Overview of this meeting

Mon / Tue

Wed / Thur

Fri

TB Modelling and Analysis Consortium

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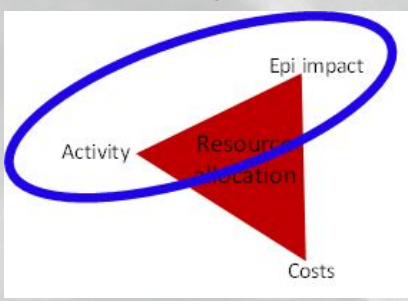
Country-level TB Modelling Roadmap Support

Evidencing gaps in Activities >> Epi Impact for country level resource allocation

Overview, and ask of you today

- Background, rationale and overall aim
  - TB MAC Targets
  - GHCC
- Illustrative example - ACF
  - ACF modelling lit review
  - Modellers recent experiences
  - New data extraction (Madeleine)
- Discussion

ACE Triangle



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  - Other data sources?
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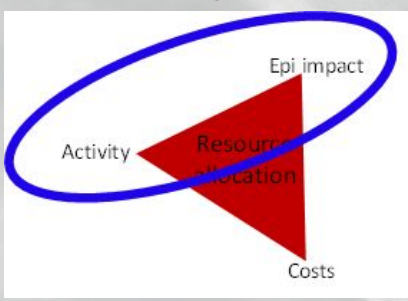

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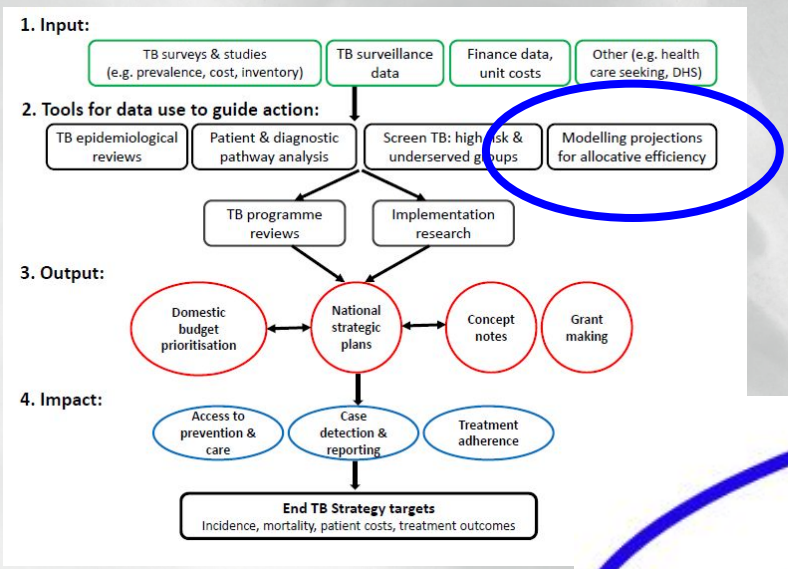
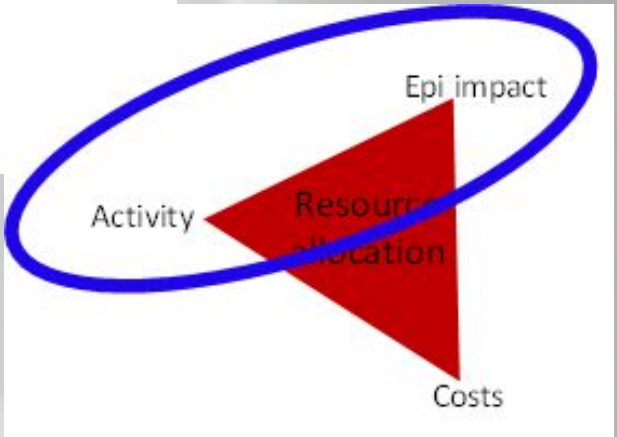
Background, rationale and overall aim

- Stakeholders asking math models to provide evidence for allocative efficiency/RA
- Requires knowledge of **activities**, the **cost**, and the **epi impact**, for the range of policy options
- NTP could use this info, with other constaints, to decide strategy

