POLICY BRIEF
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Enhancing Supply Chain Management for Tuberculosis (TB) Commodities in Kenya: Addressing Key Challenges

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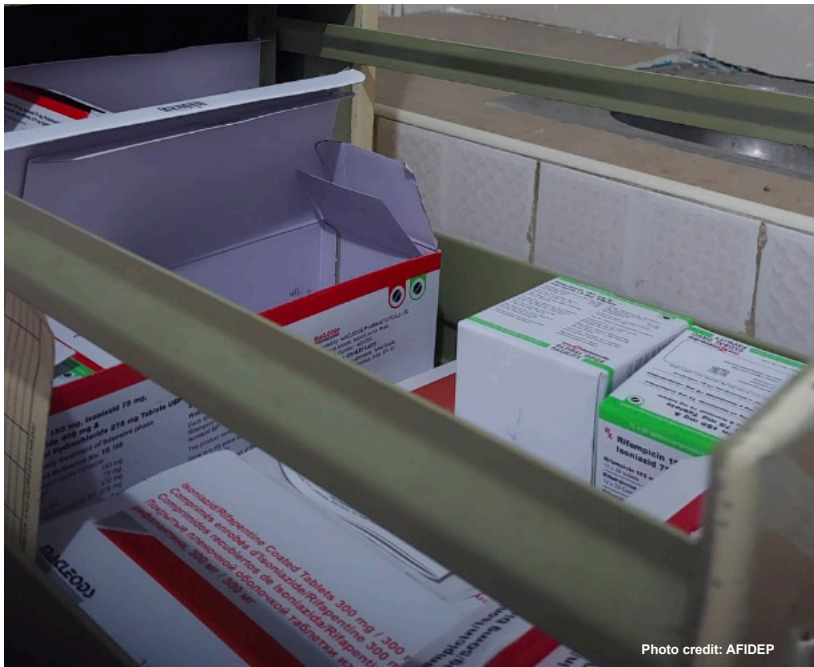
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Key messages

1. Inconsistent drug supply and poor reporting pose significant challenges to the effective management of tuberculosis (TB) commodities in Kenya.

2. Weak supply chains contribute to treatment interruptions and the spread of drug-resistant TB strains, undermining efforts to end TB in the country.

3. An effective supply chain management system ensures a consistent and uninterrupted supply of TB medications and commodities. It ensures timely and accurate distribution of TB commodities while preventing stock-outs or shortages.

4. An integrated supply chain management approach, with collaboration across ministries, can enhance availability of TB drugs and diagnostic tools in Kenya.

Background

Tuberculosis is a major public health problem and the fourth leading cause of death in Kenya. Based on World Health Organization (WHO) End TB Strategy targets set in 2015, Kenya was among seven high TB countries that had achieved their first milestone of a 20% reduction in the TB incidence rate by 2021. Kenya has made significant strides in reducing TB deaths by 44% compared to 2015, surpassing its target of 35% by 2021. Despite these gains, there's been a decline in TB treatment coverage from 63% in 2018 to 59% in 2021. The country also faced challenges where 42% of TB cases were not diagnosed, and only 65% of newly diagnosed people got rapid tests as recommended by WHO in 2022. In the same year, just 43% of patients could access diagnostic tests in Kenya. In addition, the treatment coverage rate at 57% was below the global average of 61% in 2021.

Kenya's challenges, similar to other African countries, involve managing resources for TB diagnosis and treatment, likely linked to issues in the TB supply chain system. To overcome these hurdles, Kenya needs to ensure

43%

Forty-three percent

Percentage of people who accessed a facility with TB diagnostic services or specimen transport

*NTLD-P - National Tuberculosis, Leprosy and Lung Disease Program
*ReSoK - Respiratory Society of Kenya

a consistent supply of crucial TB drugs and diagnostic tools. This is crucial for the success of Kenya's National Tuberculosis, Leprosy and Lung Disease Program (NTLD-P) and for reaching global targets. Enhancing the availability of timely data for decision-making is also essential to tackle the supply chain challenges in diagnosing and treating TB in the country.

In the 2022 Kenya achieved only 50% commodity data quality and reliability audits against a 100% target in the 2019-2023 National Strategic Plan (NSP) (TB Annual Report, 2021). This resulted in challenges in accurately tracking and monitoring the availability of essential TB medications and supplies across the country. The submission of poor quality data hindered the NTLD-P's ability to make informed decisions and allocate resources effectively, potentially leading to gaps in treatment coverage and compromising efforts to control the spread of tuberculosis.

Lack of TB commodities significantly compromises the ability to provide timely and effective treatment, leading to poorer treatment outcomes, increased risks of drug resistance, higher mortality rates, and added strain on healthcare systems.

When TB medications are unavailable or in short supply, patients may not receive their full course of treatment. This can result in treatment interruptions or discontinuations, leading to suboptimal outcomes. Studies indicate that incomplete treatment contributes to treatment failure and increases the risk of developing drug-resistant TB strains. According to the WHO, globally, about 3.3% of new TB cases and 18% of previously treated cases are estimated to have multidrug-resistant TB (MDR-TB).

Methodology

To develop this policy brief, a wholistic evidence synthesis of published articles was conducted using online databases such as PubMed and Cochrane. Relevant articles addressing the challenges of TB commodity supply chain management, their findings, and potential policy options were selected. The findings from these articles were synthesised to inform the policy recommendations.

