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Enhanced yield of active case finding for leprosy in Uganda, using an integrated 'Community door to door Awareness raising, Screening, Testing, Treatment and Prevention' (CAST) campaign in Uganda

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Summary
Background Uganda undertook a six-month national-level campaign to improve access to TB and leprosy services following the negative impacts of COVID-19 on health care services. This paper aims to present the results of a detailed case analysis of all patients with leprosy from 2022 to 2023 and to illustrate the benefit of integrating leprosy active case finding in the tuberculosis awareness, screening, testing, treatment, and prevention (CAST) campaign.
Methods The activities implemented during the campaign included community awareness raising and screening and management of suspected TB and Leprosy patients. Data collected at the community level was aggregated at the facility level and entered in an online system. Data analysis from a custom database created for the CAST campaign was conducted.
Results Three episodes of the CAST campaign were carried out in March 2022, September 2022, and March 2023. Of the 6,715,810 individuals screened for TB and leprosy, 55% were female. 14,560 were diagnosed with TB. In addition, 4302 individuals had skin lesions suspicious of leprosy, and 5% (196) were diagnosed with leprosy and started on treatment. The overall proportion of leprosy patients contributed by the campaign was 49% (196/399), 60% being from the West Nile region.
Conclusions The CAST campaign is an innovative strategy to improve TB and Leprosy control in Uganda. It is crucial to continuously monitor and evaluate the campaign progress, making adjustments as needed to ensure its success. The results also justify the integration of TB and Leprosy programmes particularly in remote settings with high disease burdens.

Keywords: Leprosy, CAST campaign, COVID 19, integration

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Introduction

Between 2013 and 2022, the number of new cases reported globally decreased by 19.3%, with a 6% decrease up to 2019.[1] Improving early case detection through targeted interventions is now a major focus of attention in the global leprosy agenda.[2] The COVID-19 pandemic led to a reduction in new case detection of almost one-third between 2019 and 2021. Apart from this drastic reduction, the decrease has generally been gradual. Figure 1 below shows the trend of new leprosy patients notified globally from 2013 to 2022.

The number of new cases reported globally in 2022 was 174,087, corresponding to a case detection rate of 21.8 per million population.[1] This represented an increase of 23.8% over that in 2021 (140,594). Increased detection of new cases in 16 of the 23 global priority countries in 2022 was attributed to improved leprosy services following the COVID-19 pandemic.

Uganda achieved elimination of leprosy as a public health problem in 1994 at the national level and 2004 at the subnational level. The 2019 COVID-19 pandemic posed significant disruptions in the national healthcare delivery—including the delivery of tuberculosis (TB) and leprosy services. In the financial year 2020/2021, the number of leprosy patients that were notified dropped to 202 from 332 cases in 2019/2020. There was also a significant decline in the leprosy treatment completion rate from 84% in 2019/2020 to 75% in 2020/2021.[2]

As part of its recovery from the effects of the COVID-19 pandemic, Uganda undertook a first national-level campaign to improve TB and leprosy case-finding called Community Awareness, Screening, Testing, Prevention, and Treatment of both TB and leprosy (CAST TB/Leprosy).[4] The major components of the campaign, its leprosy-related results, and the lessons learned are described. In Uganda, tuberculosis and leprosy services have been combined in one program for several decades, since the characteristics of the diseases and the health service needs for diagnosis and treatment make it very convenient to have the services combined for efficiency and cost-effectiveness.

