



This policy brief is part of a collection written by National Tuberculosis Programmes demonstrating strengthened capacity for evidence-informed decision-making (EIDM) supported by the LIGHT research programme.

## Improving Tuberculosis Case Reporting Systems and Processes in Malawi

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### Background

The reporting system for tuberculosis (TB) in Malawi starts at a diagnostic site, then proceeds to a registration site, and finally to the centralised National Tuberculosis and Leprosy Elimination Programme (NTLEP) for consolidation. The country has 418 TB diagnostic sites and 505 TB registration sites. Each diagnostic site is separate from a registration site.

Furthermore, there is a reliance on a paper-based system for TB reporting. The reliance on this paper-based system makes documentation of cases cumbersome and time-consuming. This setup also poses a major challenge for accurate reporting and quality control as data that is entered at the diagnostic site is often not captured at the registration site, leading to people with TB not being put under a treatment regimen.

Achieving the goal of ending TB by 2030 requires systems and processes that allow the gathering of the required patient data for effective programmatic decisions. Adopting a digitised system has been considered for accurate TB reporting, however, there have been several issues related to deploying a digital system over the years.

NTLEP - National Tuberculosis and Leprosy Elimination Programme  
MoH - Ministry of Health, Malawi  
MoGCDSW - Ministry of Gender, Community Development and Social Welfare  
MLW - Malawi Liverpool Wellcome Programme

### Key messages

1. A reliance on a paper-based system for TB reporting in Malawi impacts accuracy and complete capturing of the prevalence of TB in the country, as well as the number of people on TB treatment.
2. A digital system will improve TB reporting in Malawi; however, there have been several issues related to deploying a digital system over the years.
3. A revised implementation strategy for a new digital system should integrate the previous three digital systems developed to improve TB reporting.
4. There should also be a strategy to enhance the capacity of TB officers in reporting with both the paper-based system (now) and the digital system (after development).



Malawi has  
**418**  
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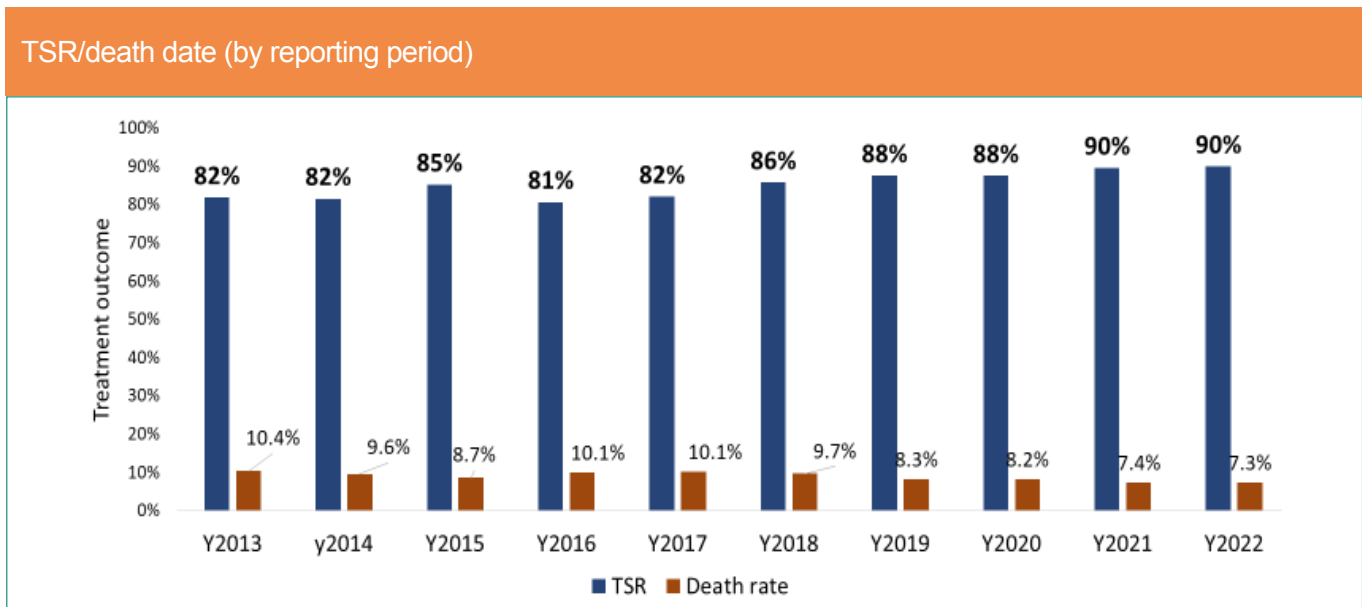
The World Bank supported the development of an e-health system for better management of TB. The system included automatic SMS alerts of timely laboratory test results for presumptive TB patients; alerts to patients reminding them to adhere to medication; and tracking sputum samples from community collection points for testing and treatment initiation. The initiative ran from 2019 till it was phased out in 2024. Challenges included limited connectivity, hardware damage and power outage.

