TB incidence by 20% from 200/100,000 in 2020/21 to 160/100,000 in 2024/25.

The NTLP in Uganda's Ministry of Health (MoH) has implemented several initiatives to enhance TB case-finding such as the active case-finding toolkit at health facilities and community awareness, screening, testing, treatment and prevention of TB (CAST-TB) campaigns.

The country also adopted the use of innovative tools such as digital X-ray and computer-aided detection (CAD) for TB screening, targeting TB hotspots and high-risk populations. These interventions contributed to 50% increase in TB case notification between 2020 and 2022 (figure 1).

Key messages

1. Uganda has a TB incidence of 198/100,000 population, and approximately 94,000 people fall ill due to TB each year.
2. Despite improved TB case-finding in recent years, TB incidence has not substantially reduced. The undiagnosed TB cases are a source of continued infection, fuelling the TB epidemic.
3. To achieve substantial reduction in the TB incidence, Uganda needs to implement innovative approaches that integrate TB case-finding and prevention services delivered with high coverage and intensity in high burdened communities.
4. The country can adopt and scale up proven interventions, such as the mobile X-ray and CAD technologies for case-finding. If better results are to be achieved, more than 250,000 people must be screened annually using advanced diagnostic tools.
5. Resources need to be improved for effective community-based interventions, and better integration of TB services with other community health programmes.
6. Strategic partnerships and better coordination between stakeholders are crucial in mobilising resources, enhancing TB management and facilitating the scale up of interventions.

Partners AFIDEP African Institute for Development Policy · Makerere University Lung Institute · Malawi Liverpool Wellcome Clinical Research Programme · ReSOK Respiratory Society of Kenya · Zankli Research Center · London School of Hygiene & Tropical Medicine · LSTM Liverpool School of Tropical Medicine

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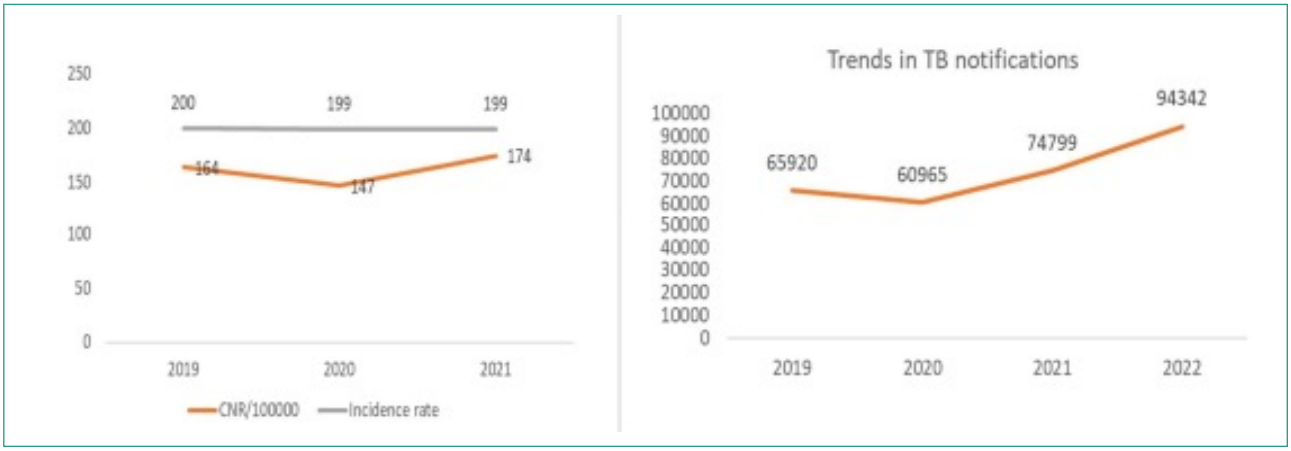
Figure 1: Trend of new and relapse cases of TB in Uganda



Evidence shows that the current TB case-finding approaches have led to an improvement in the TB case notification but falls short of achieving substantial reduction in the TB incidence (figure 1). This policy brief aims to identify, synthesize and recommend effective strategies to enhance integration of community TB case-finding and prevention services in resource limited settings, to reduce the burden of TB in Uganda.

