

# Active Case-Finding

## Using Digital Chest X-ray in Poor Urban Areas of Zambia

### BACKGROUND



- Tuberculosis (TB) is now the foremost infectious disease killer globally.
- In 2017, WHO estimated that about 22,000 TB patients went undetected in Zambia<sup>1</sup>.
- The majority of the 'missing' cases are found in the large peri-urban slums, informal settlements, and shanty towns in the large cities of TB-endemic countries.
- An untreated TB patient may on average infect between 10 and 15 others prior to presentation to a health care facility.
- Active case-finding (ACF) in the community is one of the strategies to find the 'missing' people with TB.



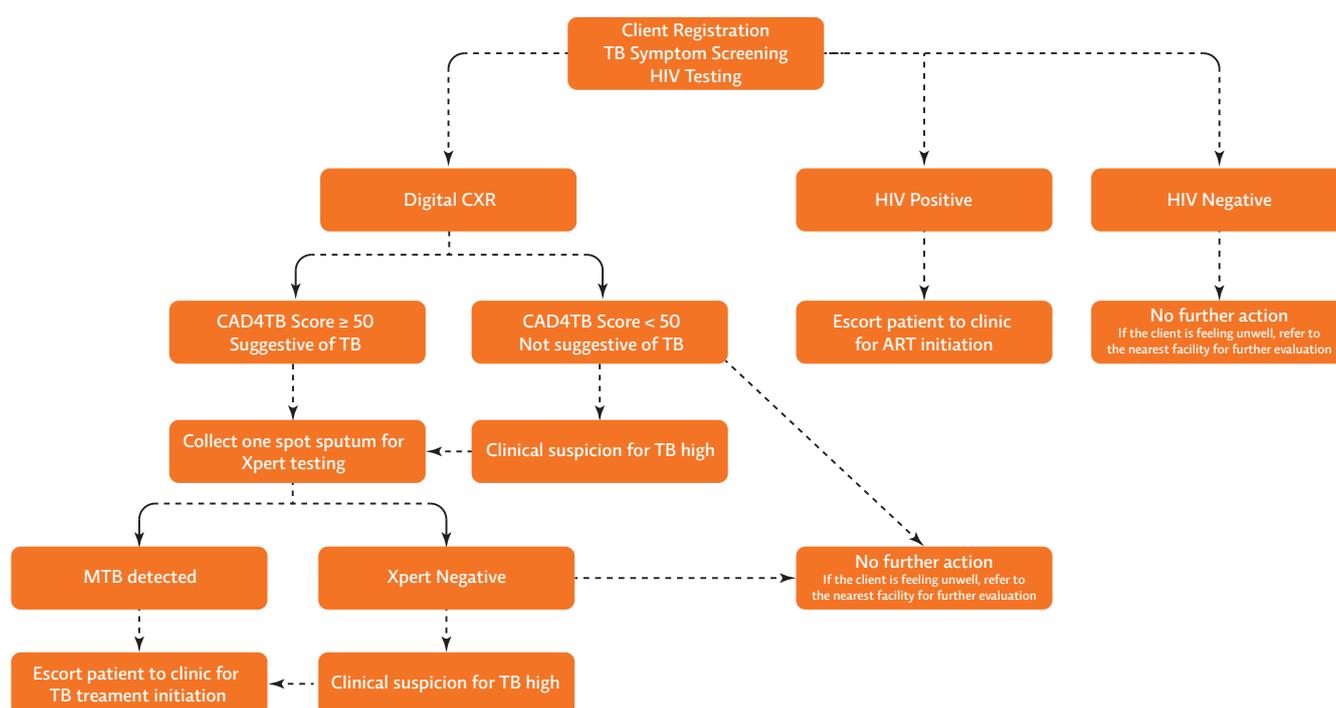
### STRATEGIES/ACTIVITIES



- Challenge TB procured a containerized mobile digital X-ray with a laboratory.
- Challenge TB conducted ACF activities in Kitwe and Ndola Districts (Copperbelt Province) and Kabwe District (Central Province).
- Challenge TB worked in collaboration with provincial and district offices using local radiology, laboratory, clinical, and public health staff as well as community health workers to conduct ACF activities.
- Demand creation activities included radio programs, public announcements, and drama performances.
- Digital X-ray was used as primary screening tool to identify presumptive TB cases (CAD4TB score  $\geq 50$ ) who were eligible for Xpert testing.
- The eligibility for Xpert testing also included clients with CAD4TB score  $< 50$  but with clinical symptoms suggestive of TB.
- Conducted orientation of staff, including community volunteers, in the ACF process.

<sup>1</sup> World Health Organisation (2018) Global TB Report. Geneva.

## DIAGNOSTIC ALGORITHM FOR ACF



## RESULTS



- 3,738 people were registered and screened for TB symptoms.
- 612 (16%) were presumptive TB cases.
- 538 (88%) of presumptives were tested using GeneXpert.
- 57 (11%) were bacteriologically confirmed TB and were notified and promptly initiated on TB treatment.
- 17 (3%) were clinically diagnosed with TB despite normal CAD4TB scores.
- 2,876 (77%) clients accepted HIV testing of whom 51 (2%) tested positive and were initiated on ART.
- 19 (33%) patients were TB/HIV co-infected
- One patient had rifampicin-resistant TB (RR-TB) and was initiated on the shorter treatment regimen at Ndola Teaching Hospital<sup>2</sup>.

### Combined TB Case Notification through ACF

(March 2018 – 10 days/March 2019 – 10 days/May 2019 – 11 days)

**3,738**



**SCREENED**

**612**



**PRESUMPTIVES**

**538**



**PRESUMPTIVES  
INVESTIGATED**

**57**



**TB DIAGNOSED**

## LESSONS LEARNED



- More data is needed to determine cut-off point for CAD4TB score that will not miss TB cases. The RR-TB case found in this activity had a CAD4TB score of 58 and could have been missed if a higher score was used.
- Orientation in ACF activities for all staff and other stakeholders may contribute to effective implementation of the intervention.
- Intensified training and supervision in sputum collection and requesting an early morning sample for clients who experience difficulties to produce sputum on-the-spot may produce better quality specimens.
- Interpretation of images on-site or through remote support by an experienced Radiologist can improve service provision especially for problematic cases where the chest X-ray was positive but Xpert negative.
- Use of an electronic information system will reduce data management issues and facilitate patient/result tracking.
- Community TB IPC should be included when conducting ACF activities to ensure the prevention of TB transmission<sup>2</sup>.

## CONCLUSIONS

- There are significant numbers of undiagnosed TB cases in poor urban communities.
- Targeted ACF exercises in densely populated communities at high risk of TB can contribute to finding missing TB cases.
- The activities found 74 patients infected with TB going about their business in the community and infecting others.
- Although conducting ACF activities may appear costly, these numbers may advocate for the long-term benefits of such strategies.

<sup>2</sup> Challenge TB Zambia (2019). Final Project Report. Lusaka

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