



PUBLIC
HEALTH
FOUNDATION
OF INDIA



Imperial College
London

Modelling the impact of TB case detection in diverse settings

The SEARO experience

Nim Arinaminpathy, Imperial College London

21 Sept 2017, Glion

Work presented on behalf of....

- Sandip Mandal (PHFI, now WHO/SEARO)
- Swarup Sarkar, Vineet Bhatia, Hyder Alam (WHO/SEARO)
- Ross McLeod (eSYS, Sydney)
- Country programmes in the SEA region

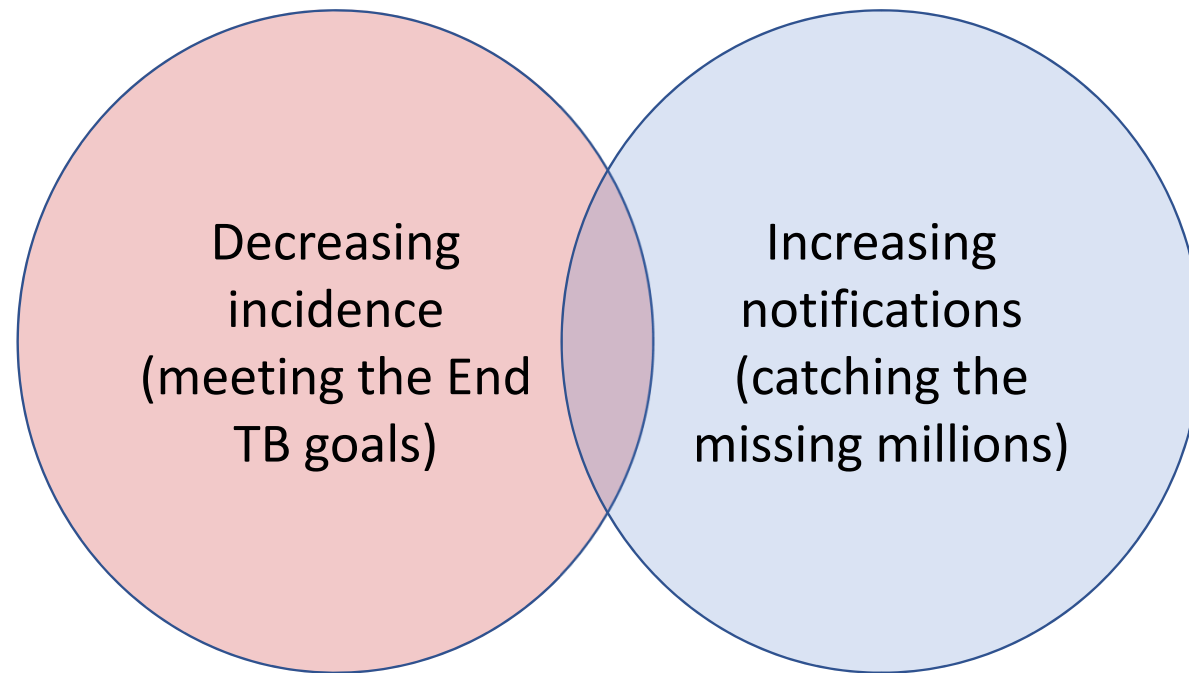


Motivation for this work

March 2017, ongoing regional engagement

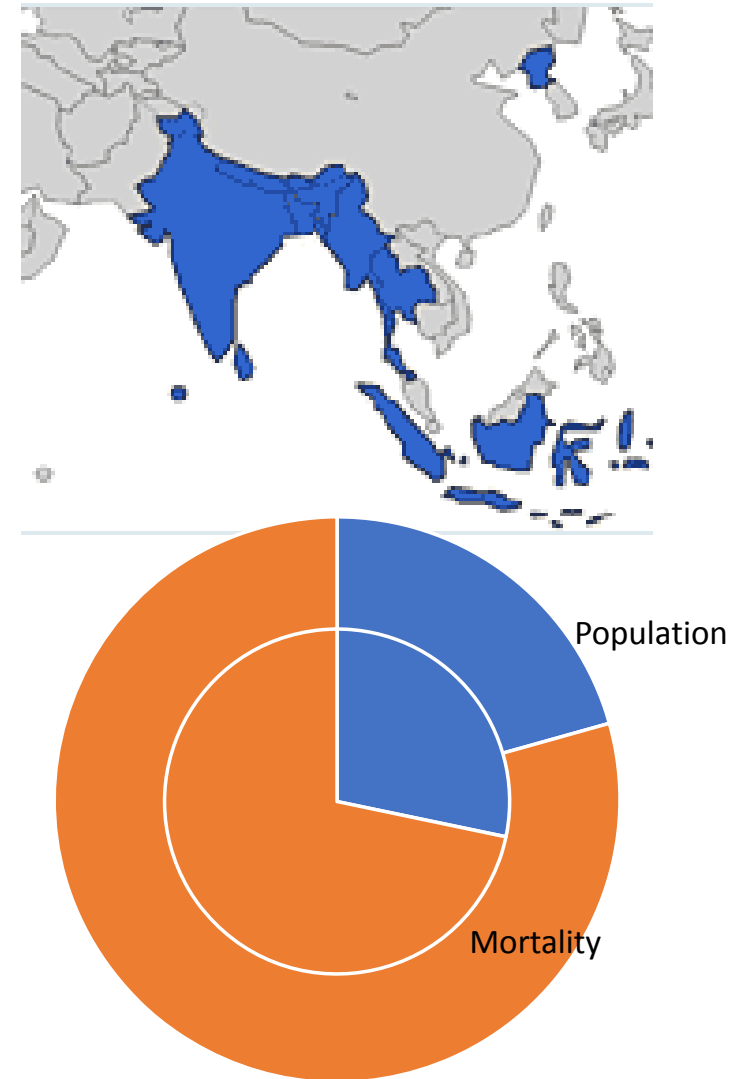


Case-finding: what are we trying to achieve?

