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TB prevention among previously treated people

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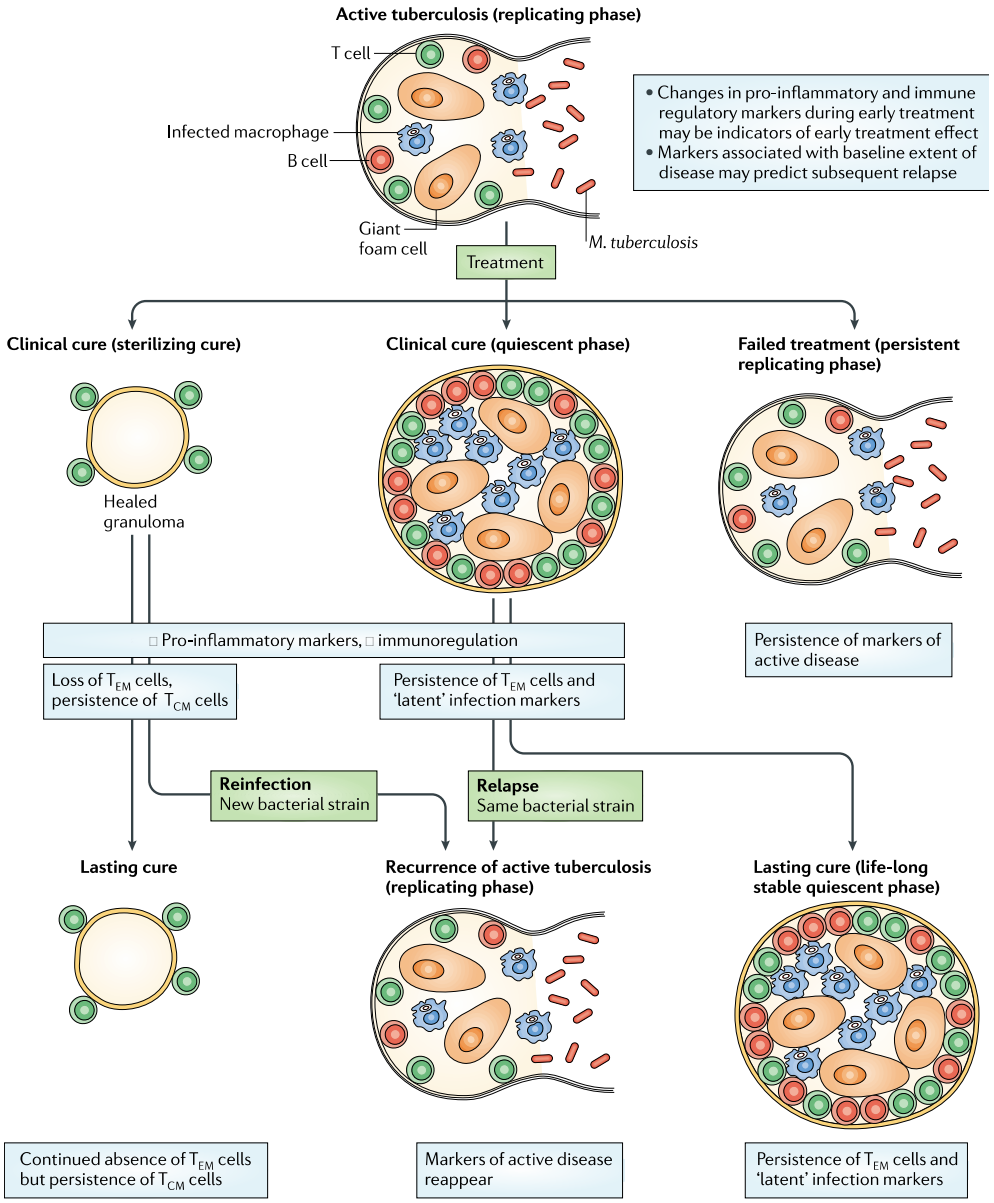
Overview