The Global Fund to Fight AIDS, Tuberculosis and Malaria also supported the development of an electronic medical record (EMR) system for TB/HIV patients. The aim was to have an electronic recording and reporting system for TB that was user friendly, easy to maintain and ultimately improve TB patient management in Malawi through accurate documentation. The installation and commissioning of the TB-EMR was completed in 2020. However, there was a need for continuous capacity building for end users through training and mentoring, remote monitoring, and support for consistency and troubleshooting. The system has not

yet been supported and maintained to ensure its smooth functionality.

At the same time, Malawi Liverpool Wellcome Programme (MLW) developed a robust digital health innovation called the electronic participant locator (ePAL) application to complement the work of NTLEP. The system was primarily used to trace the location of participants to understand the burden of disease across the demographic areas for the benefit of health research. In the pilot programme, over 100 health surveillance assistants (HSAs) were trained on how to use ePAL at selected points of interest. The scale up of the programme across the country currently depends on the next round of funding.

All these three innovations are focused on improving the systems and processes for disease management and reporting. A coordinated system is essential to bridge the gap between patients diagnosed, and patients registered and notified to the national TB programme, with this improving patient treatment coverage and reducing loss to follow-up.



TB treatment outcomes trend in Malawi: 2013–20221



In a pilot programme run by Malawi Liverpool Wellcome Programme, over

**100**

health surveillance assistants (HSAs) were trained on how to use an electronic application to trace TB patients and to understand the burden of TB disease in a locality.

### Methodology

The generation of this policy brief was informed by evidence from different sources, including from the Malawi National Tuberculosis and Leprosy Elimination Programme and published studies from Uganda, South Africa and Zambia. The authors reviewed evidence from published studies using PubMed, Cochrane and Google Scholar and the relevant articles identified were included in the analysis.



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## Policy Options

### Option 1: Integrate the e-health system, electronic medical record (EMR) system, and electronic participant locator (ePAL)

The use of electronic patient-based medical records for TB patients is recommended by the World Health Organization (WHO) and has been shown to improve the TB recording system. Essentially adopting a digitised TB reporting system means that the NTLEP will be able to monitor TB reporting live from diagnosis to registration. This platform can be achieved by integrating three existing systems: e-health system, electronic medical records (EMR), and electronic participant locator (ePAL). Such a platform will improve accuracy in TB reporting thereby allowing the NTLEP to properly target interventions based on actual prevalence, and resolve the many lost to follow-up.

Implementing this transition requires serious investments. There is need to procure necessary equipment and train users. Involvement of all implementing partners with the NTLEP is paramount to achieve this. A routine review of data and regular feedback to improve the quality of data captured by the system is also paramount.<sup>2</sup>

### Option 2: Decentralise TB sites and prioritise capacity strengthening of TB officers

The aspect of decentralising TB sites embraces the fact that transitioning to a digitised system can take a while. Therefore, a more immediate solution could be the further decentralisation of TB sites to the community. Elsewhere, decentralisation of community TB interventions has been shown to improve reporting of tuberculosis patients. Decentralisation of childhood TB treatment had improved TB reporting in Uganda,<sup>3</sup> and in South Africa, TB treatment

outcomes improved after the decentralisation of TB services.<sup>4</sup>

Decentralising TB registration centres means having more health facilities in the community where confirmed TB patients can be initiated on TB treatment, and consequently registered in the facility and reported at the national level. Currently, most of the TB registration centres are concentrated in towns and cities. Malawi has well-organised community TB interventions where community-based organisations work closely with the NTLEP, thereby making this option achievable.

Malawi needs more than 505 TB registrations and 418 diagnostic sites. Decentralisation of these sites towards the communities will make a difference. If we are to increase these numbers and transition to a digital TB reporting system, capacity strengthening for TB officers responsible for TB reporting should be a priority. TB officers responsible for reporting should receive training to ensure efficient and effective running of both paper-based and digitised TB reporting systems. However, even if the transition does not happen any time soon, providing capacity strengthening for TB officers now will promote efficiency and effectiveness of the current paper-based TB reporting system until the transition.

Further decentralisation of TB registration sites requires resources to train frontline TB staff at the health centre and community level. Training materials will need to be developed, and TB reporting and recording tools will need to be printed and distributed to the sites. The additional registration centres would also require resources to support supervision and mentorship by the higher-level staff. Ongoing mentorship and practical support for health workers will help in delivering optimal services at the community level.

## Recommendation

The NTLEP should organise a series of consultative meetings to understand the implications of transitioning from a paper-based TB reporting system to a digital TB reporting system. Following these meetings, a technical report should highlight the product specifications and the financial implications.

A resource mobilisation committee should thereafter be setup to mobilise resources from the TB partners working in Malawi. After the successful mobilisation of resources and through a transparent selection process of a developer, the implementation may commence to integrate the three systems and come with a prototype.

The NTLEP and its partners should develop training materials to train TB officers to enhance their capacity in TB reporting with both the paper-based system (now) and the digital system (after development of the prototype). The NTLEP should also draft an implementation framework to guide the decentralisation of TB sites to the communities.



Photo credit: Canva

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