

Theory-guided mixed methods approach in improving case detection of tuberculosis in children

Jacque Oliwa



KEMRI | Wellcome Trust



Outline

- Background
- Statement of the problem
- Role of theory in improvement
- Study aims/methods
- Theoretical Domains Framework
- Mixed methods
- Questions/discussion

Tuberculosis in children

- Tuberculosis important but underappreciated cause of morbidity and mortality in young children
- Latest estimates, one million new cases and 140, 000 deaths globally
- Historically, children have been ignored by programmes; thought not to contribute to disease transmission
- Difficulties in establishing an accurate diagnosis lead to poor case ascertainment and thus underestimate the true burden of disease.
- Early diagnosis and early initiation of therapy avoids debilitating complications and death from tuberculosis, which is a largely curable and preventable disease.

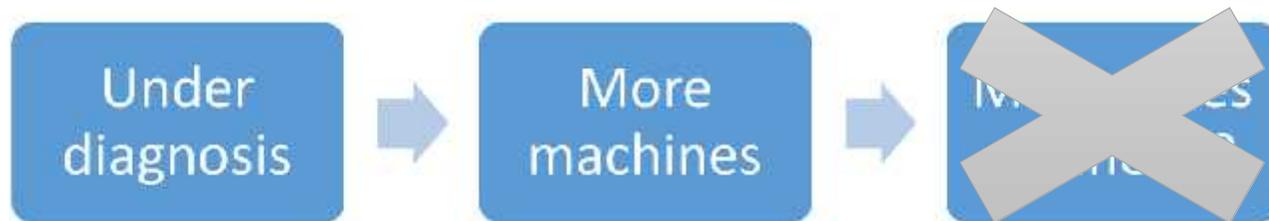
Statement of the Problem

- Clinical problem: inadequate case notification of tuberculosis in children
- Care delivery problem: Under diagnosis by HCWs
- Part of the intervention: To scale up utilisation of Xpert[®] MTB/RIF assay to increase case notification and linkage to care
- Linear thinking:



Problem ctd..

- 129 GeneXpert machines in Kenya, more to come (target 250 to all county hospitals and 60% sub-county hospitals by 2018)
- Equipment aimed at quick diagnosis of TB (2hr vs 4-6 wks)
- Concern for underutilisation



Thoughts to ponder..

1. What is the health care delivery problem?
2. Machines available, why aren't they being used?
3. Which challenges are major? (you feel nothing much can be done)
4. Which are minor? (simple interventions can help)

Role of theory in quality improvement

- ‘A set of concepts and/or statements with specification of how phenomena relate to each other. Theory provides an organizing description of a system that accounts for what is known, and explains and predicts phenomena’
- To understand the problem better (predict causal pathways)
- Guide development of an efficacious intervention
- Evaluating impact of the intervention
- Generalisability: Scale up of what works

Back to problem of underutilization of tests:

- What would you do to change the situation if you were in charge?
- What simple things can be done?
- How would they work?
- How would we know they are working?

How to build theory into research

1. ID best known practices

- guided by theory and evidence e.g. valid data on recent performance; trusted source; benchmark; capable; goal alignment; clear action plan

2. Apply relevant theory when operationalising best practices

- Feedback intervention theory (captures attention and directed to specific behaviour)

- Diffusion of innovation theory (feedback from opinion leaders; use networks)

- Theory of planned behavior (social pressure by professionals influencing intention to change)

3. Intervention components as factors to be manipulated

- Co-interventions to overcome barriers; synergy of strategies e.g. skill development and self efficacy + feedback  improved performance