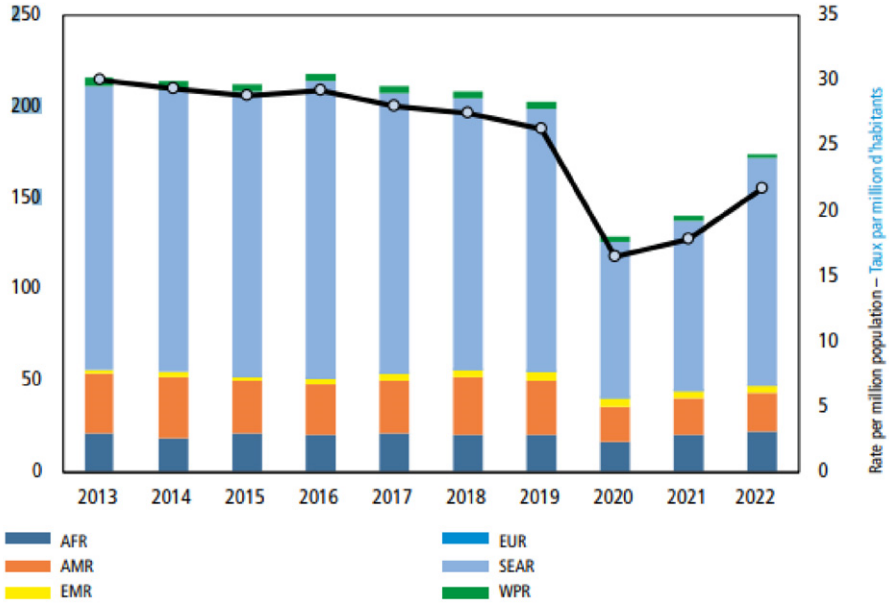


Figure 1. Trends in new leprosy case detection with corresponding new case detection rates, by WHO Region, 2013–2022.

AN OVERVIEW OF THE CAST TB/LEPROSY CAMPAIGN

This was a nationwide, biannual, door-to-door campaign screening for TB and Leprosy in selected high-risk communities for TB in every district in Uganda. The main strategy for obtaining the target population for the implementation of the CAST campaign was based on TB hotspot selection using electronic Case-Based Surveillance System data and establishing communities with exceptionally high TB notification rates. CAST campaigns comprised three main activities—house-to-house visitations, contact investigation, and hotspot screening. These activities were conducted by village health teams and healthcare workers. The campaign was implemented in three 5-day cycles at 6-month intervals beginning in March 2022, followed by September 2022, and in March 2023. Regions and districts were at liberty to choose a week during March and September 2022 to implement the campaign. Throughout the campaign, national, district, and implementing partner staff provided technical assistance to ensure quality assurance for both facility- and community-level interventions.

National and district-level planning meetings were held before any activity on the intervention, while mass media was used to raise community awareness. The tuberculosis and leprosy programme held a one-day meeting before campaign implementation to orient village health teams and primary health workers on the implementation package. The programme then assigned each village a village health team member to operate within their own communities; on average, each member was responsible for visiting 7–15 households per day.

Key activities conducted during the campaign included community mobilization and sensitization; voluntary symptom screening for leprosy as well as tuberculosis; testing of individuals for tuberculosis; and linkage to care for those with a confirmed leprosy or tuberculosis diagnosis. Health staff were oriented on how to suspect and refer possible leprosy patients. Identified leprosy patients were confirmed by the trained District Tuberculosis and Leprosy Supervisor and initiated on treatment following national guidelines.[5] Every household visited received a copy of key messages on TB and leprosy, which could be used for self-screening beyond the campaign.

In Uganda, as elsewhere in the world, voluntary self-presenting of new cases to the health services, known as passive case detection, is no longer deemed a sufficient single approach to leprosy case finding.[3] Providing more convenient and patient-centered options for service delivery is a priority within the Uganda National Strategic Plan 2020/2021–2024/2025.[2] The CAST TB/Leprosy campaign was a strategy to address the apparent decline in TB and leprosy services due to the negative impact of the COVID-19 pandemic at health facility and community levels using the same resources (both human and financial), and it was assumed that the incorporation of the leprosy element would benefit leprosy service delivery. It is against this background that the NTLP decided to engage communities in the search for TB and leprosy patients in a campaign mode. The CAST implementation varied between quarters, with the nationwide implementation taking place only in September 2022. The other quarters had CAST implemented in a few areas depending on the high burden of tuberculosis. This paper aims to illustrate the impact of integrating leprosy active case finding in the TB CAST Campaign.