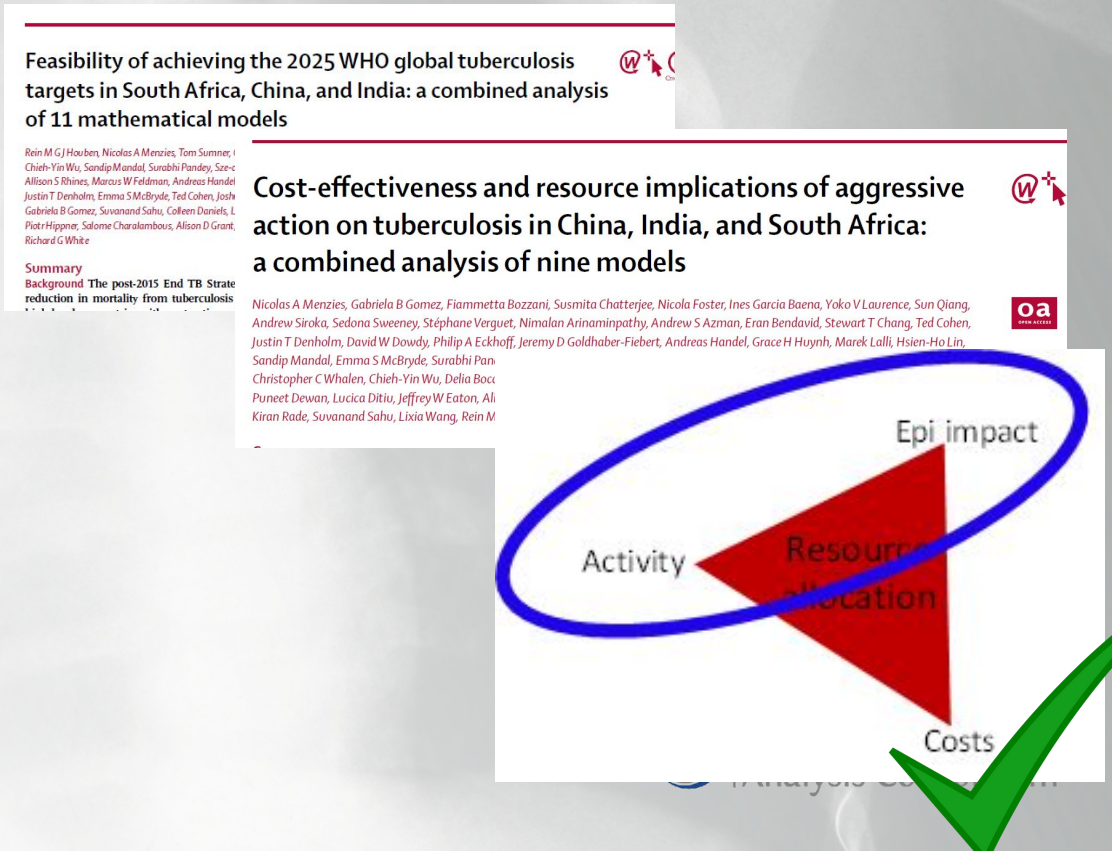




Background, rationale and overall aim

- TB MAC Targets work highlighted severe lack of data to inform what specific activities (with costs) might lead to agreed coverage increases
- Left to NTP to make educated guesses
- Now, GHCC collecting data on costs for specific activities
- But, Act >> Imp remains neglected

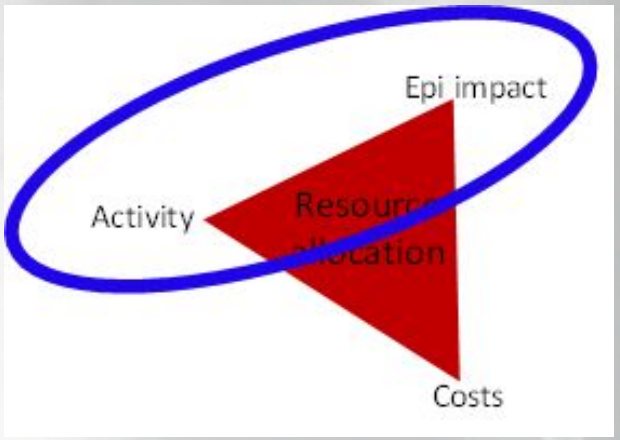
=> Reduces utility of model evidence for country level resource allocation



Background, rationale and overall aim

Overall aim

- Identify, collate and summarise evidence on activities (intervention details), by health outcomes, along the prevention and care cascade, to better inform TB resourse allocation



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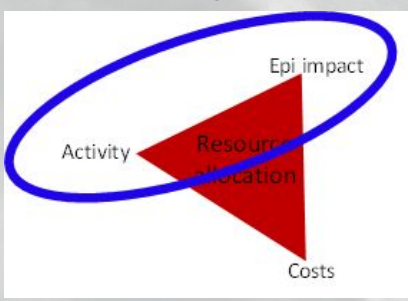

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Care cascade & ACF case study

Figure 5: Priority-Setting Matrix

- ~Arbitrarily chose ACF
  - Does not matter
  - Underreporting also

- *"Mathematical models suggest that effective ACF campaigns could contribute to global reduction in cases and deaths under the DOTS strategy, but data assessing the community impact of ACF are sparse". Miller,2010*