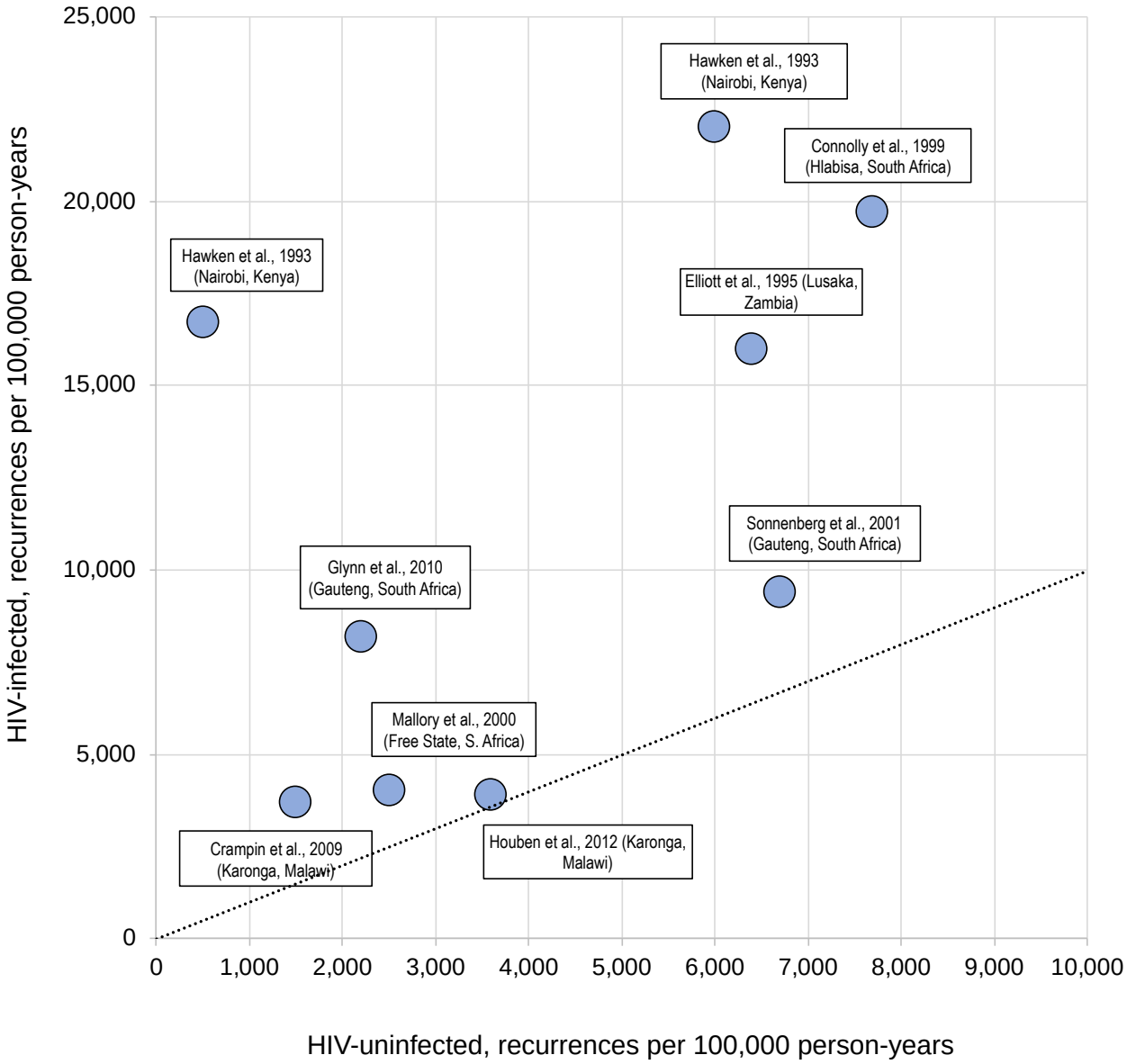
- Recurrence of TB after treatment: knowns & unknowns
- Targeting prevention to previously treated people in high-incidence settings
- Conclusions

