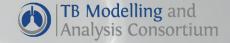# Country-level TB Modelling

Small group discussions

Summary of the meeting [so far](#)

- Introduced rationale for BRR
- Walked through components of BRR
    - Proposed approach
    - Feedback before today
    - New feedback and discussion

- Introduced activities>impact framework
    - Discussion of the way forward

Points of agreement

- **Benchmarks**, as currently posed, are almost all easy to produce, or already produced by models

- No violent disagreement about the number of benchmarks

- No violent disagreement about the way benchmarks should be applied

- For some benchmarks, an understanding that these would be strengthened as the evidence became stronger

- For **additional quantities**, agreement these useful even if no benchmark given, for learning about model

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Points of agreement

- Some form of **reporting** useful, what that is needs to be defined

- Some form of **external review** useful, with such review unlikely to be needed for all applications

- For external review, better to have this review feeding back into the modelling process, rather than something that happens afterwards and provides a thumbs up/down

- In general this is an iterative process & we should set up a system for all these things, but then revisit it after we have experience

- Funders in the room are expressing a real need that needs to be satisfied, but that they are onboard with the idea that how we do this will come from within the community

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Points of disagreement

- Linking quantitative benchmarks back to empirical research

  - Do we need a formal meta-analysis for each of these benchmarks

  - For country-specific epi, what comparators should we allow, should be more or less permissive about these data sources? For econ, are there other benchmarks we might add?

- Is there a way we can we assess, or benchmark, policy impacts? Not in there right now, but critical for policy conclusions drawn from modelling

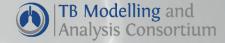- General agreement to consider benchmarks for subgroups, but still need to work out what they are

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Points of disagreement

- Reporting

    Need to be explicit about the audience, what report is for, maybe different levels of detail needed
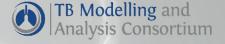
    - Real concerns about reporting burden with the reporting template / duplication

    - Useful to strengthen the reporting of econ approaches, but need to workout what that is

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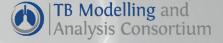
Points of disagreement

- Review
  - If review doesn't happen for each application, what is the criteria for deciding which applications get external review
  - If review needs are substantial, how do we guarantee the supply of reviewers, does that suggest a more centralized process. Who can review?
  - In terms of what funder is requiring what activities, discussions needed in the Roadmap steering committee about what can and should be coordinated

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Points of agreement

Activities > Impact evidence

- Agreed act > impact evidence critical for RA
- Agreed evidence was often weak
- Differences on solution and TB MAC role (if any):
- 15:5 agreed with statement
    - *TB MAC should collate data to better evidence the link between activities and direct impact*
- 15:0 agreed with statement
    - *TB MAC should be involved in an advisory group highlighting key data gaps, proposing data collection standards, etc*
- Suggests ~possible agreement at advisory level, not data collation

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Aim: suggest ways to improve the work

Based on the materials presented here & feedback discussed, in addition to your own expertise, what changes would you suggest to these components in order to improve them?

What we're going to do next

- Break into small groups, elect rapporteur

- Each tasked with one set of benchmarks/reporting & review/act>impact

- Discuss concrete changes to make resulting from day 1

- Report back to the larger group

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Instructions

- You should all have a link to the slides
- Please don't edit unless you're the rapporteur
- Tina will show you to the rooms
- Please be back for a tea break at 1045

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Groups

General & Additional	Country Epi & Econ	Report/Review	Act>impact
Room 5P100	*Room 5800*	*Room 5P100*	*Room 5900*
Nick	Anna	Finn	Richard
Ted	Andrew	David C	Gaby
Ewan	Sandip	Shufang	Jolene
Romain	Joanna	Daniel	Madeleine
Sourya	Hassan	Carel	Katherine
Frank	David K	Lori	Jacob
Florian	Sedona	David D	Rein
Michael	Brittany	Meghan	Elina
Hojoon	Brad		

