Impact of an Instructional Video for TB Case Detection in Tanzania

8th Annual EASST Summit

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Background on tuberculosis (TB)

• Ninth leading cause of death worldwide from infectious disease above HIV/AIDS
  ○ 10.0 million TB cases
  ○ 1.4 million deaths in 2017

• Approximately 85% of the global burden due to pulmonary TB

• Tanzania among 30 countries with highest burden (295 cases per 100,000 population)  
  (Global TB report, 2017)
Motivation

- Diagnosis and the performance of laboratory testing for tuberculosis (TB) bacilli
  - Adequate sputum samples
  - Quality of sputum samples
- Presumptive TB patients are asked to spontaneously produce sputum from the lungs
  - An adequate biological sample is not readily available
  - Low concentration of TB bacilli
- Patients often give saliva from the mouth
  - Decreases sensitivity of the test
  - Results in missed diagnosis
Study Context

- National TB prevalence survey data in Tanzania case detection rate as low as 50% (Ministry of Health Tanzania, 2013)
  - Sub-optimal diagnostic procedures
  - Lack of knowledge about the disease and sputum submission
- Gender differences in TB notification rates and prevalence in sub-Saharan Africa
- Women are at risk of under-detection, less likely to test smear positive than men
  - Cultural inhibitions about producing sputum in public areas
  - Less knowledge about TB diagnosis
Pilot Study
Pilot Study

- Previously shown in a pilot study use of an instructional video
  - Increased specimen volume
  - Increased specimen quality
  - Higher proportion of confirmed TB cases
  - Highly accepted to provide sputum submission instructions

- Shortcomings
  - Conducted in a single TB clinic in Tanzania
  - Small sample size, only one early-morning sputum sample
  - Did not assess gender differences (Mhalu et al, 2015)
Research Questions

• Can we replicate the previous pilot findings on the impact of an instructional video in improving sputum quality and quantity on a larger sample and in different settings?
• Do the effects of the video vary across gender?
Study settings
Study design

• Randomized control trial
  ○ Unit of randomization: All presumptive TB patients seen at the selected TB clinics
  ○ Intervention arm: Sputum instructional video
  ○ Standard of care (verbal instructions)

• Labelled sputum containers (in each cluster) with different colour sticker

• Laboratory staffs blinded to the intervention status of the specimen
Individual randomization
Instructional video

Instructional video “on how to produce a good sputum sample for better diagnosis”:
Tanzania version

https://vimeo.com/88749231 or https://www.youtube.com/watch?v=92dT_1kbek
Standard of care

• Verbal instructions on how to produce sputum samples
  ○ Instructions to sit or stand in an open space
  ○ Inhale deeply two to three times and to cough
  ○ Collect the specimen in a container
Sputum evaluation and volume determination

- Appearance of sputum sample classified
  - Salivary
  - Mucoid
  - Purulent
  - Blood stained
- Previously validated point sputum colour chart (BronkoTest; Heredilab Inc., Salt Lake City, UT, USA)
- Specimen volume assessed in millimetres
  - Recommended sputum volume 5.0 ml
Policy translation

- Offers to ease the burden on health workers’ time, might be translated into a policy in the country.
- Findings from the study will enable follow-up research for improved TB control.