Methodology

The generation of this policy brief was informed by evidence from different sources including a desk review of resources at the MoH such as the National Tuberculosis and Leprosy Programme midterm review report and published studies from Uganda and other countries such as Ethiopia, Zimbabwe and Viet Nam. The authors reviewed evidence from published studies using PubMed, Cochrane and Google Scholar and the relevant articles identified were included in the analysis.

Policy Issues

1) Suboptimal TB case-finding approaches

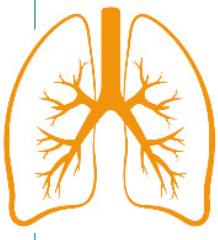
There exists a considerable gap between the current strategies for case-finding and the desired reduction in TB incidence. NTLP's strategic target of reducing the TB incidence to 160/100,000 by 2024/25 seems very challenging to achieve. New and more effective strategies are needed, for instance, it is estimated that more than 250,000 people need to be screened yearly using the CXR and CAD technologies to achieve the TB elimination target of reducing the TB incidence to less than 60/100,000 population by 2030. The current methods, e.g., the community active case-finding initiatives do not achieve good population coverage of high-risk areas and populations. As a result, a large number of potential cases remain unexplored, which leads to further transmission and life-long incidence.

2) Inadequate integration of TB services at the community level

Although initiatives such as the CAST-TB campaigns are undertaken, mainstreaming TB case-finding and prevention with other community health services remains low. The NTLP's promising efforts to integrate it with HIV/AIDS, malaria, nutrition, and other health services are rolled out, but scaling up is needed to reach its full promise. Furthermore, inadequate resources and limited infrastructure impact the reach of TB services in the community. For instance, just 17 sites have a mobile digital X-ray with a CAD capability, while only five mobile clinics are available to cover all the health regions, thus limiting the potential and expansion of community-based interventions. Additionally, despite community health workers being a cornerstone for implementing TB case-finding and prevention strategies in the community, insufficient incentives for community health workers limits their engagement in TB screening, diagnosis, and follow-up, resulting in reduced impact in ending TB at the grassroots level.

3) Poor consistent implementation and scale-up of proven interventions

Various evidence-based strategies for active case-finding have been proven to be effective but the implementation



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has not been to scale in Uganda, limiting the impact on reducing the TB incidence.

A nation-wide community-based tuberculosis and leprosy intervention in Uganda, through bi-annual door-to-door tuberculosis screening, targeted screenings and contact tracing increased TB case notification rate from 48.1 to 59.5 per 100,000 population in March 2022 and 45.0 to 71.6 per 100,000 population in September 2022, compared to the corresponding quarters in the previous year (Turyahabwe et al., 2024).

An active case-finding campaign in a suburban community in Kampala, Uganda between 2019 and 2021 led to a drop in the yield of confirmed TB cases from 0.94% in 2019 to 0.52% in 2021 and a reduction in the burden of prevalent TB cases by 45% in 2021 (Kendall, 2023). The intensive community-based case-finding increased case detection, removing prevalent TB cases from the community and preventing new transmission in the population.

Similarly, a study which compared two community-based active case-finding strategies for TB diagnosis in Zimbabwe through repeated rounds at six-month intervals by either mobile van or door-to-door visits found higher yield of TB from mobile van (4.7%) compared to door-to-door visits (2.9%) and overall prevalence of TB declined from 6·5 per 1000 adults to 3·7 per 1000 adults (Corbett et al., 2010). Wide implementation of active case-finding using a mobile van approach has potentially high coverage and reach to underserved populations thereby achieving rapid reductions in transmission and incidence of TB disease.

A combined intervention package of community-based TB screening for active case-finding and TB prevention among high-risk groups such as contacts of index TB patients in Ethiopia showed a projected annual reduction in the TB incidence by 16% (Agizew et al., 2022). This demonstrates that enhancing a defined TB elimination package for improving TB case-finding and prevention can achieve TB elimination.