Natural history of TB after treatment

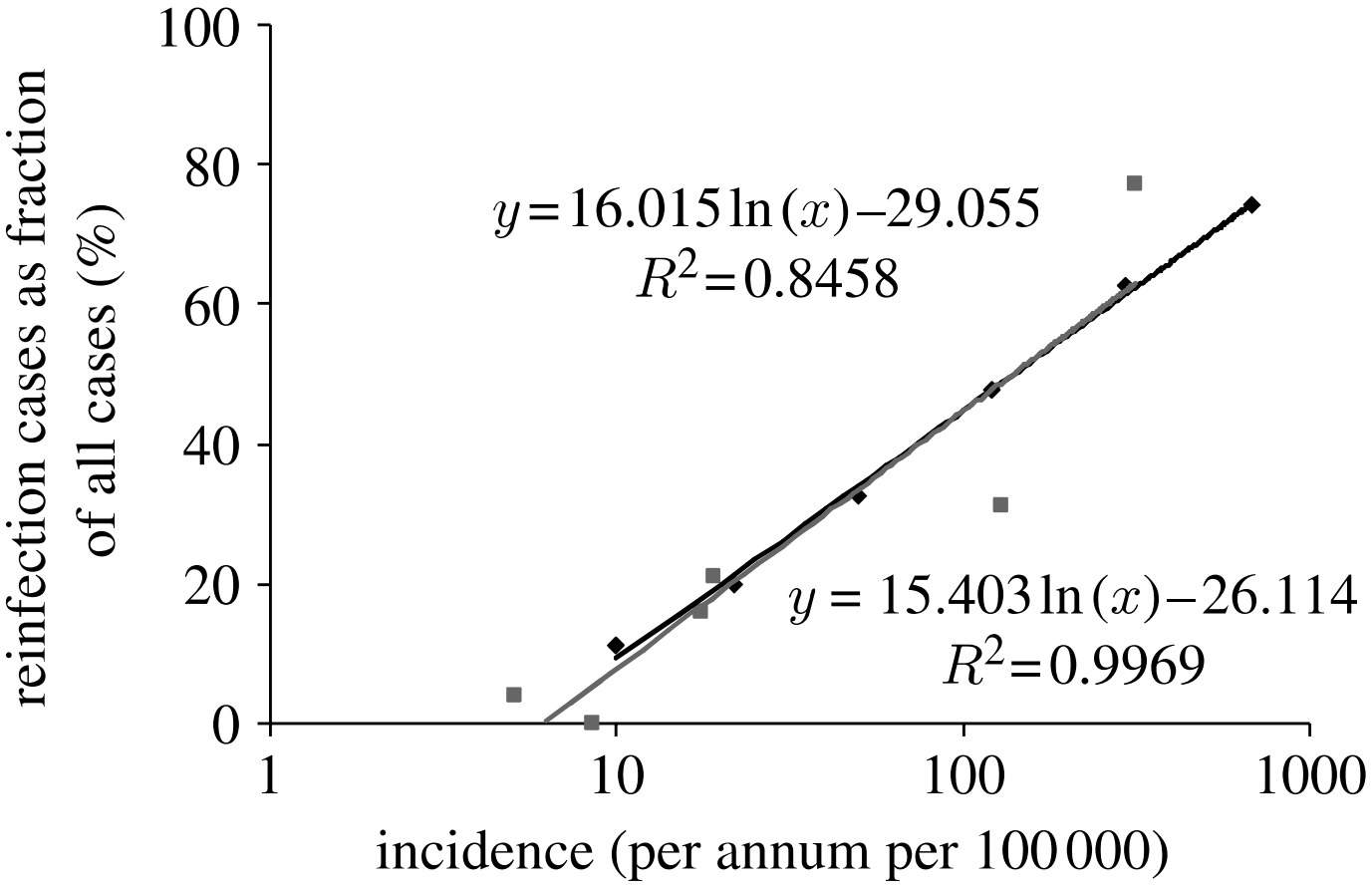


G. Walzl et al., *Nat Rev Imm*, 2011

Rates of recurrent TB in Southern Africa, 1993 - 2013

