



Engaging pharmacies in tuberculosis control: operational lessons from 19 case detection interventions in high-burden countries

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INTRODUCTION

In countries with a high burden of tuberculosis (TB), private pharmacies are often the first point of care seeking for individuals with TB symptoms,^{1–5} making them ideally placed to assist in the early detection of TB. However, the quality of TB care by pharmacies in low-income and middle-income countries (LMICs) is often low, with lack of TB knowledge among pharmacy staff, inappropriate sales of antibiotics and anti-TB medications, and lack of systems to facilitate referrals for TB testing.^{6–8}

Most pharmacies are not linked to national tuberculosis programmes (NTPs) but establishing structured mechanisms for the referral of individuals with presumptive TB from pharmacies to private or NTP-associated facilities for testing could help to identify the estimated 4.1 million individuals who developed TB in 2020 but were not diagnosed and reported to NTPs.⁹

Between 2010 and June 2020, the Stop TB Partnership's TB REACH initiative funded 26 interventions in 15 LMICs which engaged pharmacies to improve TB case detection, with the aim of demonstrating whether they are effective entry points to identify individuals with TB and whether they could subsequently be scaled up and transferred to a sustainable model either by other donor agencies or with monitoring and assistance from NTPs. An analysis of quantitative outcomes of the interventions will be published separately. For this publication, we discussed operational characteristics of the interventions with grantee implementors of 19 of these projects, and with members of the TB REACH initiative involved in providing technical support to the

Summary box

- ⇒ Private pharmacies are a frequent first point of care seeking for individuals with presumptive tuberculosis (TB) in high-burden countries.
- ⇒ Establishing structured mechanisms for the referral of individuals with presumptive TB from pharmacies to private or national tuberculosis programme (NTP)-associated facilities for TB testing could help to identify some of the estimated 4.1 million individuals who develop TB each year but are not diagnosed or reported to NTPs.
- ⇒ Since 2010, the Stop TB Partnership's TB REACH initiative has funded 26 interventions in 15 low-income and middle-income countries which engaged pharmacies case detection interventions for TB.
- ⇒ We compiled three key lessons from discussions with implementors of 19 of the 26 TB REACH-funded pharmacy engagement interventions and members of the TB REACH initiative:
 - ⇒ Pharmacies are independent businesses which may be hesitant to become involved in TB case detection initiatives but can be recruited and retained by engaging relevant stakeholders, providing training to pharmacies and offering incentives where appropriate.
 - ⇒ Interventions should be designed flexibly to allow pharmacists to focus TB case finding activities on the highest-risk patients during busy periods.
 - ⇒ Several different mechanisms of referral and follow-up may be required, depending on pharmacy capacity, but the establishment of sputum collection and transportation mechanisms should be prioritised to reduce loss to follow-up.

projects (table 1). We summarise the three main themes and operational lessons which emerged from these discussions as follows.

The term pharmacy is used here broadly to refer to any provider engaged in the selling of



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Table 1 Characteristics of pharmacy engagement interventions

Country and year	Setting	Pharmacist type	Intervention type	Incentives*
Bangladesh 2017–2018	Urban	Licensed	Screening for TB, referrals	Monetary
Burkina Faso 2012–2013	Urban	Licensed	Screening for TB, referrals	Monetary
Cambodia 2019–2020	Urban	Licensed	Screening for TB, referrals, sputum collection and transport	Monetary
Ethiopia 2018–2019	Urban	Mixture	Screening for TB, referrals	Monetary
Ghana 2018–2019	Urban	Mixture	Screening for TB, sputum collection and transport	Non-monetary
India 2014–2016	Urban	Informal	Screening for TB, referrals	Monetary
India 2017–2018	Urban	Licensed	Screening for TB, referrals	None
Kenya 2011–2012	Urban	Informal	Screening for TB, referrals	Non-monetary
Kenya 2019–2020	Rural	Licensed	Screening for TB, referrals, sputum collection and transport	Non-monetary
Malawi 2018–2019	Mixture	Mixture	Screening for TB, referrals	Non-monetary
Nepal 2014–2016	Urban	Licensed	Screening for TB, referrals	None
Nepal 2018–2019	Rural	Licensed	Screening for TB, referrals, sputum collection and transport	Monetary
Nigeria 2012–2013	Urban	Informal	Screening for TB, referrals	Monetary
Nigeria 2018–2019	Rural	Mixture	Screening for TB, referrals, sputum collection and transport	Monetary
Tanzania 2012–2013	Mixture	Informal	Screening for TB, referrals	None
Tanzania 2018–2020	Rural	Informal	Screening for TB, referrals, sputum collection and transport	Non-monetary
Uganda 2019–2021	Urban	Mixture	Screening for TB, referrals	Monetary
Vietnam 2014–2016	Rural	Licensed	Screening for TB, referrals	Monetary
Vietnam 2017–2018	Urban	Licensed	Screening for TB, referrals	Monetary

*Monetary incentives were direct monetary payments per individual referred, often with a bonus if the individual was subsequently diagnosed with TB. Non-monetary incentives included useful items such as weighing scales, wall clocks or mobile telephone credit. TB, tuberculosis.

medicines, whatever their level of training and whether licensed or unlicensed.

STRATEGIES FOR RECRUITING PHARMACIES AND MAINTAINING ENGAGEMENT

Most pharmacies are private businesses with profit motivations. Before agreeing to participate in projects, many pharmacy owners expressed concern about losing business if they were required to refer individuals with TB symptoms to the NTP or other providers. The following strategies proved effective in mitigating these concerns.