General Epi

Objective: suggest modifications/additions/subtractions to the benchmarks
Suggested discussion points:
- *Do we need a formal meta-analysis for each of these benchmarks? Grading of evidence?*

Report-back
- Meta-analyses may not be realistic or desirable to describe heterogeneity in data for most difficult natural history parameters to estimate (e.g. protective effect of previous infection).
- We should aim to be more transparent about where evidence comes from, perhaps a more formal description of quality of evidence that support the ranges reported.
- Potentially propose small grants to help organize evidence base ("evidence synthesis" vs formal meta-analysis) in particular areas. This requires some work to prioritize open questions about natural history.

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Additional Outputs

Objective: suggest modifications/additions/subtractions to the standard outputs
Suggested discussion points:

- *Should we include benchmarks/outputs for risk groups? Which should we include?*
- *Should we include policy impact benchmarks/outputs? Where should these go?*

Report-back

- Are all of these outputs required for all modeling exercises? Do we tune these recommended additional outputs for particular settings and particular types of interventions? Discussion leans toward recognizing that the importance likely differs, but still ask for one set of outputs (as this is more feasible).
- Clarify that relevant measures of TB care cascade may be model dependent (since not all models will have each steps in the care cascade explicitly modeled)
- Need to make magnitude of policy impact more clear. Desirable to have transparency about how interventions are modeled, perhaps attractive to suggest reporting of projected intervention effect and clarity about whether the intervention modeled is "realistic" or "hypothetical" in terms of implementation (possibly include this in Recording and Reporting?). Perhaps lining up against the available evidence from historical impact of similar interventions, when available.

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Country Epi

Objective: suggest modifications/additions/subtractions to the benchmarks
Suggested discussion points:

- *What comparators should we allow - should we be more or less permissive about these data sources?*
- *How do we define ranges of acceptable ranges around data if there's no uncertainty?*
- *Which HIV/risk group benchmarks should we include here?*

Report-back

- Recommend removing the case fatality ratio.
- For percentage-change metrics (2.2, 2.4, 2.5), recommend using the aggregate 5-year change in metric value (rather than the last year).
- Fit to WHO or IHME as benchmark sources. Use country's data sources as part of a sensitivity comparison. If WHO and IHME sources don't overlap, use the full range of both confidence intervals as the benchmark acceptable range.
- Recommend the addition of an HIV metric, preferably incident cases, for high-HIV settings.

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	Description	
B2.1	General population **TB incidence rate** (all forms) in the most recent available year (per 100,000)	554 (311- 866)
B2.2	**Change in** general population TB **incidence rate** (all forms) over most recent available year (%)	+ 0.73%
B2.3	General population **TB mortality rate** (all forms, including TB-HIV) in the most recent available year (per 100,000)	26 (22-29)
B2.4	**Change in** general population **TB mortality rate** (all forms, including TB-HIV) over most recent available year (%)	- 3.7%
B2.5	**Change in** general population **TB case fatality** (ratio of TB mortality to incidence) over most recent available year (%)	-2.3%
B2.6	General population **TB prevalence** (per 100,000), in years for which a nationally-representative TB prevalence survey is available	N/A
B2.7	**Prevalence of MDR-TB among treatment-naive** notified TB cases, in the most recent available year (%)	2.6% (1.8% - 3.3%)
B2.8	**Prevalence of MDR-TB among treatment-experienced** notified TB cases, in the most recent available year (%)	29% (20% - 38%)

Country: Philippines
Source: WHO

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Country Econ

Objective: *suggest modifications/additions/subtractions to the benchmarks*

Suggested discussion points:

- *Are there other benchmarks we might add?*
- *How do we strengthen the reporting of economic approaches?*
- *How to make sure standards only apply to the analyses where they are relevant?*

Report-back

- No additional metrics at this time, with the intent to add a societal cost benchmark in the future.
- GHCC to serve as the unit cost benchmark.
- WHO to serve as the total cost benchmark, for cost categories included in their reporting.
- Economic values should be benchmarked only for the most recent year.