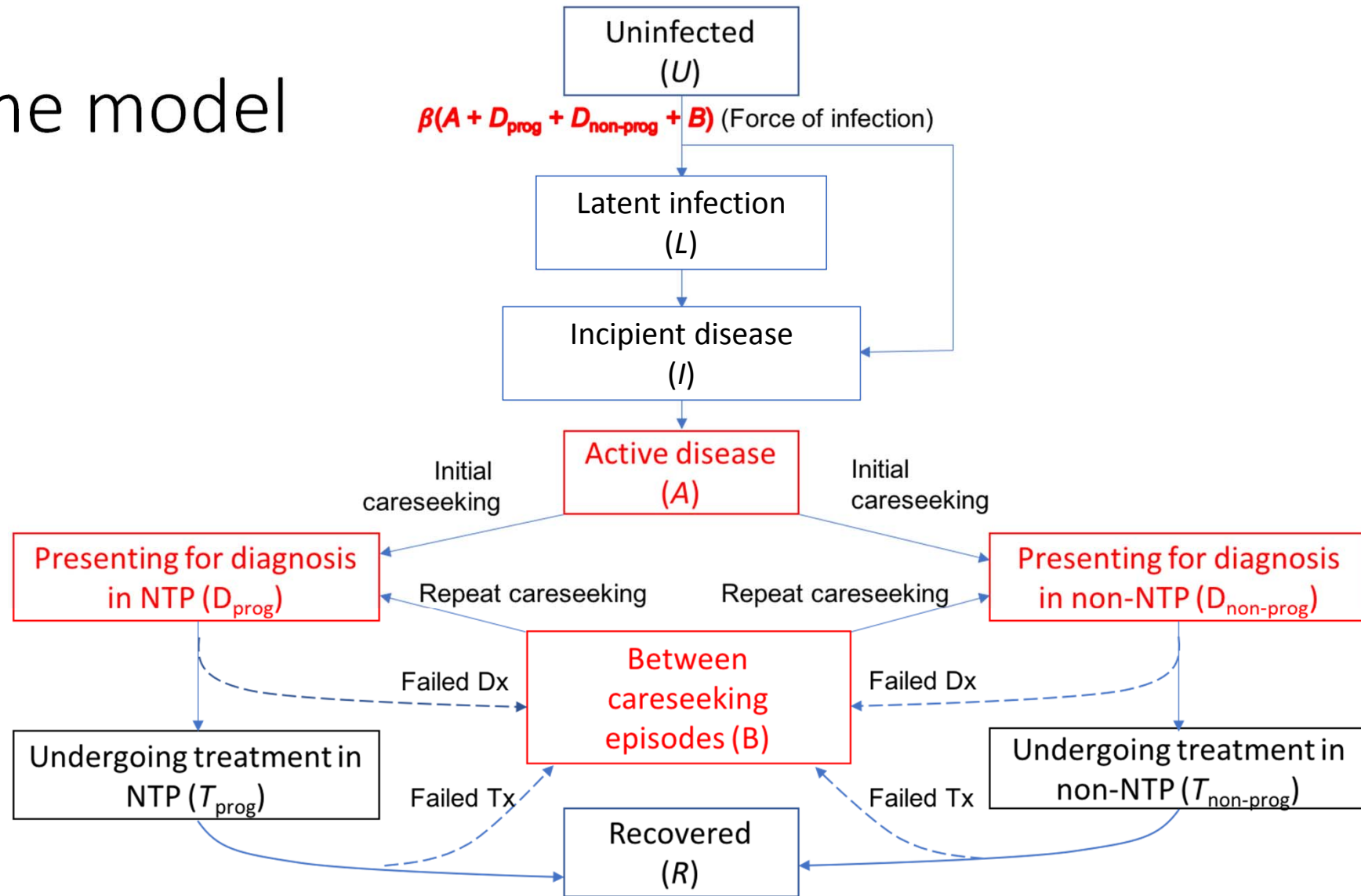


The SEARO experience

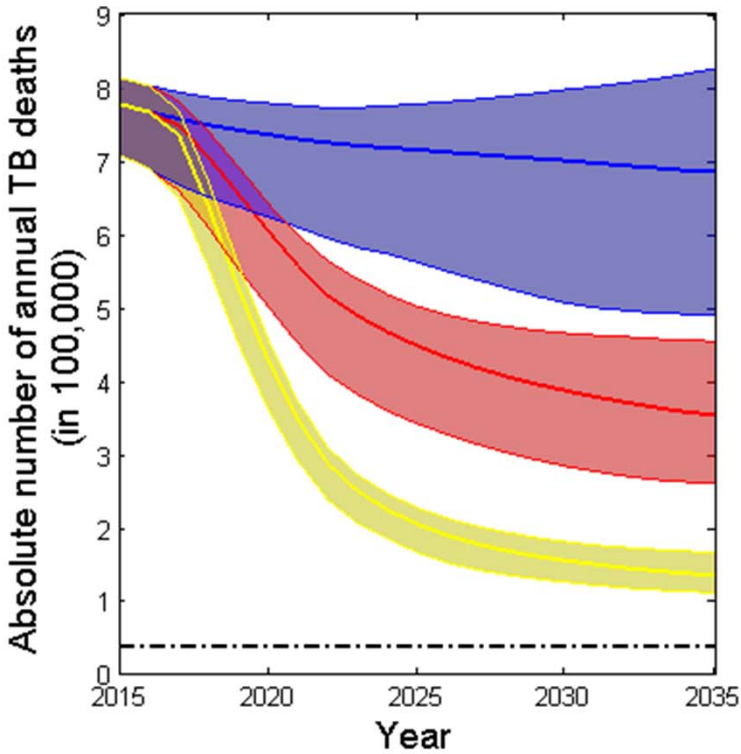
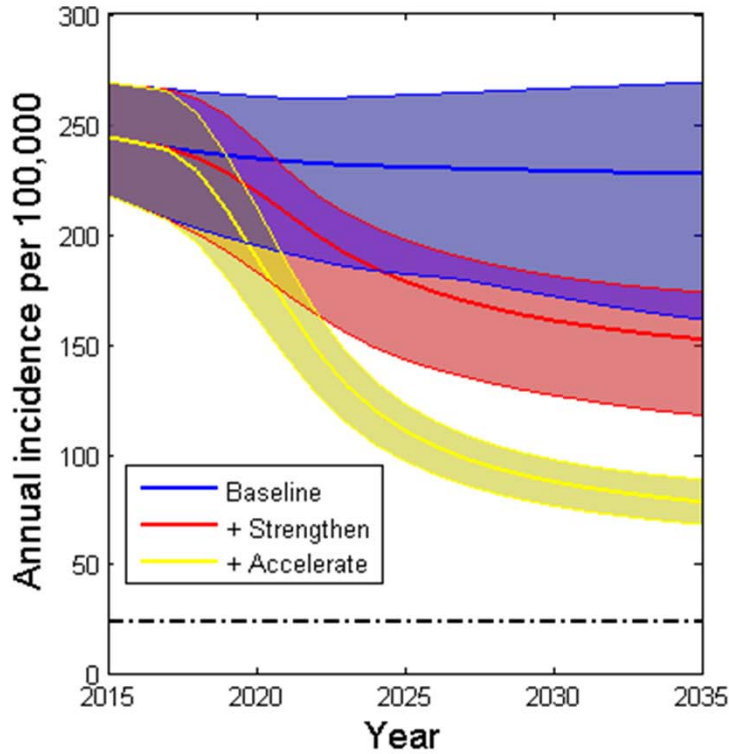
- 11 countries in the WHO South-East Asian Region
- *What do we need to do, to achieve the End TB goals in the region by 2035?*
 - 90% reduction in incidence rates relative to 2015
 - 95% reduction in TB mortality relative to 2015
- How much will it cost?
- Engaged with each country in the region