Make a Global Priority of Finding Missing Cases of Tuberculosis

By Eliud Wandwalo, Senior Disease Coordinator, TB

in VOICES on 10 OCTOBER 2017

Door-to-door TB detection drive begins in 11 districts

Afshan Yasmeen

BENGALURU, JULY 17, 2017 23:43 IST
UPDATED: JULY 17, 2017 23:43 IST

Source: People Centered Framework for TB programming: data consolidation and policy translation across the care continuum, BMGF

Active Case Finding Definition

- Won’t get hung up on definition
- Many variants
- Normally screening outside of health facilities

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Active case finding - modelling lit review

- Reviewed all modelling papers published in 2017 that looked at ACF
- Extracted activities & impact/ coverage info

- Modellers struggled to identify activities to support coverage scale up assumptions
- Often based on assumptions or expert opinion

Data	Papers
Data gaps	No mention
Activities	Migrants, MDR retreatment, School, Community-based TB/HIV
Coverage	Model determined, unchanged, instant, linear, expert opinion
Number screened	Model determined, unchanged, assumption, expert opinion, report
Diagnostic algorithm	Not mentioned, DST, Xpert, IGRA, multiple
Number diagnoses	Model determined, previous models, assumed, expert opinion, household survey, systematic review

How have modellers coped more recently?

Country-level modelling team #1

Population Groups	**Country 1 – remote islands** **Country 2 – rural poor populations and prisons**
Activities	Country 1 – outreach by ferry with mobile assessment unit Country 2 rural poor – outreach by ferry with three person mobile assessment unit Country 2 prisons – outreach within prison
Impact of Activities	We have **previously favoured DETECTB over ZAMSTAR** in parameterising community-based ACF interventions because the pre and post-prevalence surveys in DETECTB enable estimation of the proportion of undiagnosed cases that were found. **This evidence is then adapted to the local context** – including attempts to quantify unrecognised cases.

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Country-level modelling team #2

Population Groups	Population groups were based on the intended targets of **4 mobile outreach vans** recently introduced in **Country 3.** These were: •Prisoners (1 van) •PWID/homeless (1 van) •Rural poor/low access (2 vans)
Activities	Attendance of van, screening and diagnostics (including staff costs and cost of initial GeneXpert testing), microscopy and culture for subsequent testing
Impact of Activities	Active case finding programmes are new in Country 3. I**n the absence of local data, impacts were estimated based on *Shapiro et al. (2013)*** *A systematic review of the number needed to screen to detect a case of active tuberculosis in different risk groups*

Country-level modelling team #3

Population Groups	Individuals presenting to the **outpatient department in Country 4**
Activities	•Expansion of TB screening services beyond passive case detection, towards screening all individuals presenting to the OPD. •Development and implementation of screening tool •Hiring of task shifting personnel & placement in OPD to screening individuals upon entry.
Impact of Activities	•This intervention was modelled from the country's NSP •**Evidence of impact** came from (un-published) pilot implementation in the country (local data) – **quality of data was low and impact was likely overestimated** •Published literature was used to fill data gaps (assumed prevalence of disease in screening population using ratio clinic/population prevalence in RSA (Claassen) •Target population size was assumed based on local routine local M&E data. •**Expert opinion** was used to inform planned feasible scale up of activities

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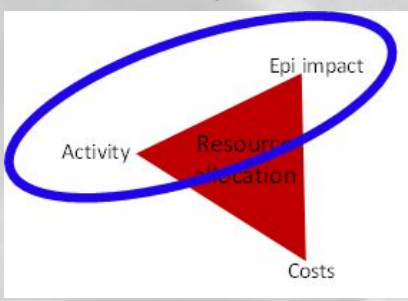

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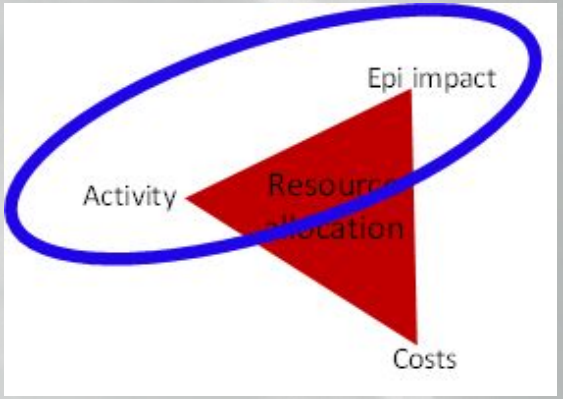
Summary of historic evidence use

- Stakeholders asking for model evidence for RA
- Act>Imp data key for RA
- Modellers finding it difficult to identify relevant Act>Imp data, and continuing to rely on expert opinion



- Can we help modellers and NTPs more?