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Reporting

Objective: suggest modifications/additions/subtractions to the reporting template

Suggested discussion points:

- *What is the report for/who is the audience?*
- *Can we include different levels of detail for different purposes?*
- *Is the final product too burdensome/duplicative?*

Report-back

- May need a larger "closed" report and a smaller "open" report for broader dissemination
  - May be willing to disclose sources, if not specific values, for example
  - 4 elements for different audiences: high-level open summary (for broad dissemination), full report (for funder/NTP/TRP), technical appendix (for reviewer), reviewers report
  - Current reporting template may be more for communication between modelers & reviewers
- Will need to find a balance between standardization of benchmarks, etc., and tailored comments on each model (depending on different purposes/questions that models will be applied to)
  - GHCC reporting checklist as a potential template (transparency as an overall goal)
- Plan a pilot phase where reporting and review is done for 5 countries/models
- Process:
  - Overall timeframe of about 1 year
  - TORs for modelers & external reviewer(s) defined up front
  - 3 trips - define questions/hire local team, gather data/prelim results, final results/dissemination
  - After this, need to translate modeling report into grant proposal for technical review

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Review

Objective: suggest modifications/additions/subtractions to the reporting template

Suggested discussion points:

- *What are the criteria to be used for deciding which applications need external review?*
- *How do we guarantee supply of reviewers? Does this suggest a centralised process?*
- *What questions should reviewers be asked to address?*

Report-back

- Pilot important because review sets a standard for what needs to be evaluated in the future
- "Engaged" review advocated, where reviewers are involved at each stage of the process
  - Will likely ultimately need some sort of centralized review agency, but would like to do pilot with different groups first
  - May need 2 reviewers, as it's difficult to combine epi expertise, health econ, and health systems/delivery
- Need to set up some sort of firewall between modeling team and external review, but also engage the reviewer in the process - reviewer will need to be funded through a separate stream, with separate TORs (including a review checklist to be completed and some independent capacity to provide negative reviews to both model and in-country data process)

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Act>Impact

Objectives/questions
- *What is the problem?*
- *What needs to happen by the TB community?*
- *What (if any) should TB MAC's role be?*
- *If a role, what 1-3 concrete steps should TB MAC take before end 2019? (given no specific funding)*

Report-back

1. **Problem:** three parts (from perspective of country model application)
   a. What interventions are considered/available to reach targets (e.g. case detection and other outcomes)
   b. How do these interventions translate to <u>direct</u> epi impact
   c. What input and activities are required to increase coverage of the interventions

   → *Intractable/second order problem - indirect effect of interventions also unknown (e.g. more cases found → transmission impact, but likely less new data)*

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2. *What needs to happen by the TB community?* (reflecting from GHCC/Value TB activities)

    a. **What interventions are considered/available to reach targets (e.g. case detection and other outcomes) →**
        List generated by GTB/GHCC?

    b. **How do these interventions translate to <u>direct</u> epi impact →**
- <u>Collate and make accessible in structured database</u>: evidence for the direct epi impact for interventions
  - Note on need to assess transferability, value of unpublished databases (e.g. TB REACH, country-level reports)
- Generate case studies e.g. from four 'people-centered' countries
- [Note - Link to suggested reporting on policy impact in Additional Outputs]

    c. **What input and activities are required to increase coverage of the interventions →**
- Country specific - needs to be generated as part of country discussion

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Report-back

3. ***Concrete steps to be taken by community***

    a.   *Case studies of country implementation (eg Christy's suggestion)*

    b.   *Generate input form to collate data from countries/modelling teams*

    c.   *Database generation and maintenance*

    d.   *Communication with data input calls & availability advertised*

4. ***Possible role TB MAC***

    e.   *Recommend discussion by TB Modelling Roadmap Committee on process and leadership (tonight?)*

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