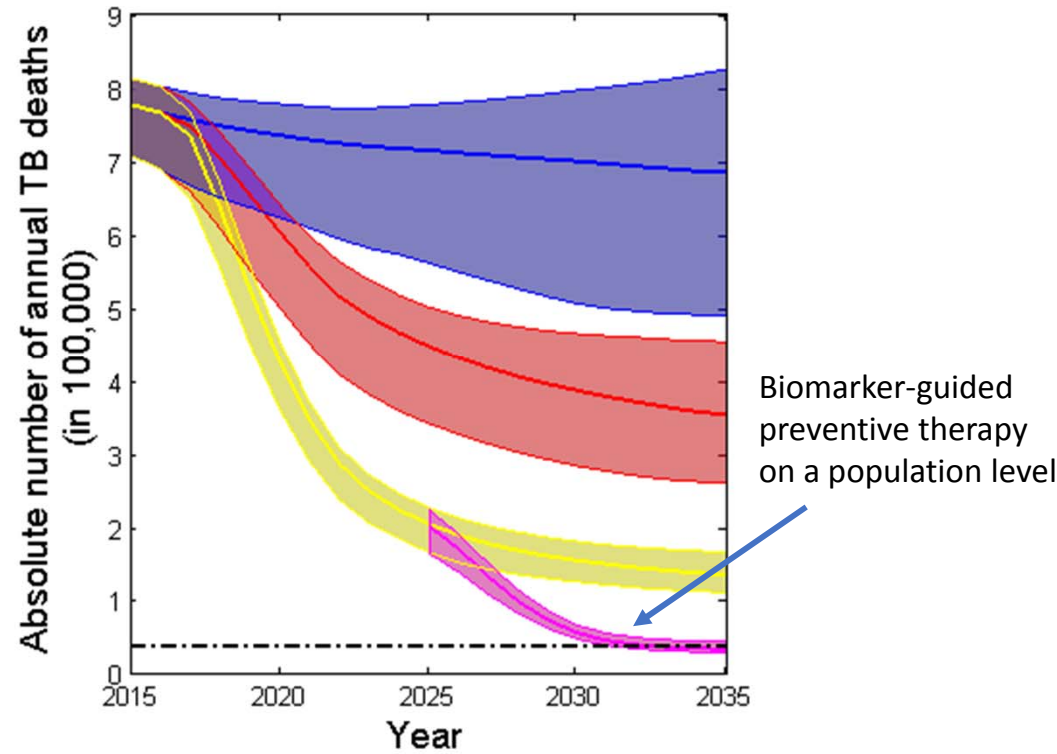
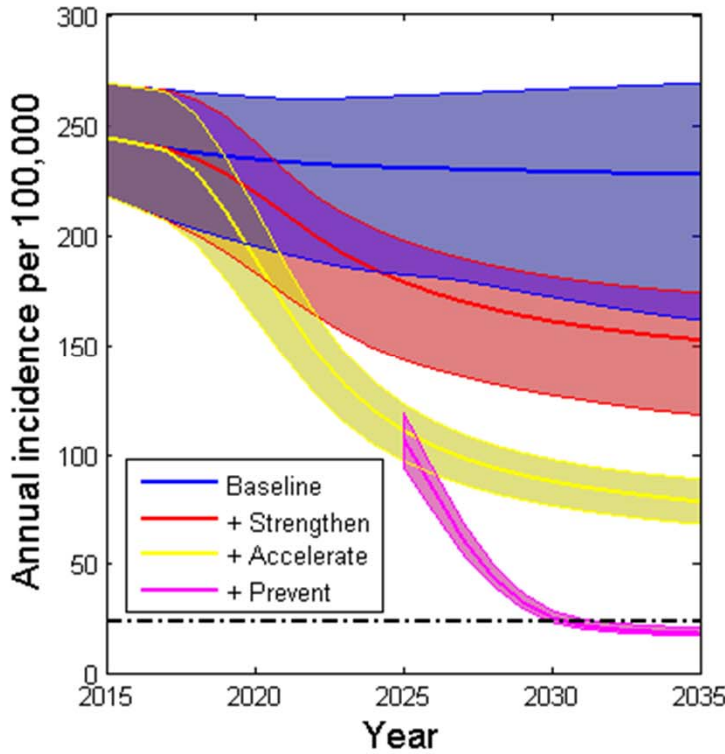
The model