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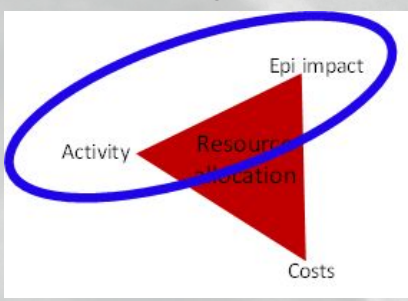

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Illustrative example: Community Active Case Finding(ACF) in High Burden settings

- Aim
- Method
  - Scope
  - Framework & Sources
- Results:
  - Overview & Population Characteristics
  - Activity & Impact
  - Example
- Conclusions

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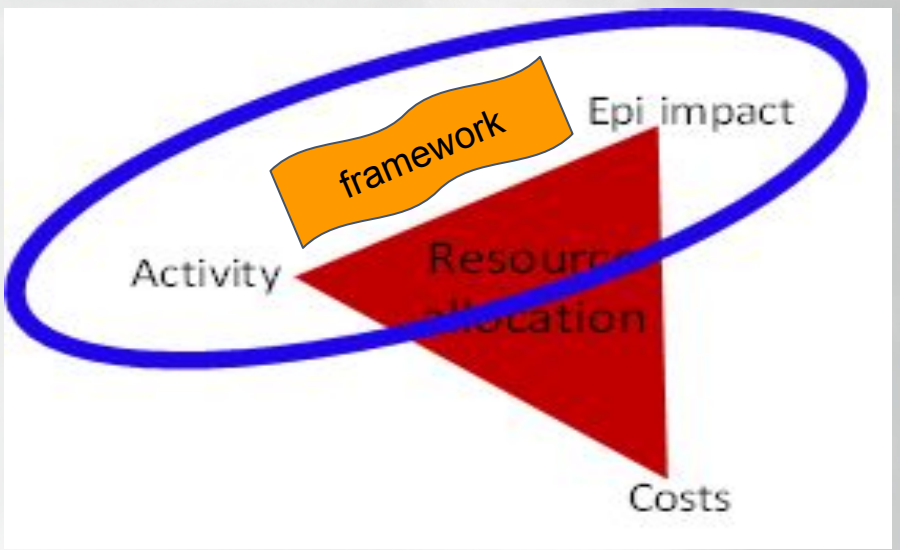
Aim:

To develop an example framework with which to collate & summarise empirical evidence on activities/ interventions for community ACF in high-burden settings and their impact.



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Method: scope

Prevention

Coming Soon

Compendium of WHO guidelines and associated standards: ensuring optimum delivery of the cascade of care for patients with tuberculosis Second edition - June 2018
44 documents/guidelines

WHO guidelines/documents with a GRADE table or accompanied GRADE document
18 GRADE documents/table

Prevention theme of the September meeting Compendium themes (no. associated Grade tables by theme)
1. *Early detection (1)*
2. *Diagnosing TB (5)*
3. *Diagnosing latent TB (1)*

7 possible GRADES

Early detection: *Systematic screening for active tuberculosis Principles and recommendations Grade Table*
6 Types of ACF activities

Community ACF in High-burden settings
5 impacts considered

Grading of Recommendations Assessment, Development and Evaluation (GRADE)

Greatest application and funding

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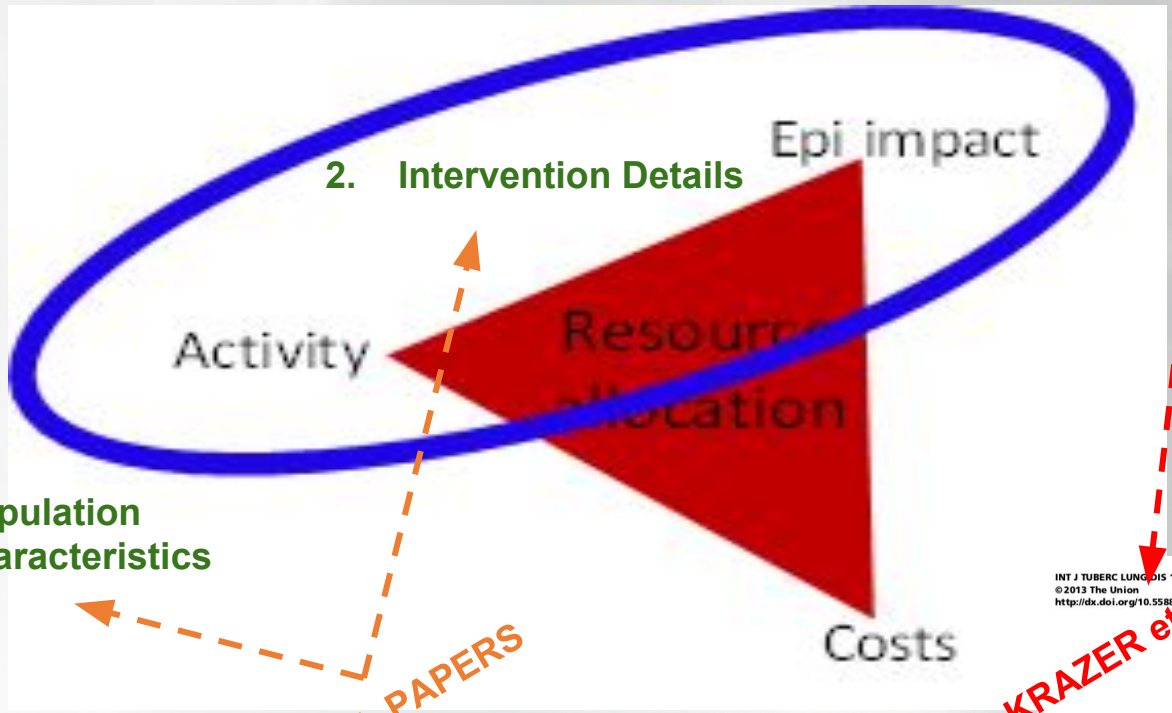
Method: Framework & Sources



