Pharmacy engagement in TB prevention and care: not if, but how?

Rosalind Miller, Francis Wafula, Kinz ul Eman, PS Rakesh, Bolanle Olusola Faleyè, Catherine Duggan, Gonçalo Sousa Pinto, Petra Heitkamp, Namrata Rana, Joel Shyam Klinoton, Giorgia Sulis, Charity Oga-Omenka, Madhukar Pai

INTRODUCTION

Over four million people with tuberculosis (TB) globally (45% of the estimated TB burden) are ‘missing’. This gap of not-reported people with TB is widening, up from 2.1 million in 2019 to 4.1 million in 2021 largely due to the COVID-19 pandemic.

Most individuals with TB seek initial care at the level of primary care, and community pharmacies are a common first point of contact for people with symptoms suggestive of TB such as long-lasting cough and fever, making them well placed to find people with TB in high-burden settings. The COVID-19 pandemic showcased how effectively pharmacists and other pharmacy professionals can be engaged and leveraged to provide information, point-of-care (POC) testing and vaccination. The role of pharmacists in TB care was also described and supported in a joint statement by the World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) in 2011.

Prior research has identified inadequacies in how pharmacy professionals manage people with presumptive TB, including inappropriate over-the-counter sales of medicines such as fluoroquinolone antibiotics, steroids and cough suppressants which can mask the symptoms of TB. Referral for sputum testing is also noticeably lacking.

These shortfalls in quality of management have been mostly attributed to three areas: (1) low TB knowledge among pharmacy staff, (2) inadequate systems for referring clients for testing or notifying TB (such as lack of digital reporting systems) and (3) lack of support, such as training or appropriate funding models.

Evidence suggests that engaging private providers can contribute to quality TB care, improve TB diagnosis and expand case detection at roughly the same cost as the public sector. As pharmacies are often the first point of access to care, the question of whether pharmacies should be engaged in identifying people with TB is a rhetorical one. The dialogue must shift towards how to engage pharmacies more effectively and address the bottlenecks. Here, we propose three priority actions that should be taken, especially in high-burden settings:

ACCESS TO CLEAR AND CONCISE PHARMACY-SPECIFIC GUIDANCE, BACKED BY NATIONAL OR REGIONAL PHARMACY ASSOCIATIONS, FOR THE MANAGEMENT OF PEOPLE PRESENTING WITH COUGH

To date, there is little specific guidance or practical tools available on TB management for pharmacists, codesigned with pharmacy professionals or societies. To address this gap, we set about creating a simple, easy to understand and evidence-based infographic to use as an educational tool (figure 1), providing pharmacies with key information, as well as ‘do’s’ and ‘do not’s’, to refer to when they encounter people presenting with cough. The content of the infographic was created, debated and revised through extensive stakeholder engagement, including academics, programme implementers and representatives from international organisations and national TB programmes (NTPs), and is in line with international TB standards.

A survey among stakeholders provided further input and feedback on an initial draft, which was later presented, discussed and subsequently revised. The infographic is supported by the International Pharmaceutical Federation (FIP) - the global organisation representing pharmacists, pharmaceutical scientists and educators - and stakeholders in 14 high-TB burden countries (Bangladesh, Ghana, India, Indonesia, Kenya, Myanmar, Nepal, Nigeria, Pakistan, Tanzania, Thailand, Uganda, Vietnam and Zimbabwe). To get involved with the project, please see the infographic at https://www.tuberculosisguidance.org.

Pakistan, Philippines, South-Africa, Tanzania, Viet Nam, Zambia) implementing a variety of pharmacy engagement models. In consultation with NTPs, national pharmacists associations and key implementing partners, the tool can be adapted, adopted, translated into local languages and disseminated in a range of settings. The infographic is currently being disseminated in Zambia to 400 pharmacies, and the 13 other countries have been contacted regarding adapting and dissemination in line with their national policy and strategies. (Contact the corresponding author for use and adaptation of the infographic, and to include national logos).

The aforementioned infographic aims to aid early TB diagnosis by increasing awareness of symptoms and global burden. Moving forward, we suggest implementing more targeted and context-specific educational tools to better equip pharmacy professionals address the key challenges of over-the-counter dispensing of anti-TB medications; limited knowledge of symptoms and management; inadequate referral processes between pharmacies and testing centres and the need for incentives.

**ESTABLISHMENT OF STRUCTURED MECHANISMS FOR PHARMACIES TO SUPPORT PEOPLE WITH PRESUMPTIVE TB**

Drawing on global experiences of interventions for improving engagement of pharmacists in TB care, Bigio et al highlight the need for establishing and improving mechanisms that allow people with presumptive TB to be screened in pharmacies and effectively linked to national TB systems. Typically, substantial loss to follow-up happens at the stage of referring people for TB testing. Reports indicate that this may persist, even when efforts are introduced to mitigate the loss (eg, providing free transport). Further, NTPs may not be adequately engaging pharmacies in the continuum of care for people with presumptive TB. Establishing POC testing in the pharmacy is an obvious way to prevent such loss and has the potential to reduce diagnostic delays. Although there is no simple POC test that can be used by pharmacists, other screening approaches have been tried. In India, digital chest X-ray (CXR) vouchers were given by pharmacists to people with presumptive TB resulting in substantial increases in case detection. Programmes in countries such as Kenya and Nigeria have attempted to address this challenge by introducing symptom screening for TB, initiated at pharmacists through questionnaires or mobile apps. This approach paves the way for a new future of effective pharmacist engagement. For example, Nigeria is implementing a ‘hub-and-spoke’ model, where Patent Medicine Vendors (spokes) drive patient traffic to government or recognised private laboratories (hubs) by screening for TB and collecting sputum samples. Referred patients benefit from Xpert MTB/ Rif testing, that is, a rapid molecular test for detecting TB and rifampicin-resistant TB, which can be used at the POC. Alternatively, or in addition, they refer people with presumptive TB to medical facilities for supplementary assessment or treatment. Furthermore, public sector TB clinics could engage pharmacies as community partners to provide local support to people with TB by monitoring...
their treatment adherence and offering counselling support in between monthly or bimonthly appointments. As such, pharmacists provide patient counselling and support, adherence monitoring and adverse events’ reporting (pharmacovigilance). While this model shows promise, research needs to confirm this evidence, and concerns persist over sustainability in the face of limited health system support.