Projected impact scenarios



Projected impact scenarios



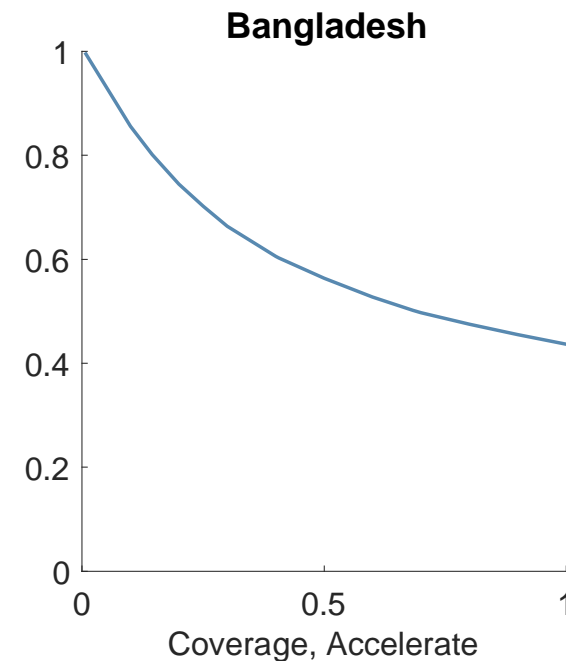
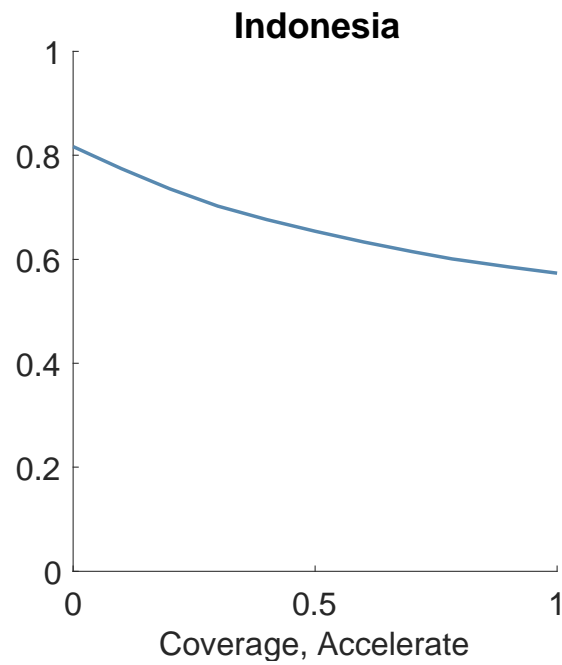
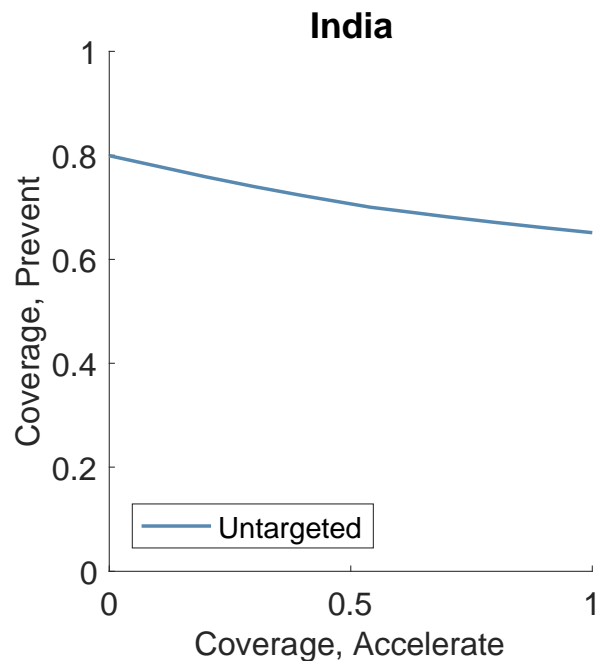
How to get there: the value of recognising heterogeneity

- Rather than attempting to characterise all risk groups, take *illustrative scenarios*
- Individual country-level decisions: what risk groups are the most important
- Current analysis: 10% of the population have 3x prevalence rates of TB
 - *Consistent with urban slums in India*
- *How does risk manifest?*
 - 'Progression-mediated' (e.g. diabetes, immunocompromised)
 - 'Transmission-mediated' (e.g. slum populations)