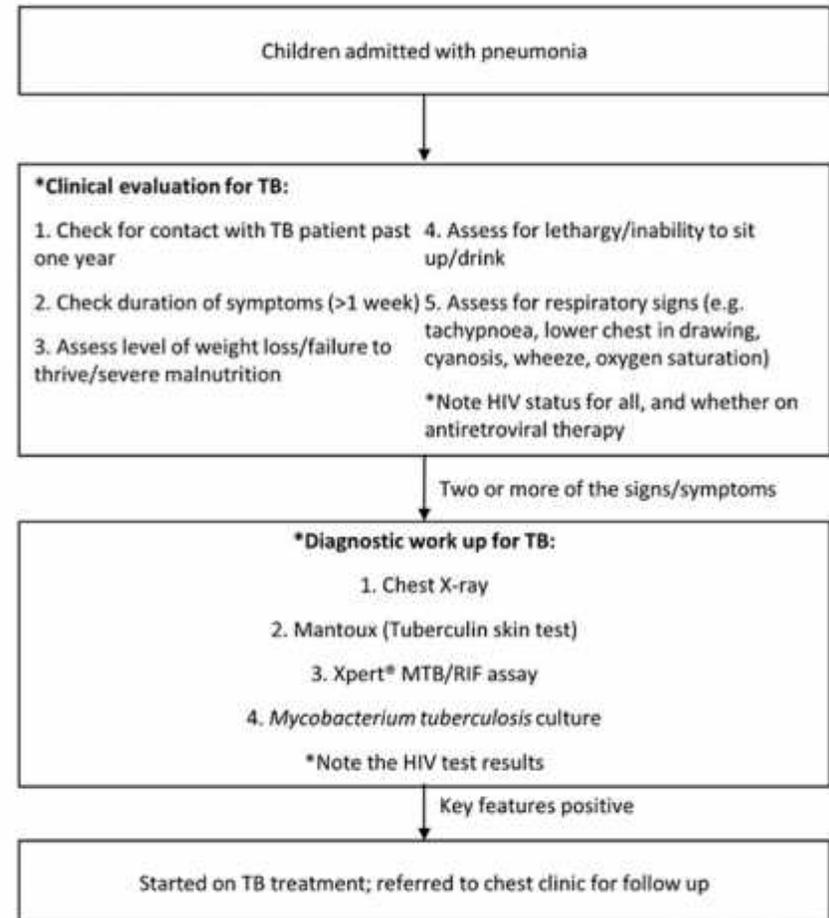
Study aim and objectives

- **Aim:** to improve health workers' ability to screen suspected child TB cases using available diagnostics and make rational treatment decisions.
- **Specific Objectives:**
 1. To examine whether a feasible, theory-informed training, audit and feedback intervention increases proportion of pneumonia admissions who are appropriately screened for eligibility to get:
 - Full clinical evaluation for TB
 - Diagnostic tests for TB
 2. To determine proportion of children with a TB diagnosis supported by a positive diagnostic test and started on appropriate treatment
 3. To explore whether the intervention strategy achieves its aims of overcoming behavioural barriers to effective TB screening and whether there is an influence of the person delivering feedback and providing supervision.

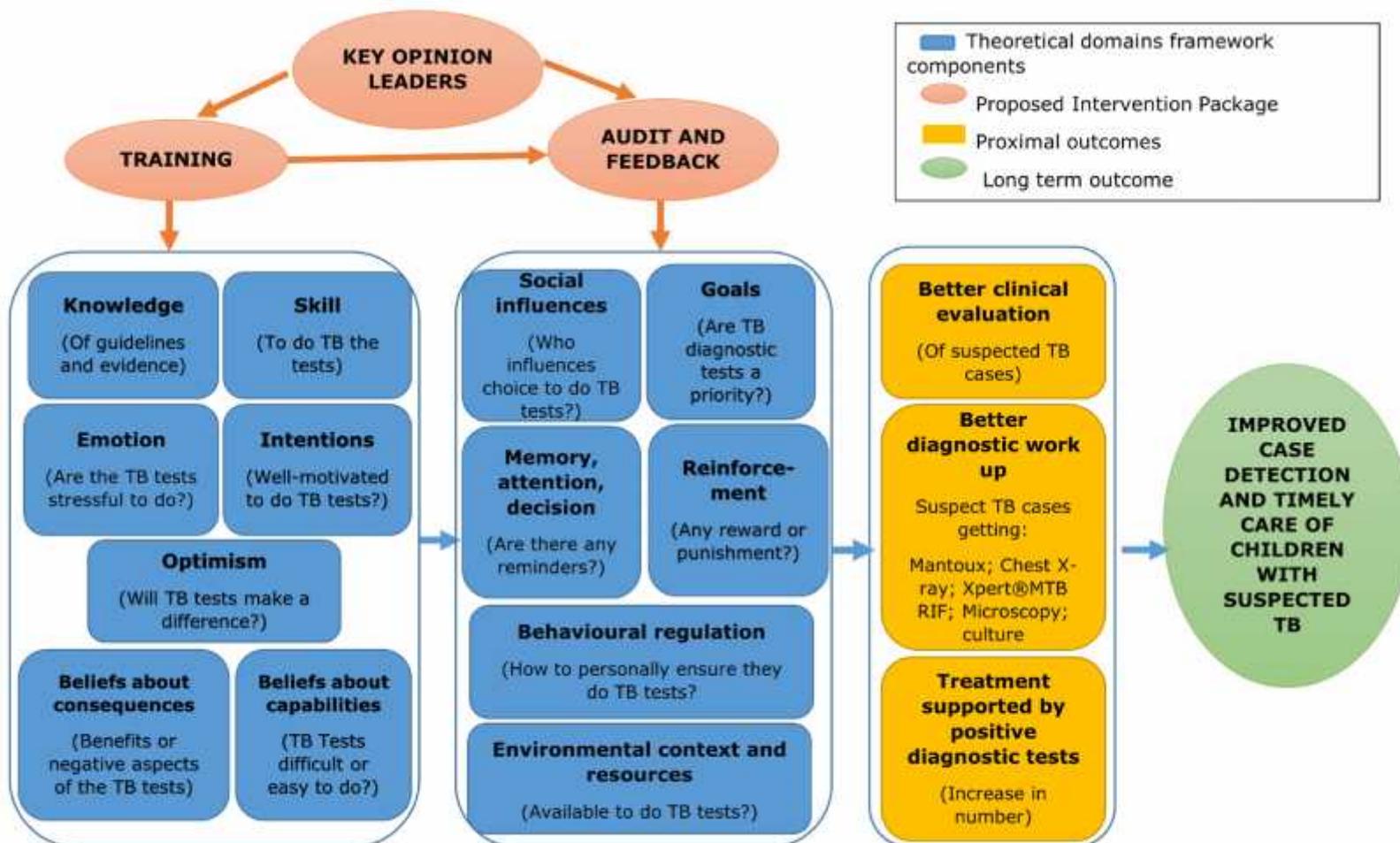
Proposed methodology

Mixed methods will be used:-

- Quantitative: Quasi-experimental interrupted time series studies with data prospectively collected from record reviews for evidence of documentation of clinical evaluation and use of diagnostics
- Qualitative: In-depth interviews, reflections, participant observation of meetings and hospital work to:
 - examine facilitators/barriers to change
 - explore appropriateness of the starting theory
 - identify emerging unexpected barriers/enablers that might improve the theory and explain observed trends.



Proposed theory of change





QUERIES/DISCUSSION...