APOPO's TB detection: results in 24 hours and patient tracking improve linkage to care, Tanzania, 2014-2017

Soka J[1], Fiebig L[1], Cox C[1], Bwana D[2], Lema Y[3], Mgode G[1]

[1] SUA-APOPO Partnership, Sokoine University of Agriculture, Morogoro, Tanzania; [2] MUKIKUTE National TB Patient Organization, Dar es Salaam, Tanzania; [3] Muhimbili Medical Research Centre National Institute for Medical Research, Dar es Salaam, Tanzania. Correspondence: joseph.soka@apopo.org, georgies.mgode@apopo.org

Background

Tuberculosis (TB) caused an estimated 10.4 million new TB cases worldwide in 2016, about 4.1 million remained undetected. APOPO does research into using TB detection rats (confirmed by WHO-endorsed methods) after conventional microscopy in now 57 collaborating DOTS clinics in Tanzania to identify additional cases (**Fig. 1**). Enhanced case detection can only unfold public health value if patients are treated effectively.

We aimed to assess whether faster result turnaround and patient tracking by community health workers (CHW) can reduce pre-treatment loss-to-follow-up.

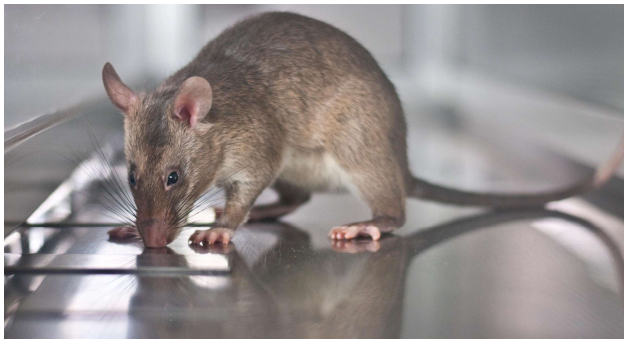

Fig. 1. A TB detection rat re-evaluates 100 heat-inactivated human sputum samples in about 20 minutes.

Methods

We compared the percentage of patients linked to care before (2014-2016) and after (2017) the opening of our new central lab facility and a motorbike sample referral network (**Fig. 2**) in Dar. In parallel collaboration with CHW from the patient organization MUKIKUTE, initiated in 2012, had been strengthened (**Fig. 3**).

Fig. 2. Motorbike sample referral network from TB clinics to APOPO's central TB laboratory in Dar es Salaam.

Fig. 3. Community health workers from the Mukikute track patients and link them to care.

Results

- From 2014-2017, a total 174,447 samples from 98,089 patients with presumptive TB were re-evaluated by APOPO using TB detection rats followed by confirmation tests.
- By that, 4,971 TB cases were detected in addition to the 14,303 TB cases diagnosed at the DOTS centers, which is an 35% increase in TB case detection.
- Over time, collaboration with two CHW per clinic has been achieved.
- The percentage of patients linked to care was 55% (777/1,412) in 2014, 73% (870/1,198) in 2015, and 71% (797/1,117) in 2016 at a result-turnaround time of 8-10 days (**Fig. 4**)
- In 2017, after introduction of 24h result turnaround time in Dar es Salaam, 81% (1,005/1,244) of patients were successfully linked to care (**Fig. 4**), which is significantly more than before ($p<0.05$).

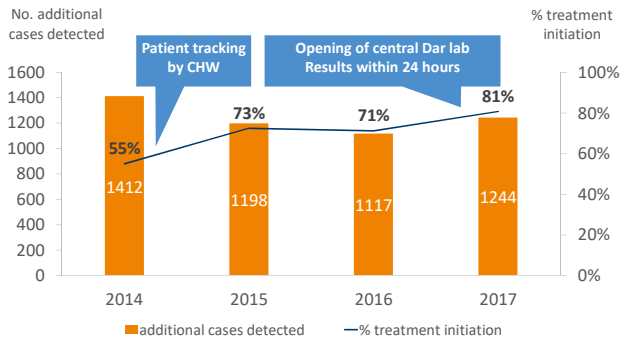

Fig. 4. Additional TB cases detected and linked to care, Tanzania, 2014-2017.

Conclusions

Our results suggest that the combination of fast diagnostic service and patient tracking are key in achieving higher treatment initiation rates among TB patients in Tanzania – a model which we aim to sustain and expand.

Acknowledgement

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