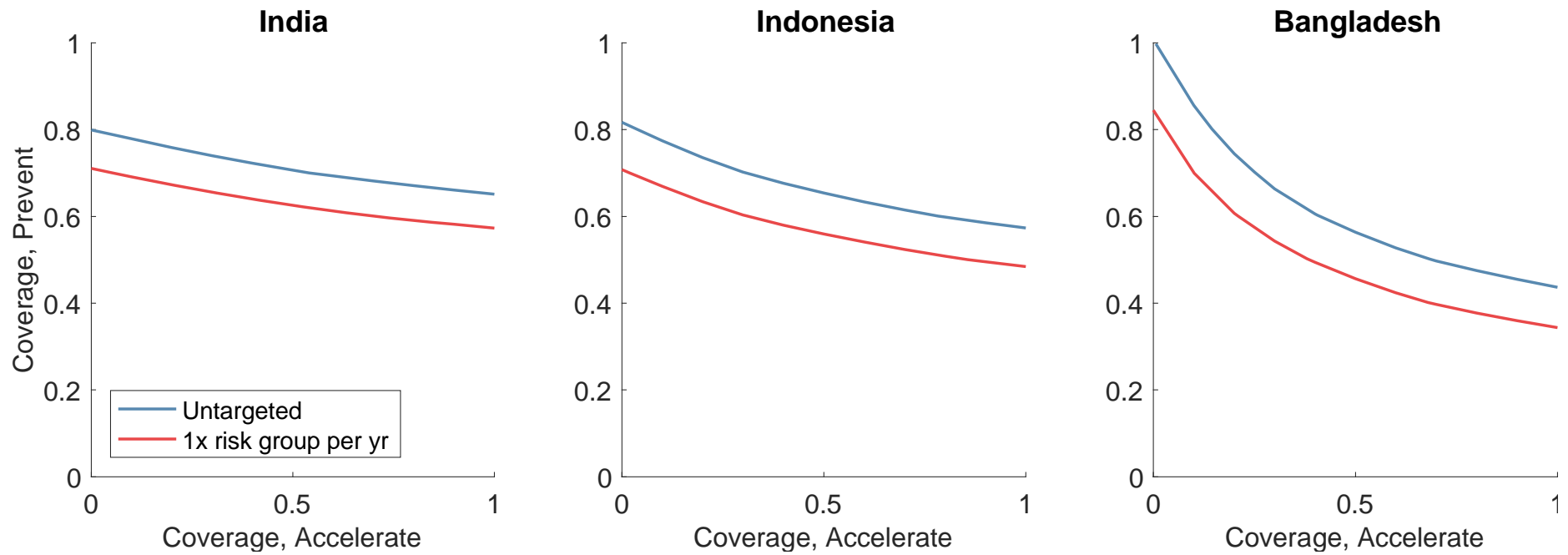
How to get there: the value of recognising heterogeneity

- Rather than attempting to characterise all risk groups, take *illustrative scenarios*
- Individual country-level decisions: what risk groups are the most important
- Current analysis: 10% of the population have 3x prevalence rates of TB
 - *Consistent with urban slums in India*
- *How does risk manifest?*
 - **'Progression-mediated'** (e.g. diabetes, immunocompromised)
 - 'Transmission-mediated' (e.g. slum populations)

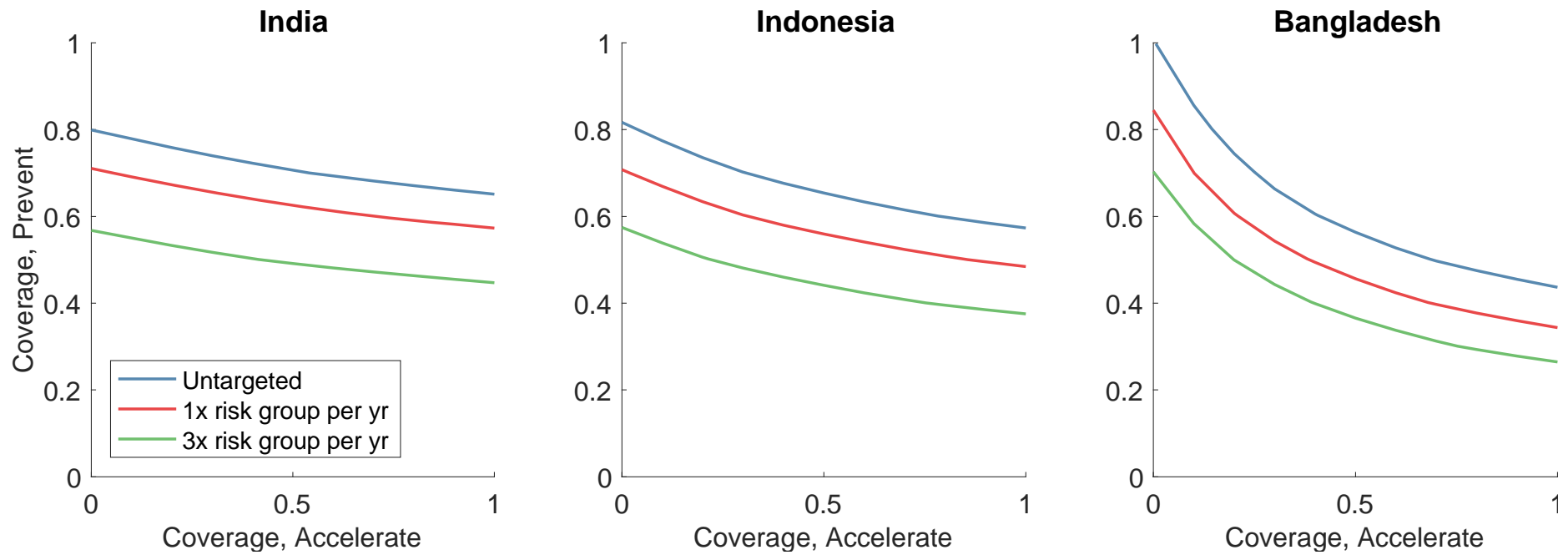
How to get there: the value of recognising heterogeneity