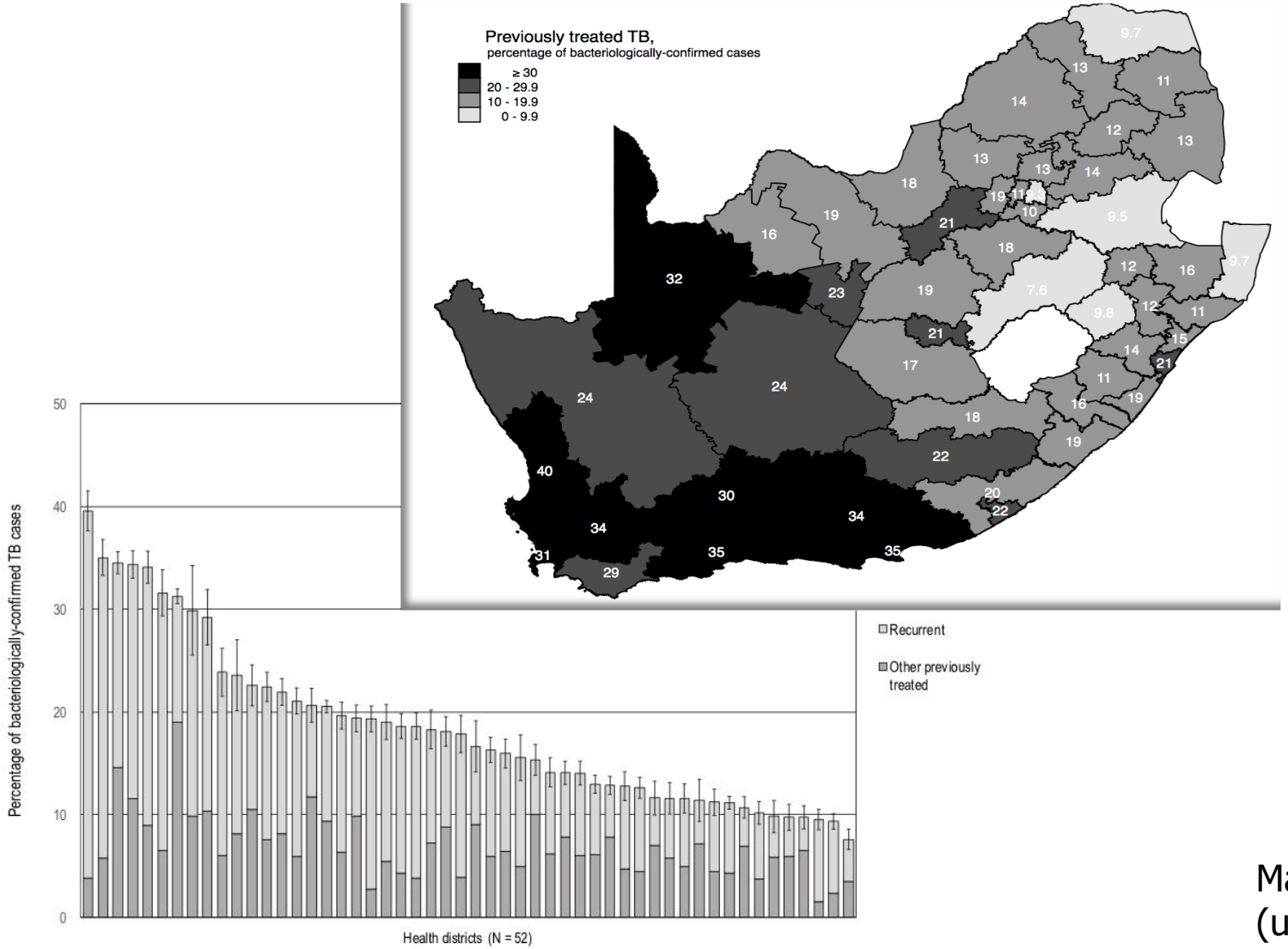


TB recurrence due to reinfection vs. reactivation



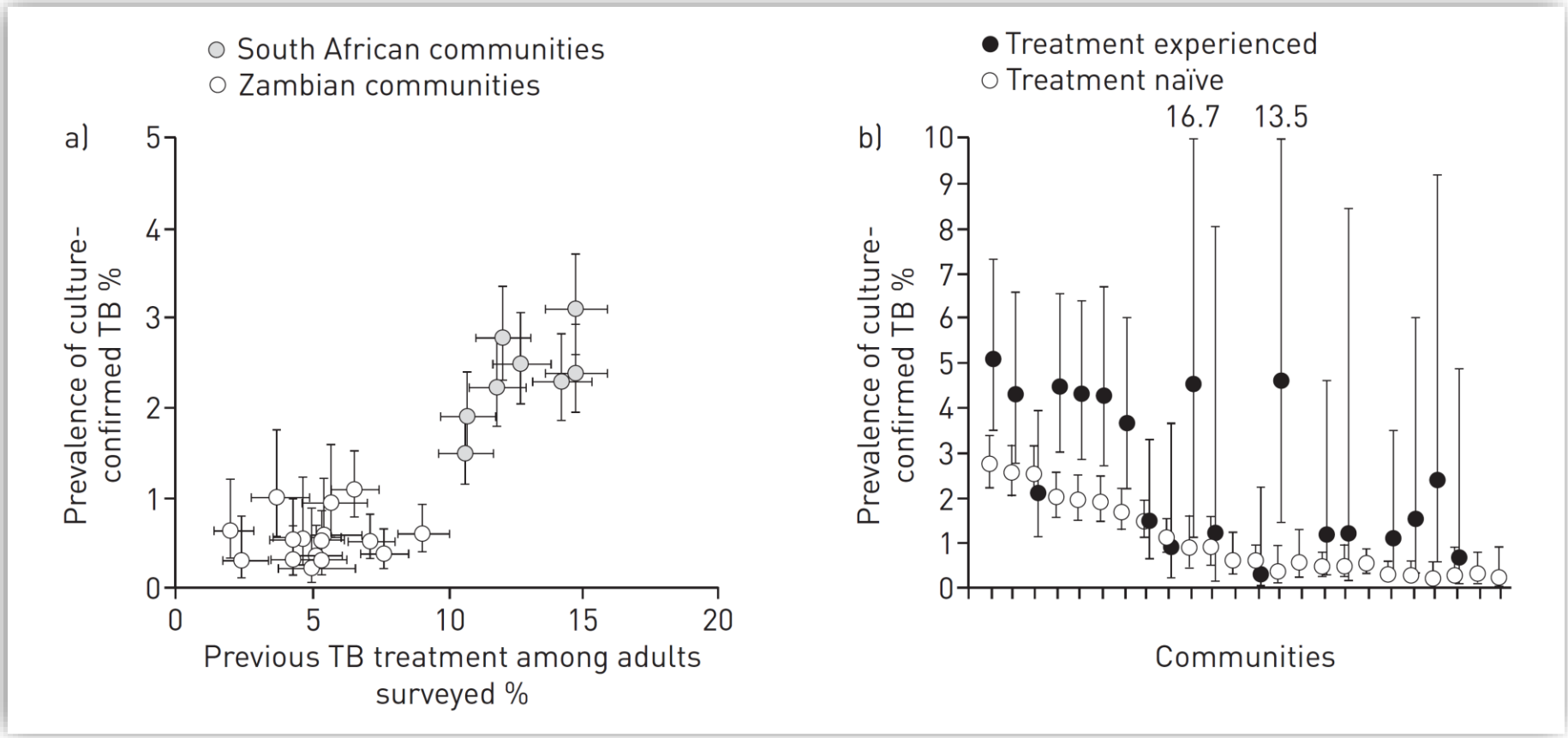
Uys et al., *Roy Soc Interface, 2009*