A cluster randomised trial that assessed an active case-finding intervention based on sputum tuberculosis tests for everyone in Viet Nam, reduced tuberculosis prevalence in the community (Burke et al., 2021). Community-based active case-finding for tuberculosis may have impact on the TB incidence through sputum tuberculosis tests for everyone.

Policy Implications and Opportunities for Uganda

The NTLP can leverage on the following opportunities to effectively adopt the recommended policy options:

1. The MOH-NTLP adopted the CAST-TB plus strategy which integrates TB with HIV/AIDS, malaria, nutrition, maternal and child health and sanitation services at the community level. This integration will enable the NTLP to expand coverage of TB services to other sectors and leverage resources from other stakeholders for implementation.
2. The MoH launched the community health strategy that provides for recruitment of community health extension workers at each health centre III and coordinating community health services at the subcounty local government. The NTLP can leverage on this human resource to provide integrated services including TB awareness, screening, referral for diagnosis and treatment follow up.
3. The MoH has established a strong partnership and collaboration with implementing partners and stakeholders through the multi-accountability framework for TB (MAF-TB). This collaboration has enabled mainstreaming of TB services in other programmes and tapping into new resources, expertise, and community engagement for more comprehensive and sustained reductions in TB incidence.
4. Availability of mobile digital X-ray and CAD systems for community TB screening activities. The plan of the MoH is to deploy mobile digital X-ray fitted with CAD in each district hospital and mobile clinics in each of the 16 regional referral hospitals to improve coverage of radiology services.

Desk review of reports from previous CAST-TB campaigns reveals an estimated average direct cost for conducting one cycle of CAST-TB campaign in a district is 18,000 USD and the cost per TB case is 70 USD. These costs however do not factor other achievements from CAST campaigns such as increased awareness of TB as well as screening and management of other health conditions.

Addressing these policy issues and leveraging existing opportunities will therefore enable Uganda to contribute greatly to reducing the incidence of TB and meeting the goal of elimination by 2030.

Policy Recommendations

To reduce the TB incidence in Uganda and achieve elimination by 2030, the following are recommended:

1. **Adopt optimal case-finding approaches**
   a. Data-driven approaches prioritising high-risk populations in focus communities with poor access to TB services and yet have a high burden of missing TB cases.
   b. Optimal access to advanced diagnostic tools and technologies such as mobile clinics with full coverage among community health workers.
   c. Serial community active case-finding interventions using combination of X-ray screening and sputum test for all presumptive TB patients in focus high burden communities.
2. **Increase integration at the community level**
   a. Enhancing integration of community's TB services with other health services so that all the services in the community are delivered seamlessly by the same workers and resources.
   b. Integrating TB case-finding and prevention in to existing health promotion and prevention activities at community level such as integrated community case management (ICCM) and provide incentives for community workers to conduct routine community TB screening.
3. **Scaling up proven interventions**
   a. Continuously implement and expand proven strategies, such as mobile van case-finding.
   b. Foster strategic partnerships that can help mobilise resources, expertise, and continued support for impact.
   c. Invest more resources to scale up the uptake and provision of TB preventive treatment through campaigns, especially among contacts and health care providers.

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THE LIGHT CONSORTIUM
Leaving no-one behInd: Transforming Gendered pathways to Health for TB (LIGHT)

Evidence-informed decision-making (EIDM) is an approach that enables decision-makers to effectively engage and apply the best available research findings in the design of policies and implementation of programmes.

Following delivery of EIDM training in 2022 to over 80 individuals, including National Tuberculosis Managers, LIGHT aimed to strengthen organisational capacity for EIDM by taking a 'trainer of trainers' approach followed by a mentorship scheme of representatives from National Tuberculosis Programmes from Kenya, Malawi, Nigeria and Uganda. Supporting these representatives to effectively write a policy brief was one output of this approach.