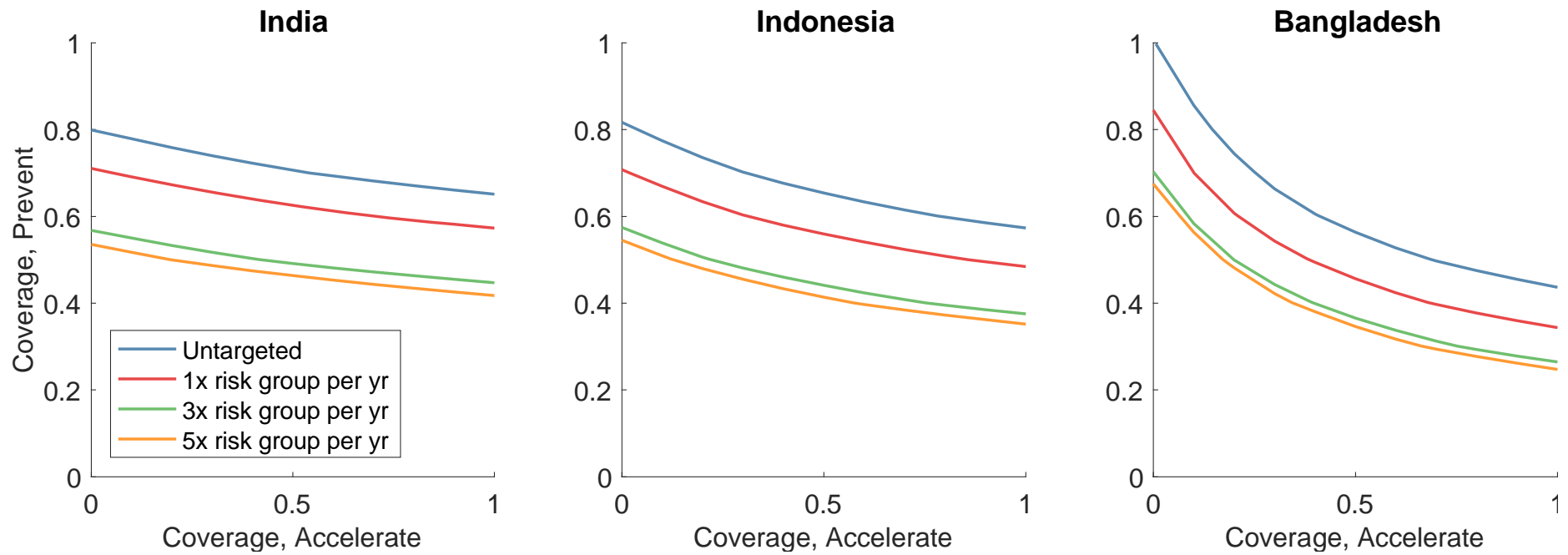
How to get there: the value of recognising heterogeneity



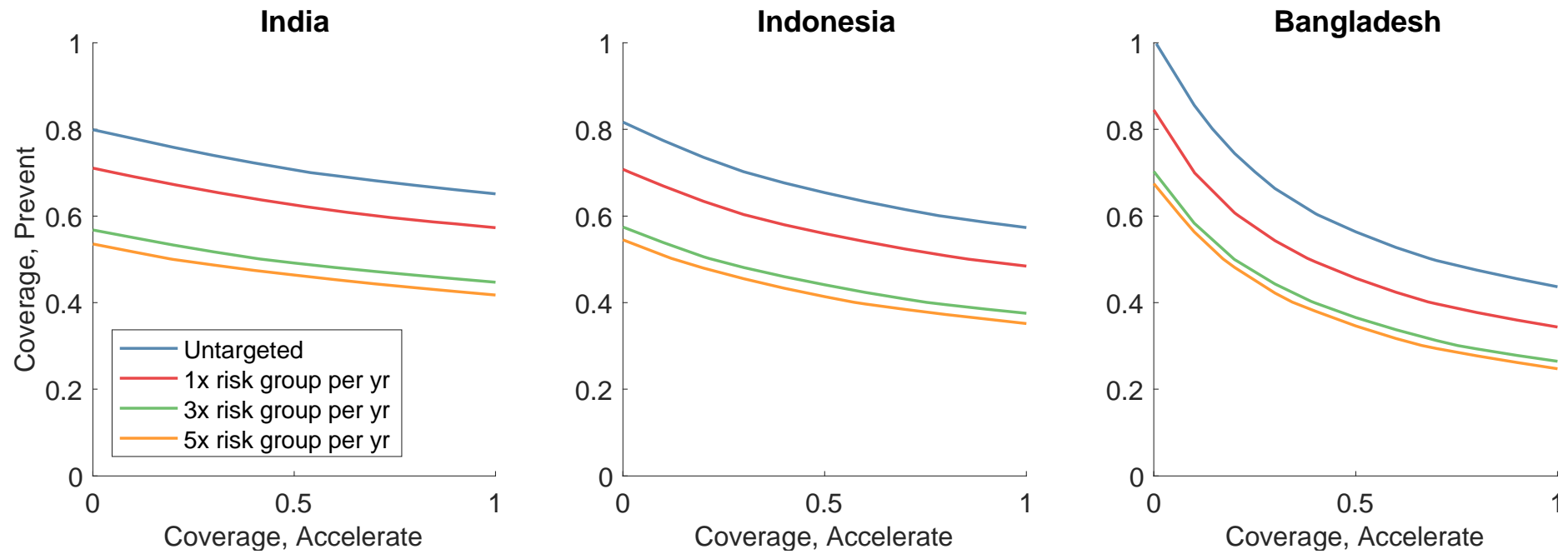
How to get there: the value of recognising heterogeneity