Recurrent and other previously treated TB in 52 South African health districts



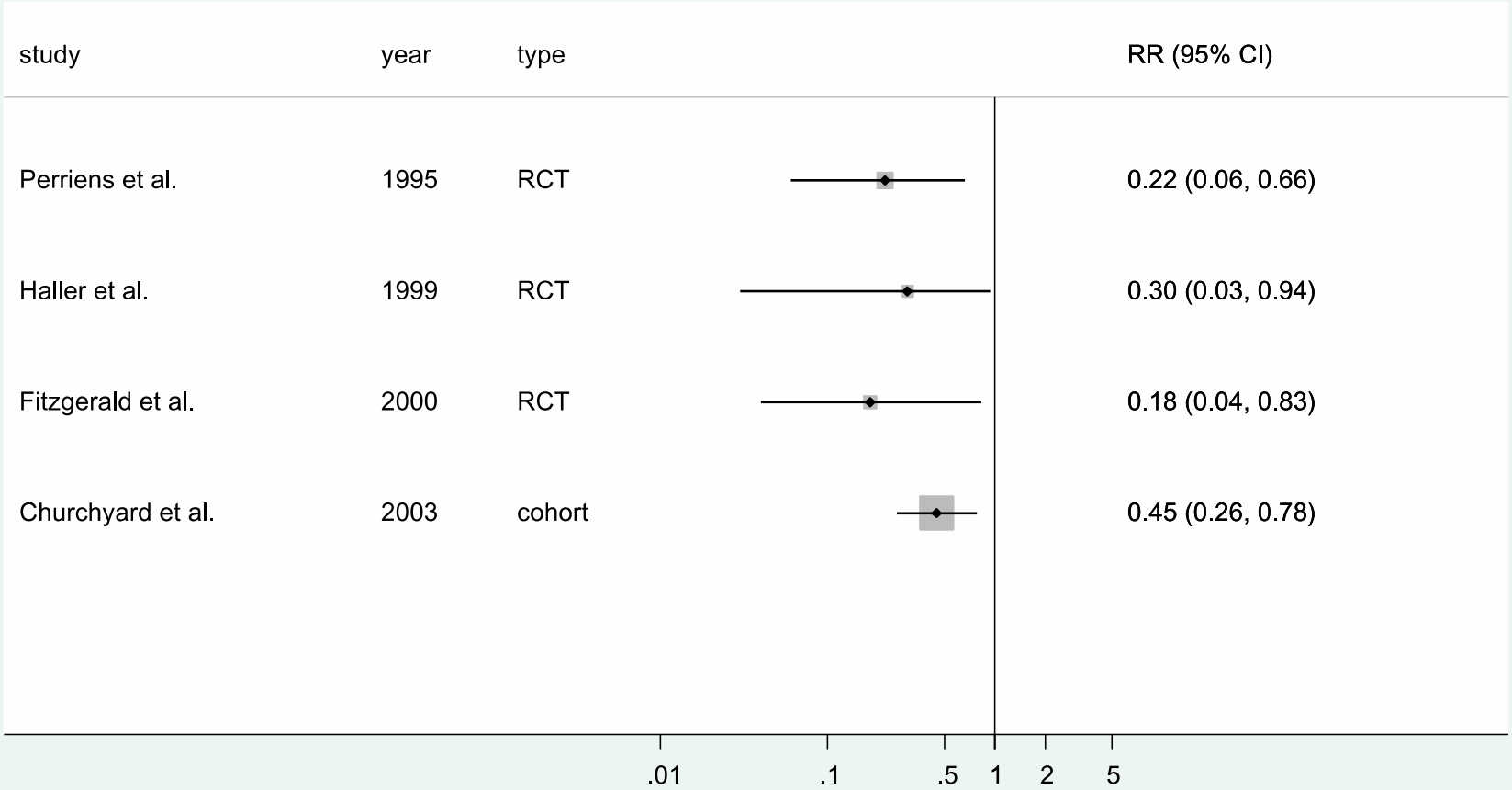
Marx et al., *IJTLD* (under review)

Evidence from the ZAMSTAR prevalence surveys (2010)