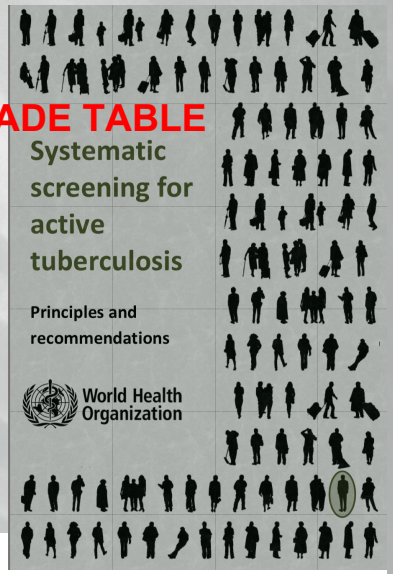
1. Population characteristics

2. Intervention Details

3. Measures of impact

ORIGINAL PAPERS

KRAZER et al

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http://dx.doi.org/10.5588/ijtld.12.0743

STATE OF THE ART SERIES
Active case finding/screening
Series Editor: Martien Borgdorff, *Guest Editor*: Knut Lönnroth
NUMBER 2 IN THE SERIES

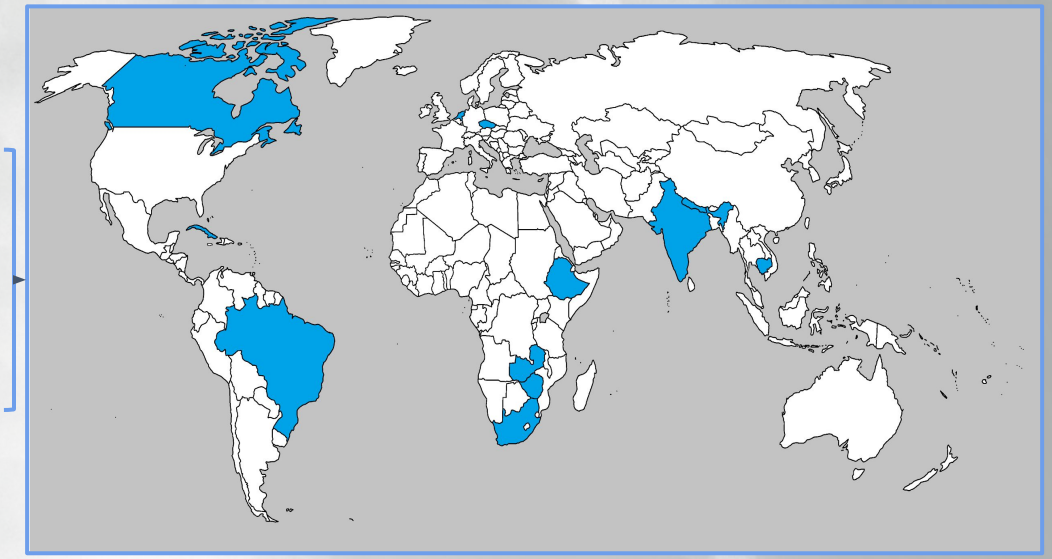
The benefits to communities and individuals of screening for active tuberculosis disease: a systematic review

K. Kranzer,* H. Afnan-Holmes,* K. Tomlin,* J. E. Golub,† A. E. Shapiro,† A. Schaap,‡ E. L. Corbett,‡ K. Lönnroth,§ J. R. Glynn*