GENERAL OBJECTIVE

To illustrate the impact of integrating active case finding for leprosy in the TB CAST Campaign.

SPECIFIC OBJECTIVES

- To document the contribution of the CAST campaign to leprosy patient notification.
- To analyze the characteristics of the leprosy patients found through the CAST campaign.
- To document the lessons learnt/best practices and challenges from the CAST campaign.
- To make evidence-based recommendations for leprosy programming in general and the national zero leprosy road-map in particular.

Methods

A leprosy basic package (training and recording) was included in CAST. Information, education, and communication materials were printed and distributed in each region. Orientation of district, facility, and community teams was conducted prior to each six-month episode of the CAST campaign in March and September. Door-to-door contact screening and outreaches were conducted in communities in every district in Uganda. Leprosy index patients were line-listed by health workers at facilities who reported leprosy patients, and VHTs educated communities on the signs and symptoms of leprosy. Community members who exhibited the symptoms and signs were assessed for the possibility of leprosy. The diagnosis was made based on the WHO criteria.

Data were collected at the community level, aggregated at the facility level, and entered in an online system. Analysis of the datasets from a custom database created for the CAST campaign was conducted. Leprosy-related data were extracted from the custom database utilizing the DHIS2-based TB-Info platform that had been specifically created for the CAST campaign. The data were analyzed, and Q-GIS v3.22.5 was used to generate maps highlighting areas of potential interest.

Results

A total of 2,788,668 households were reached during the three CAST campaigns. This represents 27% of the total number of households in the country. The population screened was 4,783,000 people (15% of the total population), of whom 4,302 individuals were suspected to have leprosy. Of those with possible leprosy, 55% were females and 45% were males. Children below 15 years old accounted for 13.8%.

The distribution of places where the CAST campaign was conducted is further illustrated by the maps in Figure 2 below.

CONTRIBUTION OF CAST CAMPAIGNS TO LEPROSY NOTIFICATIONS

Figure 3 below shows the proportional distribution of the contribution of the CAST campaign to leprosy patients notified during the 3 quarters of the campaign.

The campaign had a 26%, 80%, and 27% contribution to the number of leprosy patients notified in the January–March 2022, September–October 2022, and January–March 2023 quarters, respectively. Overall, the CAST campaigns contributed 25% of all patients with leprosy notified to the NTLP from January 2022 to March 2023, and 14,560 were diagnosed with TB.

REGIONAL DISTRIBUTION OF LEPROSY PATIENTS IDENTIFIED DURING THE CAST CAMPAIGNS IN 2022 AND 2023

The Figure 4 below shows the regional distribution of new leprosy patients notified during the campaign.

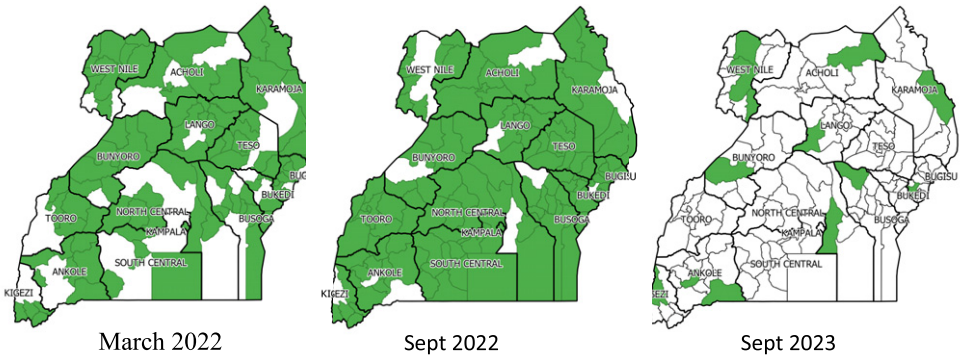


Figure 2. Map of Uganda showing the distribution of the places where the CAST campaigns was conducted during the Mach 2022, September 2022 and September 2023.