Marx et al., *ERJ, 2016*

Effect of secondary preventive therapy on recurrence of tuberculosis



Bruins & van Leth, *Inf Dis,* 2017

Knowns

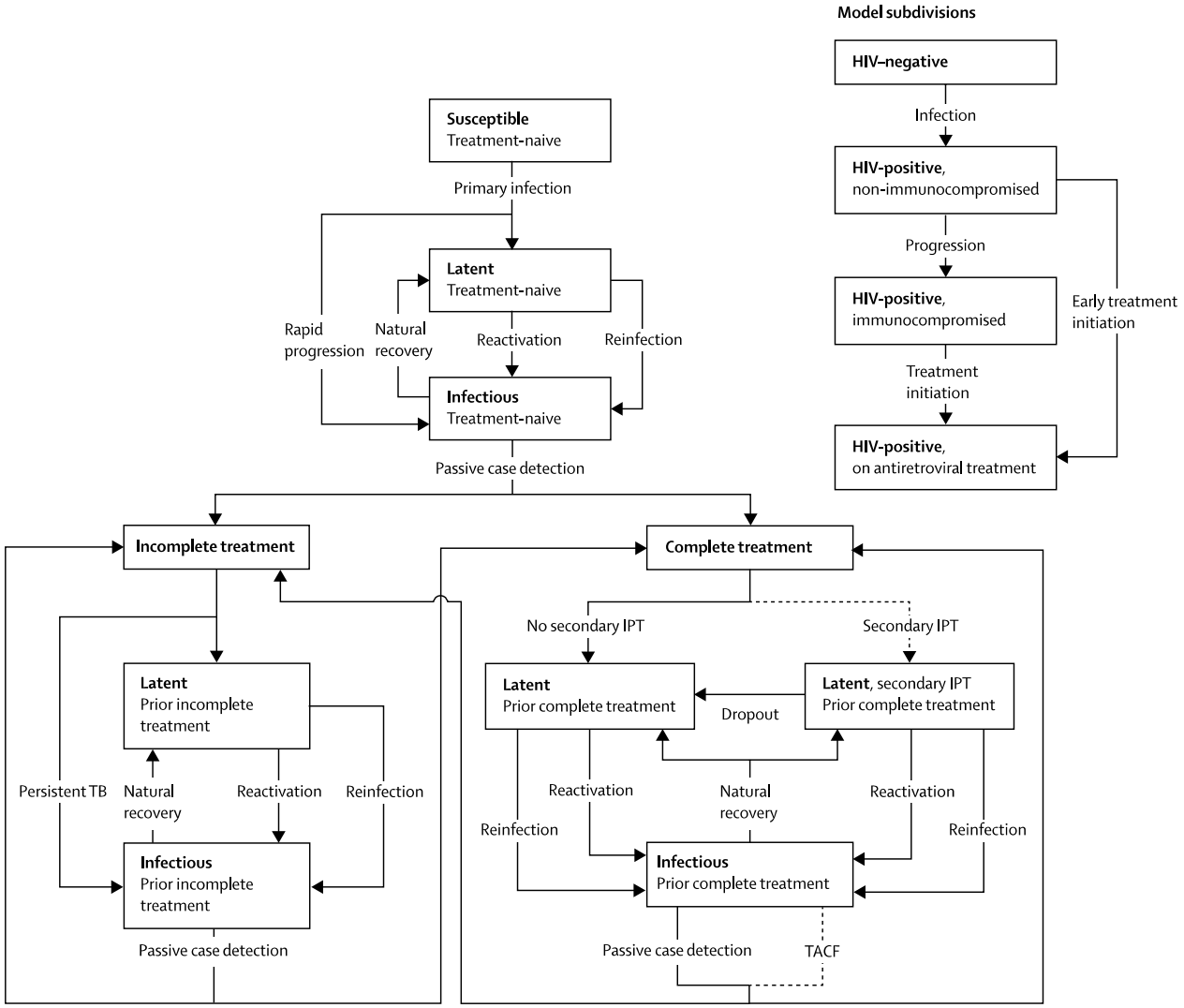
- High rates of TB after successful TB treatment, exacerbated by reinfection
- In high-incidence settings, previously treated people contribute substantially to incident and prevalent TB
- Preventive therapy is effective to reduce recurrent TB

Unknowns

- Determinants of high rates of recurrence?
  - Heterogeneity in exposure/infection/progression risk?
  - Quality of treatment?
  - Role of inflammation and lung destruction?
- Extent and duration of infectiousness among previously treated TB cases?
- Drug resistance acquisition?