*Department of Infectious Disease Epidemiology, London School of Hygiene & Tropical Medicine, London, UK; †Johns Hopkins School of Medicine, Baltimore, Maryland, USA; ‡Department of Clinical Research, London School of Hygiene & Tropical Medicine, London, UK; §Stop TB Department, World Health Organization, Geneva, Switzerland

Results : Overview & Population Characteristics

- 25 interventions:
  - 12 pre 2000
  - 10 post
  - DOTS
  - BCG
  - None post 2010
- 22 studies from:
  - 2 in North America
  - 3 Europe
  - 7 SEA
  - 2 central America
  - 1 South America
  - 7 Africa (East and South)
- Age
  - One study on 0-26 months
- Population:
  - Size
  - Prevalence/incidence



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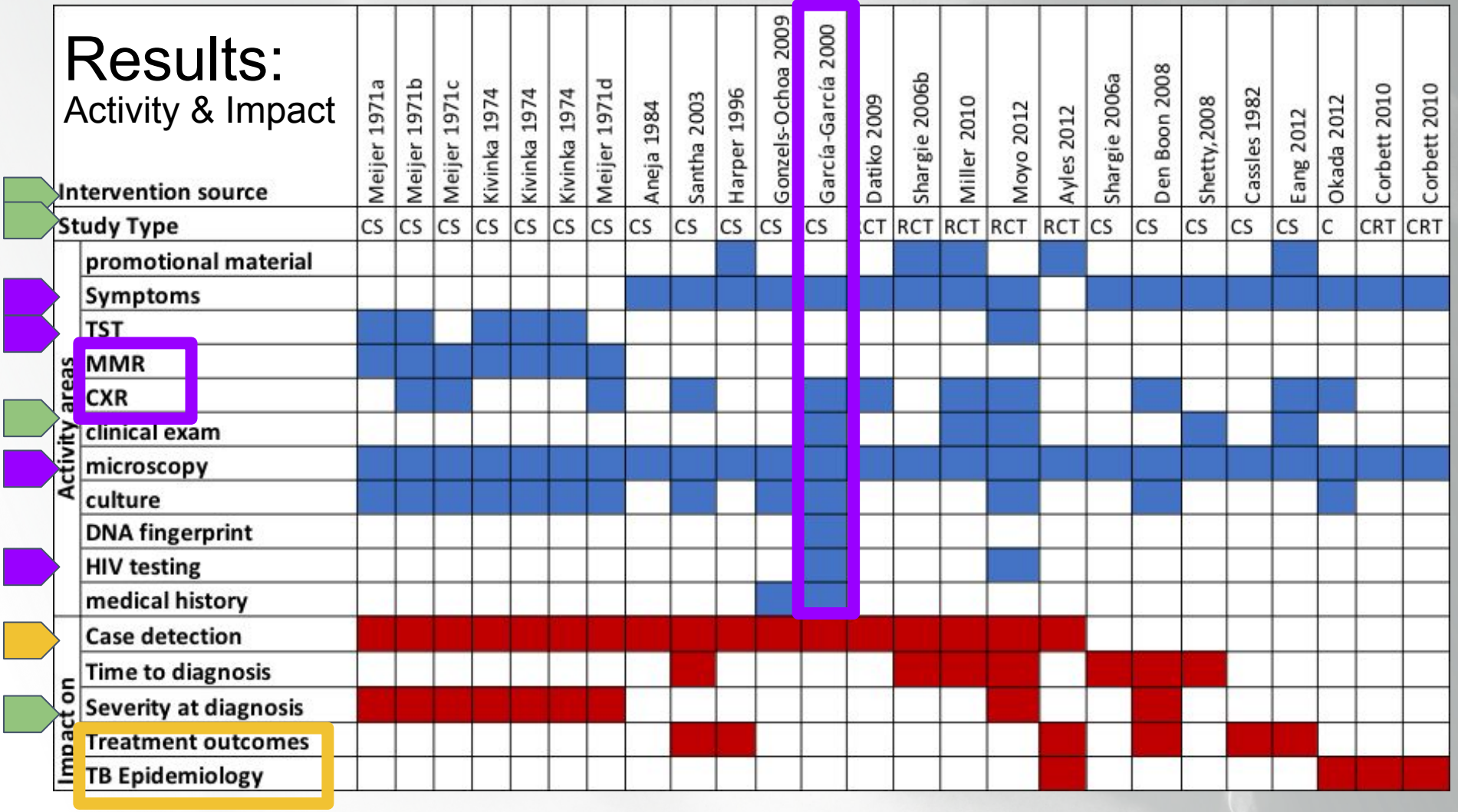
Results:
Activity & Impact



Result: example

Garcia Garcia et al. example:

