

# Simulated patient study sheds new light on antibiotic use in India

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As a result of the overuse or misuse of antibiotics, antimicrobial resistant superbugs represent an extraordinary threat to global health. This threat is particularly great in India, the world's largest consumer of antibiotics and the country facing the highest burden of tuberculosis (TB) in the world.

In a study published in *The Lancet Infectious Diseases*, researchers at McGill University's Faculty of Medicine, the Research Institute of the McGill University Health Centre, The World Bank's Development Research Group, and other partners, used standardized [patients](#) (also called 'simulated or mystery patients') to understand how pharmacies in three Indian cities treated patients presenting with TB symptoms or diagnoses and to determine whether these pharmacies were contributing to the inappropriate use of [antibiotics](#).

The researchers showed that pharmacies frequently dispensed antibiotics to simulated patients who presented with typical TB symptoms. However, none of the pharmacies dispensed first-line anti-tuberculosis drugs. The use of all antibiotics and steroids (which can be harmful to individuals who actually have TB), as well as the total number of medicines given, decreased sharply when the pharmacy staff decided to refer the patient to a doctor, which was far more commonly done when the patient presented with a lab test confirming TB, thus making the diagnosis apparent to the pharmacist.

"In India, many people believed that pharmacists were generating [drug-](#)

[resistant tuberculosis](#) by dispensing anti-TB medications without prescriptions," says Dr. Madhukar Pai, Canada Research Chair in Epidemiology & Global Health at McGill University and the paper's joint senior author. "Our study clearly showed that not a single [pharmacy](#) gave away first line anti-TB drugs (isoniazid, rifampicin, ethambutol, pyrazinamide and streptomycin) without prescriptions. However, pharmacists gave away other antibiotics and rarely referred patients with typical TB symptoms, and that means they are contributing to delays in TB diagnosis. This can increase transmission of the infection in the community. So, there is great potential to harness pharmacists to identify those who need TB testing in India."

## **Novel use of standardized patients**

The researchers used two standardized patient cases, one with a patient presenting with two to three weeks of pulmonary TB symptoms and a second with a patient with microbiologically confirmed pulmonary TB. These trained patients then visited 622 pharmacies in three Indian cities (Delhi, Mumbai, and Patna), completing 1200 interactions with pharmacists. After each interaction, the patients remembered what was said to them, and collected all the pills that were dispensed to them by the pharmacists. Only 13% of simulated patients with TB symptoms were correctly managed, in sharp contrast to the 62% of patients presenting with known TB who were correctly managed. "Only a minority of urban Indian pharmacies correctly managed patients with presumed tuberculosis," explains Dr. Srinath Satyanarayana, first author of the study, and a doctoral candidate in epidemiology at McGill University, "but most correctly managed a case of confirmed tuberculosis."

"These findings can inform interventions to engage pharmacies in tuberculosis control and initiatives to improve antimicrobial stewardship," notes Dr. Jishnu Das, a Lead Economist at the World

Bank, and joint senior author of the study.

"This innovative study, which Grand Challenges Canada is proud to support, shows the critical importance of engaging pharmacists for reducing misuse of antibiotics, and for fighting TB. Antimicrobial resistance and tuberculosis are two global villains that require a concerted response," says Dr. Peter Singer, CEO of Grand Challenges Canada, one of the funders of the study.

**More information:** Satyanarayana S et al. Use of standardised patients to assess antibiotic dispensing for tuberculosis by pharmacies in urban India: a cross-sectional study. *Lancet Infectious Diseases* 2016. Published Online August 24, 2016. [dx.doi.org/10.1016/S1473-3099\(16\)30215-8](https://doi.org/10.1016/S1473-3099(16)30215-8)

Provided by McGill University

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