

Operational and implementation research in TB diagnostics

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Fuzzy terminology, but we all get the idea...

- Operational research
- Implementation science
- Implementation research
- Health systems research
- Health services research
- Programmatic research
- Knowledge translation research
- Dissemination research

Improving TB diagnosis: difference between knowing the path and walking the path

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“As Morpheus tells Neo in the cult science fiction movie *The Matrix*: “there’s a difference between knowing the path and walking the path.” Development of new tools is “knowing the path” ... “Walking the path” is a longer process that involves translation of technologies and policies into impact.”

Growing recognition that products and tools are not sufficient... they need to be implemented and scaled-up to have any impact

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PLOS MEDICINE

Policy Forum

Defining Research to Improve Health Systems

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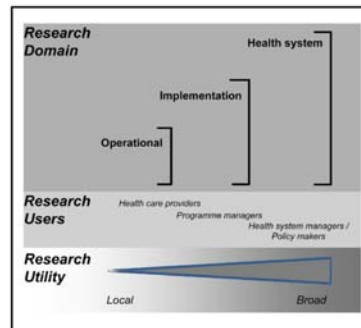
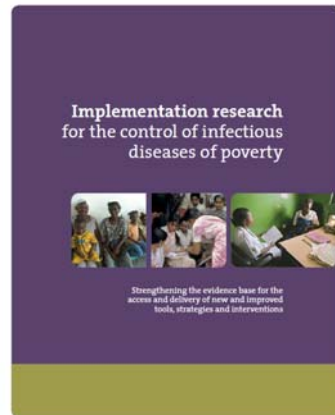


Table 1. Defining research to improve health systems.

| Research Domain | Primary Characteristic | Users of the Research Outputs | Utility of the Research Outputs* |
|-----------------|--|--|----------------------------------|
| Operational | Operational issues of specific health programmes | Health care providers programme managers | Local |
| Implementation | Implementation strategies for specific products or services | Programme managers, NGO managers | Local/broad |
| Health System | Issues affecting some or all of the building blocks of a health system | Health system managers, policy makers | Broad |

*How amenable the research outputs are to adaptation, scaling up or use in other contexts or locations.
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"Implementation research is usually considered a subset of health systems research that looks at how various functions affect the scaling-up uptake of innovations. Although related to operations research, implementation research differs in that it aims to produce generalizable knowledge that can be applied across settings and contexts"

Operational research in low-income countries: what, why, and how?

Rony Zachariah, Anthony D Harries, Nobukatsu Ishikawa, Hans I. Rieder, Karen Bissell, Kayla Laserson, Moses Massaquoi, Micheal Van Herp, Tony Reid

"Operational research is the search for knowledge on interventions, strategies, or tools that can enhance the quality, effectiveness, or coverage of programmes in which the research is being done."

Making innovations accessible to the poor through implementation research

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“In a new era of innovations for TB diagnosis and treatment, it is increasingly important not only to be sure that these innovations *can* work in terms of accuracy and efficacy, but also that they *will* work, especially for the poor.”

Priorities in Operational Research to Improve Tuberculosis Care and Control



- i. how to improve access to TB diagnosis?
- ii. how to improve screening of patients and high-risk groups?
- iii. how to use the introduction of new tools to improve service delivery practices?
- iv. how to improve active TB case-finding?
- v. how to build accessible, effective and efficient diagnostic services with new diagnostic tools?

<http://www.stoptb.org/assets/documents/resources/publications/technical/StopTB%20Guide.pdf>

| Objective(s) | Methods | Expected outcomes | Expected Duration | Suitable Scale | Estimated budget range |
|---|--|---|-------------------|-------------------------------------|------------------------|
| 1.1 Situation analysis | | | | | |
| Identify local barriers to accessing TB diagnosis | a) Audit and Retrospective review | Estimates of proportion of "drop-out" patients | Short-term | Local | Low |
| | b) Qualitative research | Ranked lists of barriers | | Local, regional or national | Medium |
| | c) Mapping of facilities | GIS maps | | Local, regional or national | Medium |
| | d) Costing surveys | Economic barriers | | Local, regional or national | Medium |
| 1.2 Identifying new programmatic approaches | | | | | |
| a) To understand factors facilitating or hindering effectiveness of existing diagnostic algorithms | a) Realist review | Lessons learned | Short-term | Local, national and international | Medium |
| b) To document accuracy of new diagnostic tests or packages of tests | b) Systematic review | Synthesised data | | | |
| c) To project a number of suitable options of diagnostic approaches or packages for potential implementation. | c) Operational and transmission modelling | A number of suitable options of diagnostic approaches or packages giving estimates of resource requirements | | | |
| d) To select, at international or country level, new or revised diagnostic approaches to be piloted | d) National or International level Expert Group Review meeting | Local evidence-based programmatic approach | | | |
| 1.3 Piloting implementation of a new diagnostic tool or package of tools in different settings | | | | | |
| 1.3.1 Through existing diagnostic services | | | | | |
| a) Optimize implementation of a new diagnostic tool/package | a) Operational and transmission modelling | Projected estimates of effectiveness and health system requirements | Short-term | Local or national | Low or medium |
| b) Determine required resources | b) Pragmatic cluster-randomised controlled trial | Direct evidence on effectiveness, equity of access, acceptability and health system requirements | Medium-term | Regional, national or international | High |

| Objective(s) | Methods | Expected outcomes | Expected Duration | Suitable Scale | Estimated budget range |
|---|--|---|---------------------|---------------------------|------------------------|
| 1.3.2 Through active case finding (ACF) | | | | | |
| a) Identify the most effective and affordable approach to ACF in different settings | a) Cross-sectional surveys, analysis of interventional research including qualitative research | Estimated prevalence of undiagnosed symptomatic TB, patient diagnostic rate, cost-effectiveness and yield | Medium-term | Subnational | low to high |
| b) Identify impact of sustained ACF interventions | b) Trends in TB case-notifications and before-after intervention cross-sectional surveys | Evaluation of the impact of ACF interventions on TB control | Medium to long-term | Subnational | low to high |
| 1.4 Evaluating the scale-up impact of a new test or new package of tests | | | | | |
| 1.4.1 Modelling expected impact and implications of scale-up | | | | | |
| a) Forecast operational requirements including costs and impact on transmission | a) Simulation and transmission modelling | Projection operational requirements including costs and impact on transmission | Short-term | National or international | Medium |
| b) Critically appraise a new intervention or algorithm against other interventions | b) As for (a) but using existing data on alternative diagnostic intervention options | Facilitated decisions on uptake into policy and practice | | | |
| 1.4.2 Assessing the impact of a new test or new package of tests | | | | | |
| Document effects of going to scale | Cohort analysis | Evaluation of case-finding and treatment outcome indicators | Short-term | National or international | Medium |

<http://www.stoptb.org/assets/documents/resources/publications/technical/StopTB%20Guide.pdf>