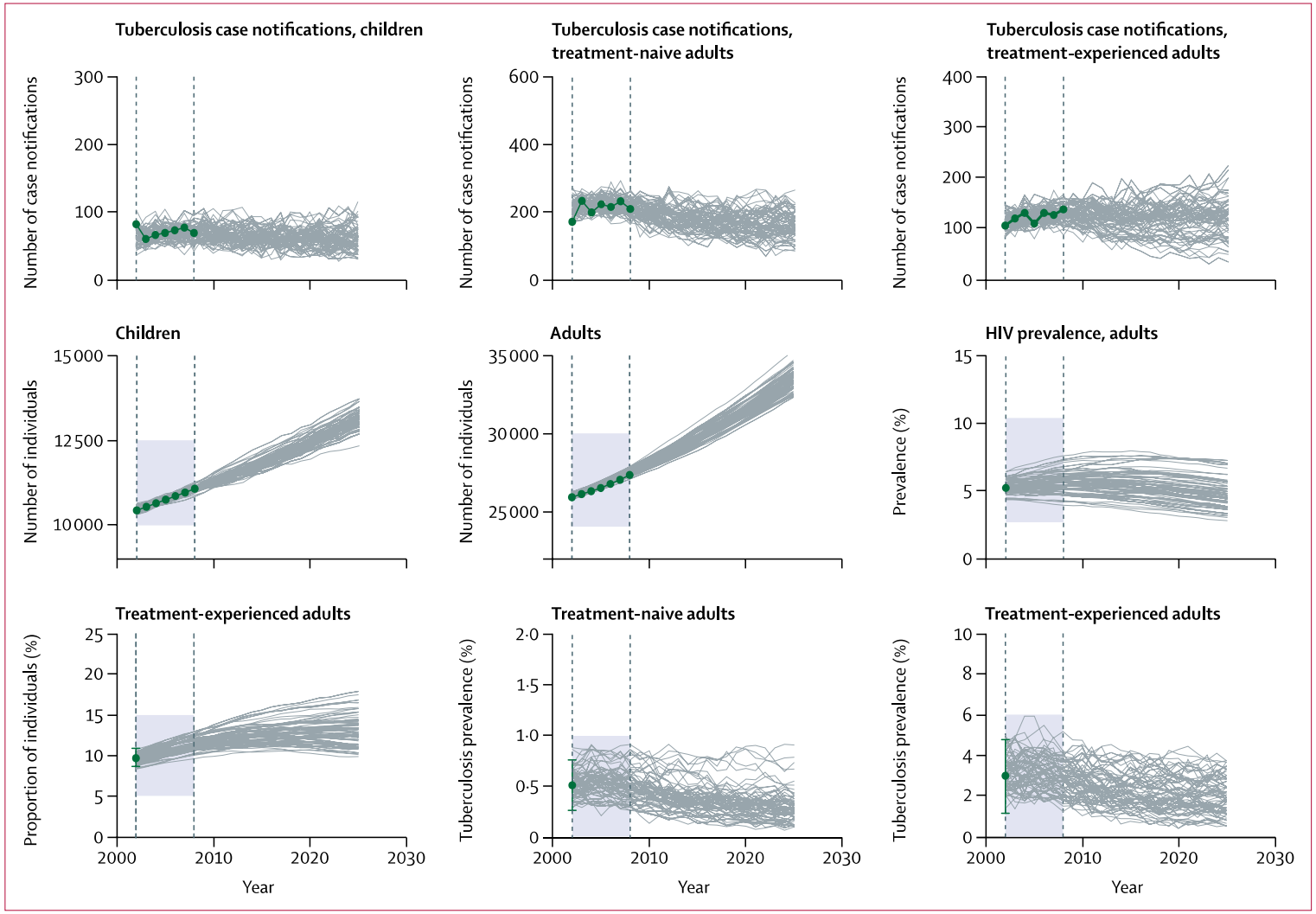
Tuberculosis control interventions targeted to previously treated people in a high-incidence setting: a modelling study

Florian M Marx, Reza Yaesoubi*, Nicolas A Menzies, Joshua A Salomon, Alyssa Bilinski, Nulda Beyers, Ted Cohen*



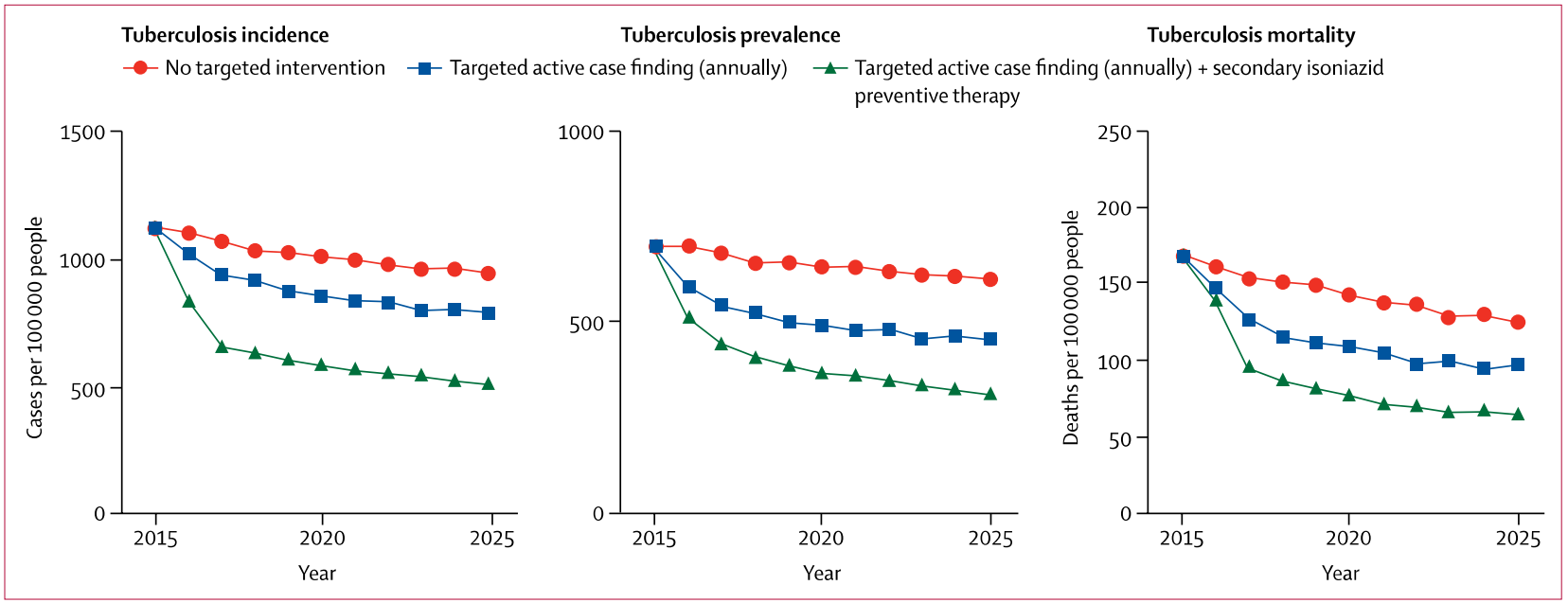
Marx et al., *The Lancet GH*, 2018

Calibration data (2 suburban communities, Cape Town)