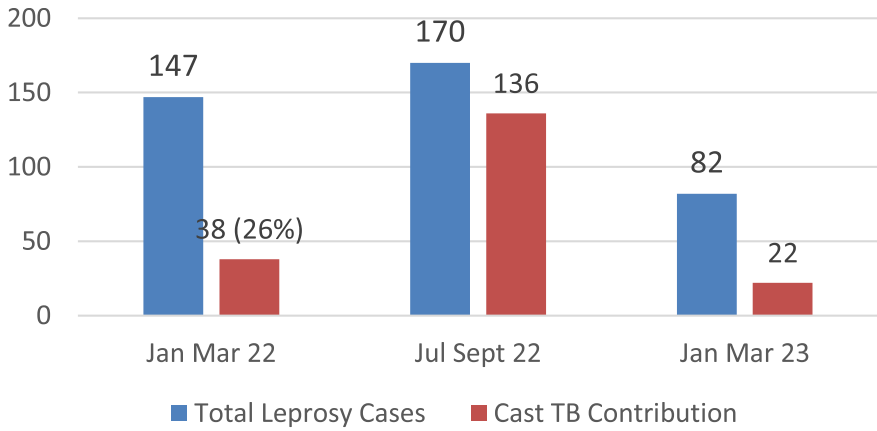


Figure 3. Contribution of CAST campaigns to the identification of leprosy cases in Uganda.

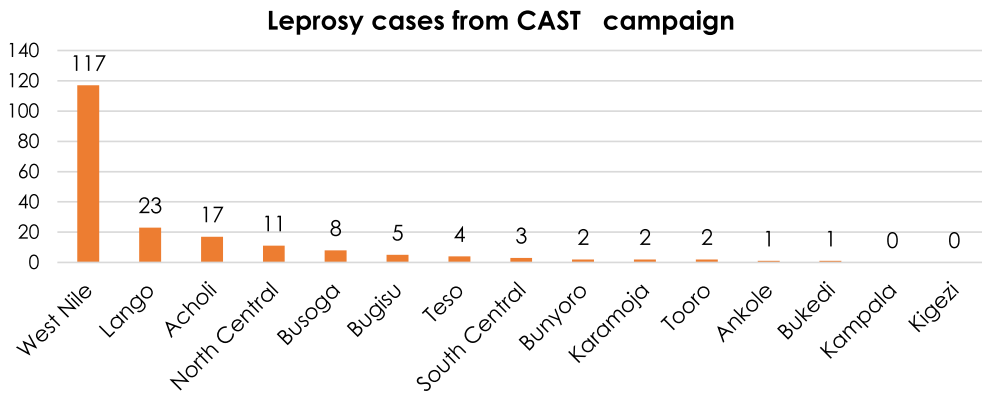


Figure 4. Leprosy cases from the CAST campaign in Uganda, by region.

About 60% (117/196) of the new leprosy patients diagnosed during the campaign were from the West Nile region, followed by the Lango region with 12% (23) and the Acholi region at 9% (17/196). The Kampala Region had 11 suspected leprosy cases that were referred to the health facilities, but none of them were confirmed.

Discussion

The Ministry of Health (MoH), through the NTLP in Uganda, in collaboration with implementing partners, conducted a nationwide campaign. The campaign included raising community awareness about TB and leprosy, community-based TB and leprosy screening, treatment of all patients diagnosed with TB or leprosy, and giving preventive TB treatment to those eligible.

Integration of leprosy control into the general health care services is regarded as an important precondition for increasing the accessibility and sustainability of leprosy services, especially in low endemic settings and in the face of more serious problems like tuberculosis. The CAST TB/Leprosy campaign was used as one of the activities in the integration process.