1995-1996, Orizaba health region Southern Mexico, rural

BSG and DOTs present

Population size in intervention area: 278873

Incidence intervention area : 42.6/ 100,000

Additional population DETAILS

Total Screened/ in the intervention arm: 1424

Total cases diagnosed in the screened/ intervention arm: 92

Total cases diagnosed in the passive/ control arm: 107

Platform Type: Household

IMPACT : Proportion of cases found through screening for this example was 86% (92/107)

Additional impact measures (NOT GRADE):

Impact/recipient of screen: 0.065

No. needed to screen : 15.48

Intervention details:

1. **Promotional Material & Symptom Screening:**
   a. Health promoters (who paid routine visit to Households, as part of a wider network of health checks, vaccines, vector control, etc).
   b. Additionally, shelters, jails, orphanages, and self support groups for alcoholics, diabetics and drug users were visited **periodically**
   c. to explain the purpose of the study and identify coughers(cough>2 weeks).
2. **Microscopy:**
   a. Patients collect 3 samples: the first one the night before they attended the clinic, the second at home the morning they attended the clinic and the third at the clinic.
   b. Unconcentrated Ziehl-Neelsen stains were examined microscopically for the presence of AFB.
   c. positives offered to join the study
3. **Clinical Exam:**
   a. a physical examination And an interview (see below)
4. **Medical History:**
   a. a standardized interview focusing on their clinical history, prior episodes of tuberculosis, and the locations in which they spent prolonged periods of time.
5. **HIV testing**
6. **Chest x-ray**
7. **Culture:**
   a. 8 weeks (of the positive ZN microscopy)
8. **DNA fingerprinting:**
   a. were possible, standardised IS6110-based RFLP technique was used to fingerprint DNA.
   b. **Medical history:** those with DNA TB isolates were further Medical history on contacts was gathered.

DETAILS

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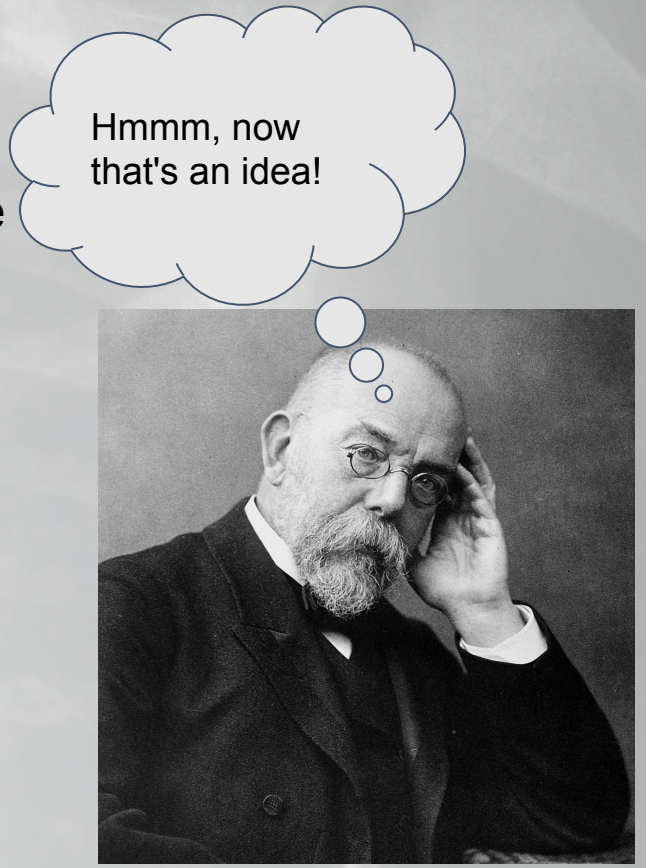
Conclusions

- **Aim:** We have presented a framework to collate activity to impact evidence
- **Pros**
  - Developed a framework
  - Able to collated the available evidence
  - Improve the accessibility
- **Difficulties:**
  - Details on actual activity
  - Impact measures inconsistent
- **Possible next steps (to discuss next):**
  - Unit Activity repository
  - Wider literature & Grey literature
  - More interventions



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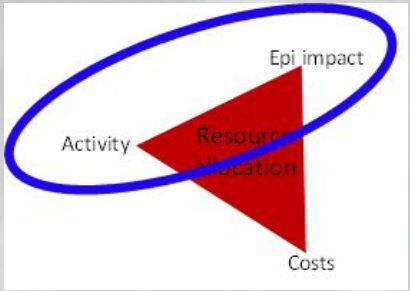

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Stakeholder input and clarification qus

- Katherine - cmmts
- Christy - Kenya impact evidence collation
- Nobu - how fits into current WHO activities
- ...