Marx et al., *The Lancet GH*, 2018

Projections

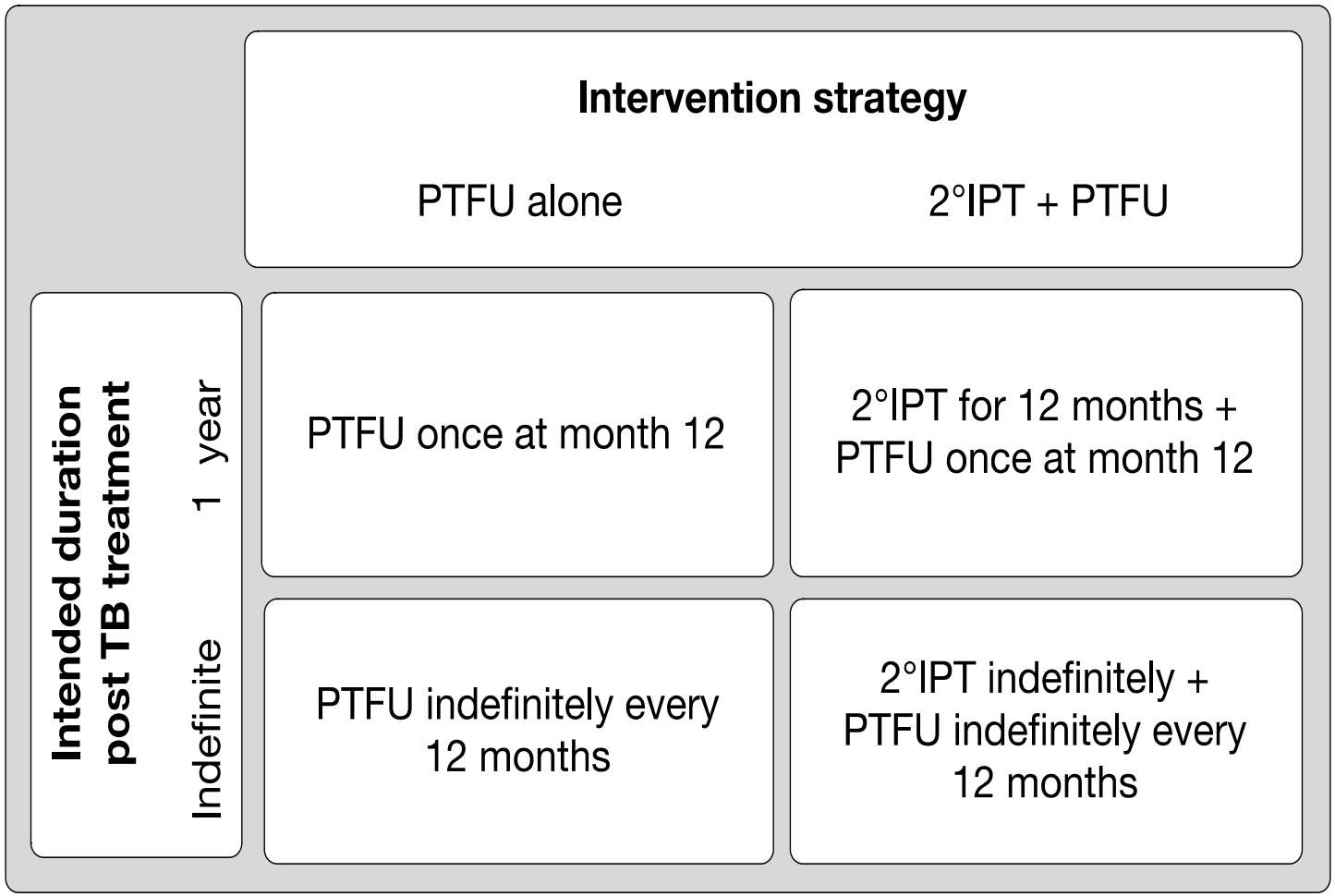


Targeted active case finding: 14% (0·4–28·0) of incident TB cases and 21% (2·5–39·0) of TB deaths averted over 10 years

Targeted active case finding & Secondary isoniazid preventive therapy: 40% (21–56) of incident TB cases and 41% (16–55) of TB deaths averted over 10 years.

Marx et al., *The Lancet GH*, 2018

Cost-effectiveness of post-treatment follow-up (PTFU) and secondary IPT (work in progress)



Conclusions

- In high-incidence settings, preventing TB among previously treated people may be an attractive strategy to reduce TB
- Example of targeted prevention: models of TB prevention should consider population heterogeneity in the risk of exposure/infection, disease progression, and transmission

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Thank you

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