In this campaign, rapid training of community health workers and their engagement culminated in the identification of many leprosy patients from among large numbers of people screened with different skin diseases. This has also been seen in Ethiopia and Sri Lanka, where studies conducted on leprosy in high-burden rural sites showed that training combined with mass screening has a sound effect on early case detection and contact tracing.[4,6]

Timely diagnosis with adequate treatment and follow-up minimizes the risk of developing complications and permanent disabilities in patients with leprosy.[7–9] Overall, 2020 and 2021 recorded the highest proportion of G2D cases at 39% and 18%, with a decline to 17% in 2023. Leprosy patients with visible impairments are easier to diagnose and are, therefore, more likely to be picked up in the earlier cycles of the campaign. The occurrence of disabilities could have been enhanced by the service interruption due to the COVID-19 pandemic. Misdiagnosis has been named as a key factor contributing to leprosy case detection delay. As leprosy symptoms vary widely, it can be difficult for general healthcare providers to identify the disease.[4,10] If it is not diagnosed immediately, individuals with leprosy may require more visits to health care providers. Hence, capacity building of healthcare professionals as well as development of an efficient referral system and provision of skilled support supervision are core prerequisites for timely diagnosis and treatment of patients with leprosy. Until the transmission of leprosy has been halted, the most effective measure that can be taken to reduce the occurrence of disability is to ensure the early diagnosis of leprosy and prompt treatment for those infected by it.[11]

Overall, more leprosy patients were identified during the CAST campaign of July–September 2022 compared to that one of January–March 2022. This is due to the fact that the population coverage was more enhanced by increased resources (both human and financial). This finding conforms with the result from a door-to-door active case-finding activity carried out in Nepal.[12]

In order to revamp TB case notification across the country after the COVID-19 pandemic, the Uganda National TB and Leprosy Program designed and implemented a coordinated country-wide CAST. The TB case notification rate increased from 48.1 to 59.5 per 100,000 population and from 45.0 to 71.6 per 100,000 population in the March 2022 and September 2022 campaigns, respectively.[13] Leprosy screening and treatment were also incorporated into the campaign in all the areas where the CAST Campaign was conducted. The integrated campaign illustrates the benefit of combining leprosy with tuberculosis in the Ugandan context, where the latter has greater access to financial and other resources. This approach can be added to the list of targeted interventions for improved disease control and management.

This calls for improvement in the funding and approach to make sure that every patient diagnosed with leprosy is counselled and started on multi-drug therapy immediately. This time, the health teams at the nearby health facilities were tasked to follow up and link all the patients identified with leprosy to care.

Our analysis revealed that hidden cases in the community can be identified and treated by active case detection approaches; these approaches are now being implemented biannually in Uganda, especially in districts with a high burden of tuberculosis.

LIMITATIONS

The information analyzed did not contain disability grading, which shows incomplete representation of the leprosy burden and may underestimate the true impact of CAST on leprosy.

The data analyzed also does not track leprosy patient outcomes over time.

The limited population coverage in this case means that the findings are not applicable to the general population, but the CAST campaigns were a worthwhile attempt to target case-finding activities based on known TB hotspots. In future, targeting could include both leprosy and TB hotspots. It is also possible that some members of households, and any leprosy cases among them, were missed, despite best efforts.

Post-exposure prophylaxis (PEP) administration for eligible contacts was not done, and we recommend this to be considered during the subsequent CAST campaigns since this is now a routine biannual activity implemented by the National Tuberculosis and Leprosy Program.

CONCLUSION AND RECOMMENDATIONS

The country-wide campaign undertaken to enhance tuberculosis and leprosy case notifications in the aftermath of the COVID-19 epidemic was a novel and innovative approach that demonstrated scalability of community-based active TB and leprosy case finding. Integration of leprosy case finding with other services increases access to leprosy services. Additionally, the involvement of community healthcare workers played a vital role in achieving rapid community-level leprosy advocacy and referral of suspected leprosy cases for further evaluation and management.

Addressing identified challenges will be important to optimize future campaigns to ensure the attainment of national zero leprosy status. The indications are that such an approach would be most cost-effective in the relatively high leprosy burden regions and districts. Future replications of the intervention should particularly focus on preparedness for health workers' capacity for diagnosis, reporting, initiating, and sustaining treatment and care for the cases identified.

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