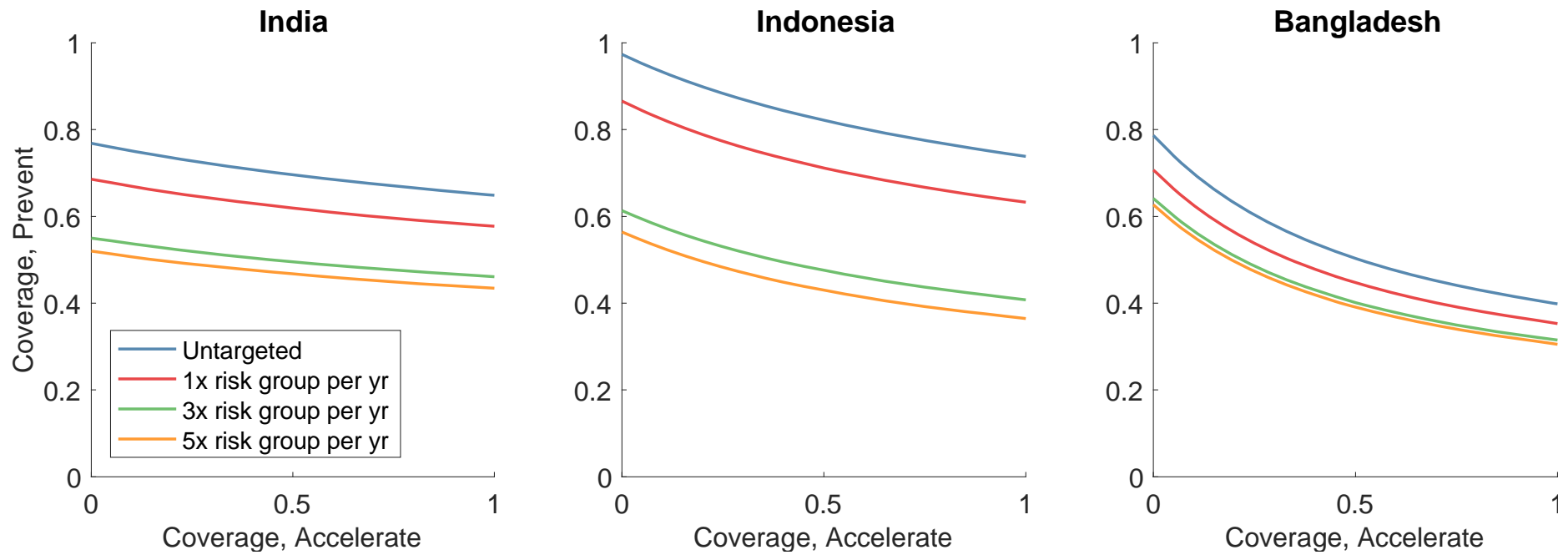
How to get there: the value of recognising heterogeneity



Progression-mediated risk



Transmission-mediated risk



Conclusions...

- We will need new tools to meet the End TB goals
- *Nonetheless*, we could still have a strong impact on TB incidence with efficient use of the tools we have
 - High-quality TB care in both public and private healthcare sectors
 - Large scale-up of case-finding initiatives, to identify cases early
- Heterogeneity matters: high burden groups can be disproportionately important in the overall TB epidemic
- In future: similar questions for infection, not just disease...?

...and reflections

- There's a lot that we still don't know!
- Potential role of asymptomatic TB in case-finding: will infectious cases compromise impact if they escape screening?
- Infectiousness of TB cases through time: is 'transmission potential' concentrated towards the later part of disease?
 - Or vice versa?
- Treatment cascade in TB patients who haven't been ill enough to present for care?

Thank you