As an initial step, implementors recommended approaching influential stakeholders such as NTPs, district or state TB programmes and pharmacy associations to seek their approval for, or involvement with, interventions. Pharmacy associations and licensing

authorities generally possessed the most complete lists of pharmacies in their jurisdictions and often helped to recruit individual pharmacies to projects.

Training was an attractive tool for recruiting pharmacies, though the time required to train pharmacy staff about TB symptoms, diagnosis and treatment varied depending on their level of prior knowledge and education. In many high-TB burden countries, undertrained or untrained staff work in unlicensed informal pharmacies or retail drug stores,⁶ and training such staff may require substantial investment of time and resources. Some TB REACH projects provided extensive training curriculums running over several days which were validated by NTPs, while others had shorter information sessions held on a single afternoon.

Involvement of NTP staff in training sessions gave pharmacies opportunities to interact directly with government officials and was seen by many pharmacies as a symbol of government recognition of their business, which enhanced their reputation in the community. Certificates of training signed by the NTP, Ministry of Health or implementing organisation that could be displayed in stores were appreciated by pharmacies. Many pharmacies additionally found that involvement in TB case detection interventions led to increased loyalty from clients who were grateful for referral for free TB testing and treatment. These benefits could be highlighted when approaching pharmacies to become involved in projects.

Many projects needed to offer incentives to recruit and retain pharmacies. These could be direct monetary payment per individual referred, often with a bonus if the individual was subsequently diagnosed with TB, or in the form of useful items such as weighing scales, wall clocks or mobile telephone credit. However, pharmacies in projects in Ghana, India and Nepal felt a strong moral responsibility to improve the health of their communities and neither needed nor wanted monetary incentives, a finding similar to previous research conducted in Cambodia.¹⁰

To maintain engagement, pharmacies should be provided with continual follow-up and support. Implementors recommended holding regular review meetings, which include feedback on pharmacy performance, ideally in person, and giving pharmacies mechanisms to raise issues, including hotlines to call with questions. The use of short-term employees and rapid staff turnover in pharmacies were common and often necessitated additional training sessions for new staff.

In summary, pharmacies are independent businesses which may be hesitant to become involved in TB interventions. Nevertheless, by engaging relevant stakeholders, providing training to pharmacies and offering incentives where appropriate, pharmacies can be recruited and retained in these initiatives.

IDENTIFICATION AND SCREENING

Interventions usually involved pharmacy staff verbally screening all clients entering their shops, regardless of the reason for their visit, for TB symptoms and counselling and referring those with symptoms for testing. However, pharmacies in many projects reported difficulties screening all clients during busy periods. When staff were too busy, they switched to screening only clients who reported cough or requested cough relief medications and reverted to screening all clients at other times.

Pharmacy staff in all projects were asked to collect data on screened clients. Some interventions used paper forms which were regularly collected by project staff; others used mobile phone applications which submitted results to the cloud. Regular refresher training in the use of digital forms may be required in some settings.

In summary, interventions should be designed flexibly to allow pharmacists to focus on the highest-risk patients, rather than all comers, during busy periods.

REFERRAL AND FOLLOW-UP

Individuals with symptoms were usually referred to public facilities for TB testing, although one project in India referred individuals to private facilities. Client expectations of the role of a pharmacy presented a frequent challenge, with pharmacy staff concerned that clients would go to their competitors if they did not receive a tangible outcome such as medication from their visit. Standardised patient (mystery client) surveys show that pharmacies often dispense antibiotics for clients with chronic cough without referral for TB testing, with the expectation of improving client retention.^{7 8} Some projects addressed this problem by producing printed referral slips, which allowed pharmacies to 'dispense' a product and maintain their position relative to client expectations.

Some projects reported substantial loss to follow-up at the stage of referring clients for TB testing, which they aimed to mitigate by providing travel vouchers for clients or by project staff transporting clients to referral facilities. In the more recent interventions, however, sputum was often collected on-the-spot in pharmacies and transported by project staff for testing, in line with studies showing that prediagnostic loss to follow-up is lower when sputum collection and transport is provided than when individuals are sent to referral facilities for testing.^{11 12} Linkages between pharmacies and referral facilities are vital for project success, and information should flow in both directions.¹³ Pharmacy staff should receive regular feedback on the number of their referred clients attending testing sites and the number diagnosed with TB. In addition, digital tracking tools for pharmacies can facilitate information sharing and real-time updates.

None of the projects interviewed involved pharmacies engaging in TB drug dispensing and providing TB treatment and adherence support, which was generally taken over by the NTP. More recent private sector engagement strategies have moved away from a sole focus on referral models and included the registering and reporting of people who are already receiving TB treatment from a pharmacy after a diagnosis of TB, or pharmacists serving as treatment supporters to encourage adherence.^{14 15} These strategies may improve TB notifications in locations where people purchase anti-TB drugs directly from pharmacies, despite the drugs being available for free in public facilities.^{16 17} More recent TB REACH projects, not included in this report, are documenting results of this approach.¹⁸

In summary, several different mechanisms of referral and follow-up may be required, depending on pharmacy capacity, but the establishment of sputum collection and transportation mechanisms should be prioritised to reduce loss to follow-up.

CONCLUSIONS

The biggest lesson from our discussions with implementors was that to recruit and retain pharmacies in case finding interventions for TB, a package of incentives was required that included not only monetary incentives but also training in TB and the opportunity to interact with influential stakeholders in ways which were seen by pharmacy owners as beneficial to their businesses. In many settings, clients expect to receive a tangible outcome such as medication from a visit to a pharmacy, even in the absence of diagnostic testing. The design of case finding interventions should acknowledge the primacy of profit motivations for pharmacies and incorporate mechanisms such as the ‘dispensing’ of referral slips for TB testing to allow pharmacies to maintain their position relative to client expectations.

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