Modelling
for TB policy-makers

TB Modelling and Analysis Consortium

Modelling

What is modelling?

Mathematical models describe a relationship between the interventions and policies adopted to combat TB and the consequences of these actions. Modelling can synthesize a wide range of inputs to estimate outcomes that would be expensive or impractical to assess practically. This is particularly useful for TB policy, where the benefits of an intervention typically extend beyond the set of individuals who receive the intervention and are realized over a longer period. When based on strong empirical evidence, modelling can improve our understanding of how policy choices will impact future health and economic outcomes.

Why is it important?

Models give policy-makers a logical framework for:

- projecting TB burden and budget requirements,
- assessing epidemiological and financial consequences of different policy options, and
- evaluating policy options within a resource-limited setting.

This can add substantial value to planning and prioritization, advocacy, and donor funding decisions.

As experience accumulates, modelling is likely to become a more routine part of TB monitoring and evaluation programme planning and resource allocation, which in turn feed into funding applications.

By January 2018, more than 20 low and middle-income countries had used modelling to inform applications to the Global Fund, the development of National Strategic Plans, and other domestic funding applications. In South Africa alone, modelling evidence supported the financing and allocation of a US$40 million TB budget.

What are the limitations?

As experience with country-level TB modelling has grown, several challenges have become evident.

Limitations include:

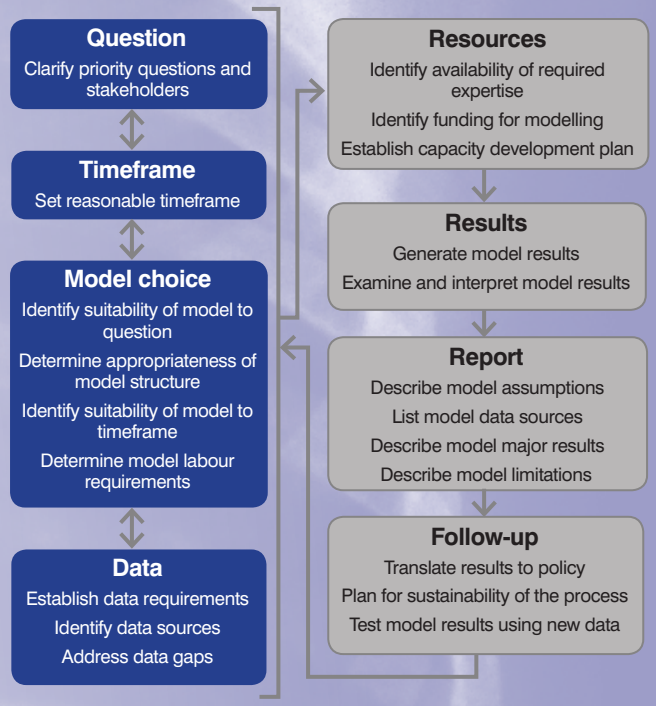
- data availability,
- the ability of models to represent complex policy scenarios,
- the difficulty of anticipating factors that could negatively impact the outcomes of modelled policy scenarios, and
- different modelling and estimation approaches taken by modelling teams.

The limitations of modelling to predict policy outcomes are most pronounced when models are used to forecast the impact of policies beyond current programmatic experience, such as through a more aggressive policy or a higher coverage of an existing policy.

So what next?

The diagram below gives an example of the modelling process, and TB MAC has prepared a guidance document to guide country-level TB modelling as well as a catalogue of models currently available. Check out www.tb-mac.org/what-we-do/ for more info, or contact TB MAC at tb-mac@lshtm.ac.uk to get involved.

An example of the modelling process



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Policy-making
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Policy-making

What is policy-making?

In the era of the Sustainable Development Goals and the End TB Strategy, the global TB community has set ambitious targets for reductions in TB incidence and mortality. To achieve these targets, National TB Programmes need to identify ways to accelerate their TB diagnosis, care and prevention efforts.

As a part of its strategic work to support this, the WHO Global Task Force on TB Impact Measurement assists countries in improving their analysis and use of TB data for policy, planning, and programmatic action. In particular, the Task Force is committed to the ongoing improvement of model-based policy analysis as a tool for strategic planning and budgeting.

Modelling should be…

Relevant, assessing relevant policies and outcomes

Informative, reporting results for a wide range of outcomes

Realistic, considering implementation challenges and examining requirements for policy success

Transparent, describing supporting evidence, limitations, sensitivity analyses and conflicts of interest

Appropriate, justifying design in terms of the policy questions being considered and avoiding unnecessary complexity

Timely, providing results in time for decisions to be made

Evidence-based, synthesizing all available evidence relevant to the decision problem

Country owned, engaging participation with local stakeholders

Validated, comparing to evidence not used for model parameterization or calibration

Iterative, reconsidering analyses given discussion and new evidence

Why is it important?

Modelling is increasingly being used to evaluate and efficiently choose between TB policy options within a country's resource limits. The implementation of modelled policy is the ultimate test for a model's relevance and accuracy. As TB modellers, therefore, we should all care that:

(i) model-based policy evaluation makes the best use of available evidence,

(ii) modelling is incorporated into policy-making in a way that clearly expresses the strengths and weaknesses of estimates, and

(iii) modelling supports (rather than replaces) policy-making as a deliberative, country-led process.

So what next?

TB MAC has prepared a guidance document for how mathematical modelling can be used to help country TB stakeholders make decisions. The guidance is organized as a set of 10 principles (see left), accompanied by several 'good practices' and an historical example. While unlikely to be relevant to all situations, these practices suggest concrete steps that could be taken to improve country-level TB modelling. We encourage you to use this document, available at www.tb-mac.org/what-we-do. For more info or to get involved contact TB MAC at tb-mac@lshtm.ac.uk.

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www.tb-mac.org

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