**USE OF ADVANCEMENTS IN DIGITAL TECHNOLOGY TO IMPROVE THE LINKAGE BETWEEN PHARMACIES AND TB PROGRAMS AND SURVEILLANCE**

While paper-based forms and printed referral slips have been used in the past, there is an increased recognition of the importance of embracing digital technologies such as digital linkage and notification and development of dashboards to improve decision-making based on data collected from the pharmacies.21

In Pakistan, a novel app (e-TB) has shown initial success in improving case notification. The social enterprise initiative was started by the DOPASI Foundation to support the order for mandatory notification. Pharmacists sign up using licence numbers, then report via the app every time they receive a prescription for anti-TB medications, providing patient and prescriber details and an uploaded photo of the prescription. Patients’ telephone number is then used for follow-up with messages to support the patient during treatment and improve adherence. Around 16 000 TB notifications were made in a year between April 2021 and end of March 2022 from 2981 pharmacies (representing a 20%–30% increase in TB notifications per district). In India, the Nikshay portal allows for electronic TB notification and data analysis, including for pharmacists connected with the NTP. Further, a pilot initiative is underway to capture relevant patient, provider and anti-TB medication data and integrate a billing software to generate real-time information.20 In South-East Asia, a digital networking app called ‘SwipeRx’ has been shown to facilitate and educate pharmacists in collecting sputum linked to labs, referrals for CXR with free vouchers or referral for TB testing at close by sites, serves as a component of health system preparedness for roll-out of POC diagnostics and TB vaccines that are in the research pipeline. As described above, there is plentiful scope to expand the role of the pharmacist further to allow for in-pharmacy TB testing, diagnosis and notification. These initiatives require strong partnerships between TB programmes, national association of pharmacists and allied cadres. Policy should consider introducing appropriate and sustainable funding models to capture the missing people with TB via pharmacies.

**CONCLUSION**

The historic role of pharmacists in TB care and prevention has centred on dispensing anti-TB medications; however, it is clear that they can assume a larger role. We have outlined three key actions that could harness the potential of community pharmacists in supporting the efforts to End TB. The pharmacy-specific infographic which we have produced collaboratively, serves as an important first step towards ensuring pharmacists have access to evidence-based management advice. There is a need for more detailed guidance as well as expansion of digital systems to enable reporting and referral of people who might have TB. Additionally, early engagement of pharmacists in collecting sputum linked to labs, referrals for CXR with free vouchers or referral for TB testing at close by sites, serves as a component of health system preparedness for roll-out of POC diagnostics and TB vaccines that are in the research pipeline. As described above, there is plentiful scope to expand the role of the pharmacist further to allow for in-pharmacy TB testing, diagnosis and notification. These initiatives require strong partnerships between TB programmes, national association of pharmacists and allied cadres. Policy should consider introducing appropriate and sustainable funding models to capture the missing people with TB via pharmacies.

**Author affiliations**

1TBPPM Learning Network, Research Institute McGill University Health Center (RI-MUHC), Montreal, Quebec, Canada
2Institute of Healthcare Management, Strathmore University Strathmore Business School, Nairobi, Kenya
3Dopasi Foundation, Islamabad, Pakistan
4Armity Institute of Public Health & Hospital Administration, Armity University, Noida, Uttar Pradesh, India
5USAID Local Health Systems Sustainability project (LHSS), Abt Associates Nigeria, Lagos, Nigeria
6International Pharmaceutical Federation (FIP), The Hague, The Netherlands
7School of Epidemiology and Public Health, University of Ottawa, Ottawa, Ontario, Canada
8Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Ontario, Canada
9School of Public Health Sciences, University of Waterloo, Waterloo, Ontario, Canada
10McGill School of Population and Global Health, McGill University, Montreal, Quebec, Canada

**Twitter** Rosalind Miller @https://www.twitter.com/rosalind_miller, Kinz ul Eman @Kinzuleman, PS Rakesh @RakeshPS1, Petra Hetikamp @Ptbb ppm and @PetraHetikamp, Joel Shyam Elnston @joelkinclinton, Giorgia Sulis @giorgiasulis, Charity Omenka @https://twitter.com/omenkacz and Madhukar Pai @palmadhu

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ORCID ids
Rosalind Miller http://orcid.org/0000-0003-3161-127X
Kinz ul Eman http://orcid.org/0000-0002-6682-067X
PS Rakesh http://orcid.org/0000-0002-6774-4114
Preta Heitkamp http://orcid.org/0000-0002-5530-2271
Giorgia Sulis http://orcid.org/0000-0001-6641-0094
Charity Oga-Omenka http://orcid.org/0000-0003-0779-570X
Madhukar Pai http://orcid.org/0000-0003-3667-4536

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