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Discussion

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Particularly keen to hear from people who will <u>not</u> be in the group work tomorrow

Small group

f2f

Gaby, Romain, Madeleine, Katherine, Jacob, Richard

Online possibly
Johannes, Christy, Nobu, Michael Borowitz, Mehran, Sevim, Matteo,

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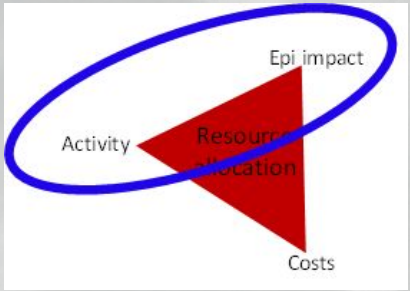

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SPARE SLIDES

Discussion: What do modellers want answered?

What is the prevalence by region?

What is the population size of the region?

How many people were screened for TB?

How many of those screened for TB were diagnosed?

What technology was used to make the diagnosis? (links to specificity and sensitivity)

Proposal-The Gold Standard Study -to fill the impact gap (MC/RF)

Kranzer- description, 1-2 studies since.(follow up study)

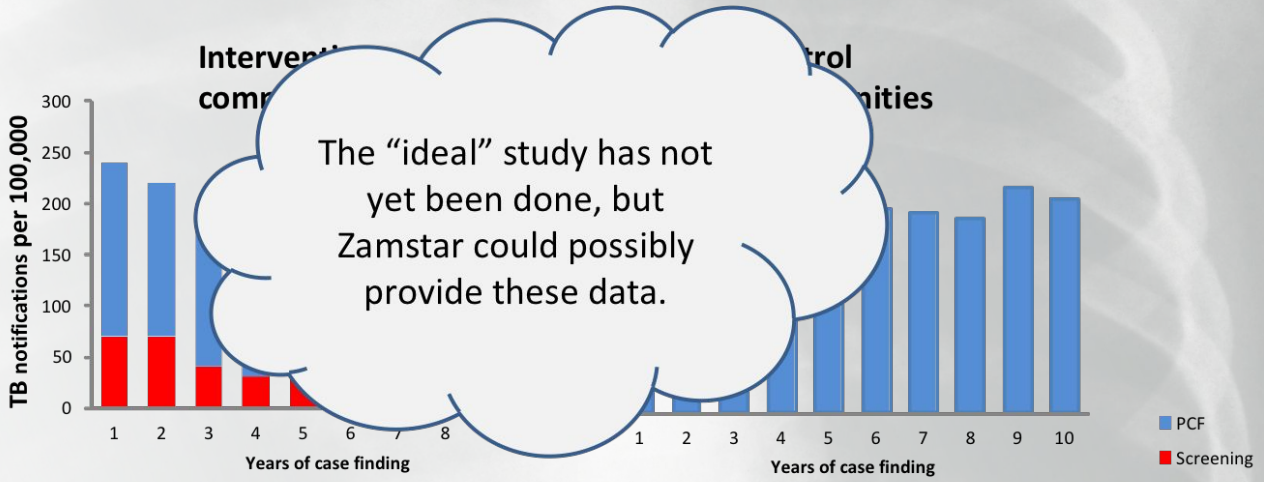
I think the point here is that we aren't calling for a new data collection exercise – what we want to do is call for data collation, because USAID/GF etc keep saying the data is out there. So this does sort of work – the wish-list perfect study looks like x, do they have anything that goes some way towards filling that gap? If so we need to establish a way to access this. If not, then it opens up the wider question of what to do next and helps us highlight the fact that what we have or have been promised is simply not enough.

What is need to be done? (scope)

At country level ,who can best achieve that, not NTP

Q1: Ideal study

Design: Cluster randomised controlled trial
Intervention: TB screening
Outcome: Number of individuals started on TB treatment
Duration: Years to decades



The "ideal" study has not yet been done, but Zamstar could possibly provide these data.

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“the policy of indiscriminate tuberculosis case-finding by mobile mass radiography should now be abandoned”- the ninth report by WHO’s Expert Committee on Tuberculosis

“screening specific risk groups:HIV, household contacts of people with TB, prison populations, in refugees and in people with diabetes,

Although guidelines contain **insufficient advice** on how to screen for active TB. Many low-burden countries with concentrated epidemics have implemented screening in these groups.

High-burden countries that are striving to close the case-detection gap and reduce the delays in diagnosis have implemented screening with mixed results.

There are several outstanding questions about the pros and cons of screening.”- paraphrased from WHO, Systematic screening for active tuberculosis principles and recommendation

“The review suggests that screening, if done in the right way and targeting the right people, may reduce suffering and death. However the review also highlights several reasons to be cautious. As discussed in detail in this document, there is a need to balance potential benefits against the risks and costs of screening; this conclusion is mirrored by the history of TB screening.”- WHO, Systematic screening for active tuberculosis principles and recommendations