Summary of Findings

Supporting effective TB treatment requires improved supply chain management for TB commodities in order to prevent shortages or stock-outs, ensure continuous access to high-quality medications and diagnostic tools, optimise logistics, minimise waste, allocate resources efficiently, and prevent shortages. Relevant findings from India, Ethiopia, and Kenya have demonstrated this.

Photo credit: AFIDEP

Study ID	Setting	Intervention	Outcome	Finding	Recommendation
Toppo et al., (2023)	India	Supply chain management	Improved supply chain management	Uninterrupted availability of essential TB medications and diagnostic resources	Recommends stronger collaboration for uninterrupted availability of essential TB medications
Tola, F. B., Anbessa, G.T., & Yikna, B. B. (2020)	Ethiopia	Proper and adequate storage	Potent and effective medicines and lab supplies	Poor storage facilities can lead to product degradation and stock-outs as well as contamination of the drugs, compromising their safety and effectiveness	Recommends that investing in proper storage infrastructure is key for safety, effectiveness, reduced wastage, and defect detection.
Kamau et al., (2021) Tola, F. B., Anbessa, G.T., & Yikna, B. B. (2020)	Kenya Ethiopia	Record-keeping	Proper record-keeping	Accurate records helps track patients' treatment progress; manage medication supply and distribution; generate valuable data that can be analysed to make decisions	Recommends that implementing quality record-keeping measures improves supply chain visibility

Policy Option 1: Efficient Supply Chain Management with Collaboration across Stakeholders

TB medications require a well-organised supply chain to ensure continuous availability. This involves managing the flow of medicines from manufacturers to distributors, healthcare facilities, and ultimately to the patients. Effective supply chain management includes inventory management, transportation logistics, and timely distribution. Strong collaboration among various stakeholders involved in TB medication provision is vital. In India this included government health departments, pharmaceutical companies, healthcare providers, non-governmental organisations (NGOs), and international health organisations. Collaboration facilitates information sharing, resource pooling, coordinated planning, and effective implementation of interventions. Across many studies, a well-functioning supply chain was indicated by timely delivery of medications to healthcare facilities. Metrics such as improved delivery times, minimal stock-outs, and decrease in treatment interruptions for TB patients due to the unavailability of medications indicate the efficiency of the supply chain.

Policy option 2: Proper and Adequate Storage

Proper and adequate storage of essential TB medications is crucial to maintaining their efficacy and ensuring uninterrupted availability. Proper storage involves maintaining medications within a specific temperature range recommended by manufacturers (usually between 2°C to 8°C for most TB drugs). Deviations from this range can compromise the effectiveness of the medications. For instance, in the Ethiopian context, exposure to high temperatures showed that it degrades the active ingredients in the drugs. Consistent monitoring of storage conditions and ensuring medications are stored within the recommended temperature range is key. In India and Kenya, studies indicated that ensuring medications are stored in their original packaging and handling them according to manufacturer guidelines is vital to reduce drug wastage due to expiration and fewer instances of treatment failure or drug resistance due to compromised medication quality.

Policy Option 3: Quality Record-Keeping Measures

Quality record-keeping measures are crucial for ensuring the uninterrupted availability of essential TB medications. They contribute significantly to maintaining a robust supply chain, facilitating efficient inventory management, and ensuring compliance with storage and distribution procedures. The research in Ethiopia indicates inaccurate record-keeping hampers supply chain visibility. This causes the lack of accountability, stock-outs, waste, lack of data to make informed decisions, and poor forecasting and quantification.

Furthermore, poor record-keeping can lead to delays in identifying and addressing issues such as product defects or quality control problems. Additionally, it can hinder the ability to track and trace products, making it difficult to respond effectively to recalls or ensure compliance with regulatory requirements.

Ensuring accurate and comprehensive records of medication inventory, usage, and distribution is key for efficient traceability of medication batches throughout the supply chain. This helps utilisation of data for informed decision-making in managing medical supply and distribution.

Implications

A well-functioning and efficient supply chain ensures timely delivery of medications to healthcare facilities. Ensuring uninterrupted availability of essential TB medications through supply chain management and collaboration is characterised by consistent access to medications, reduced interruptions in treatment, efficient supply chain performance, improved patient outcomes, cost-effectiveness, and sustainability of the intervention.

A number of these supply chain strategies have been put into practice in various countries for TB commodity management, and their results have demonstrated the impact on improving access to TB medications and reducing stock-outs. For example, implementing a centralised distribution system in some countries resulted in a significant decrease in stock-outs of TB drugs at health facilities. Additionally, the use of real-time data monitoring and forecasting tools has helped identify potential supply chain bottlenecks and optimise inventory management, leading to more efficient delivery of TB commodities to those in need.

Recommendations

- Collaborate across ministries and stakeholders (including manufacturers) to create an integrated supply chain management system that encompasses forecasting, procurement, distribution, and monitoring.
- Develop and implement an integrated supply chain management approach that takes into account both diagnosis and treatment for TB.
- Allocate resources to implement modern information systems for real-time reporting, forecasting and quantification, tracking and management of TB commodities, ensuring timely access and reducing stock-outs of TB commodities.
- Prioritise healthcare worker training and capacity building to improve reporting, recording, and quantification skills.
- Implement routine monitoring and evaluation mechanisms to assess the effectiveness of supply chain management efforts and make necessary adjustments.

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