

The potential impact of increased testing for HIV and syphilis among men who have sex with men in Jakarta, Indonesia

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Introduction

- Men who have sex with men (MSM) in Jakarta face high rates of HIV and syphilis, with prevalence exceeding 30% in 2022.
- HIV-syphilis co-infection increases transmission risk, underscoring the need for stronger prevention and control strategies.

Aims

- We used mathematical modelling to explore how increasing HIV/syphilis testing among MSM could reduce the incidence and prevalence of both infections.

Methods

- An individual-based model was developed to simulate overlapping HIV and syphilis epidemics among MSM in Jakarta.
- Partnership networks of 100 000 MSM were generated, with 56.8% had a regular partner, and 75.4% had casual partners in the past 12 months (1). HIV and syphilis were then introduced and transmitted through these networks.
- The baseline scenario assumed 35% of MSM undergo STI check-ups every 3 months, and 34% receive HIV/syphilis testing annually (1).
- The model assessed how increasing annual HIV/syphilis testing coverage affects incidence and prevalence of both infections.
- Co-infection dynamics were incorporated (2), with:
 - HIV transmission increases by 1–5 times when one or both partners have syphilis.
 - Syphilis transmission increases by 1.5–2.5 times when one or both partners have HIV.

Results

Raising testing coverage from 34% to 60% over five years results in:

- 13% reduction in new HIV cases (Median: 6.2 to 5.6 per 100 person-years) (Figure 1)
- 6% reduction in new syphilis infections (Median: 14.9 to 13.7 per 100 person-years) (Figure 1)
- 27% reduction in AIDS prevalence at Year 5 (Median: 0.2% to 0.1%) (Figure 2)
- 25% reduction in tertiary syphilis prevalence at Year 5 (Median: 0.7% to 0.4%) (Figure 2)
- Most reductions occur within the first two years of increased coverage.

Increasing testing coverage to 90% more than doubles the reductions, with improvements ranging from 2.1× to 3.0×.

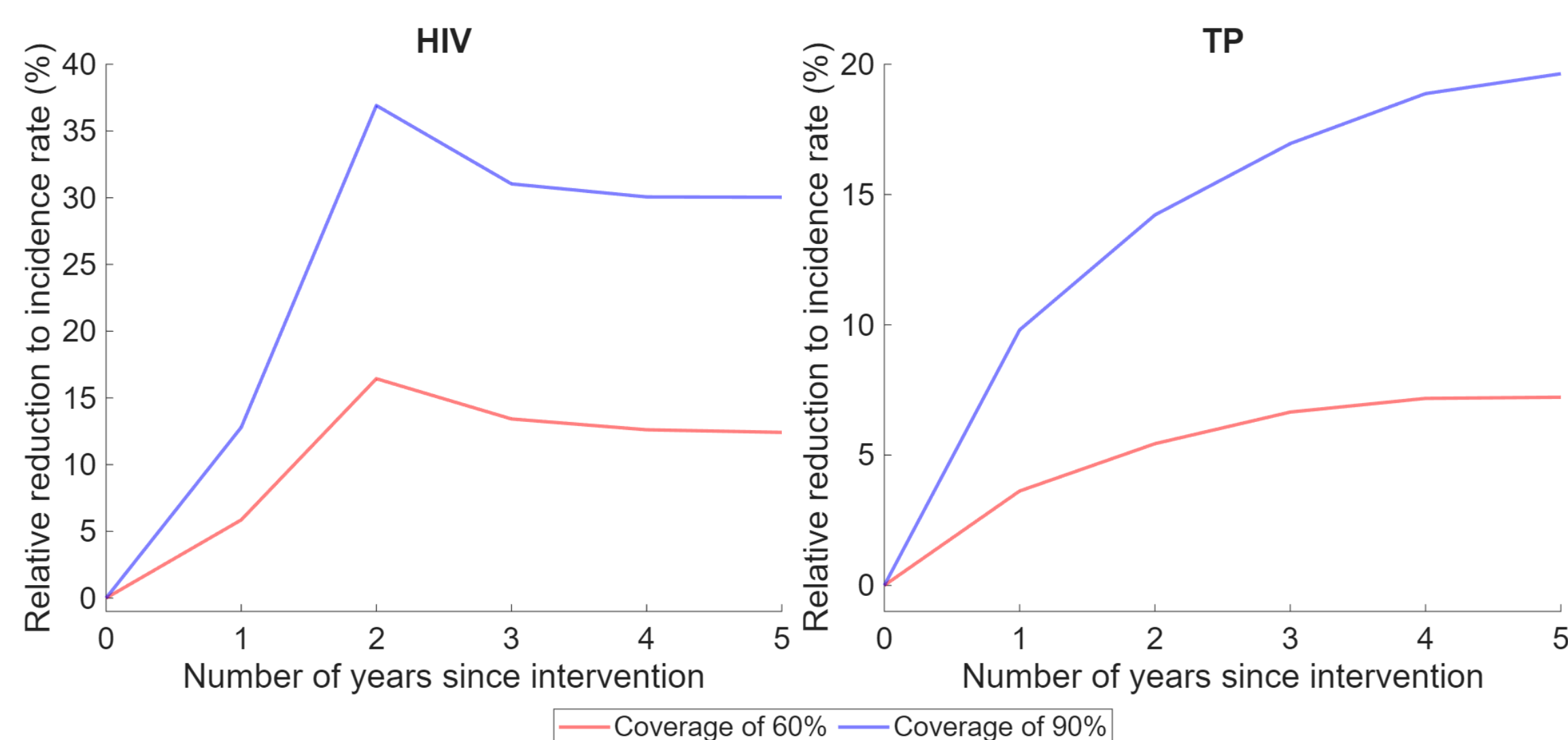


Figure 1: Reduction in HIV and syphilis incidence rates under increased testing coverage scenarios (60% and 90%), relative to the baseline scenario where testing coverage remains at 34%.

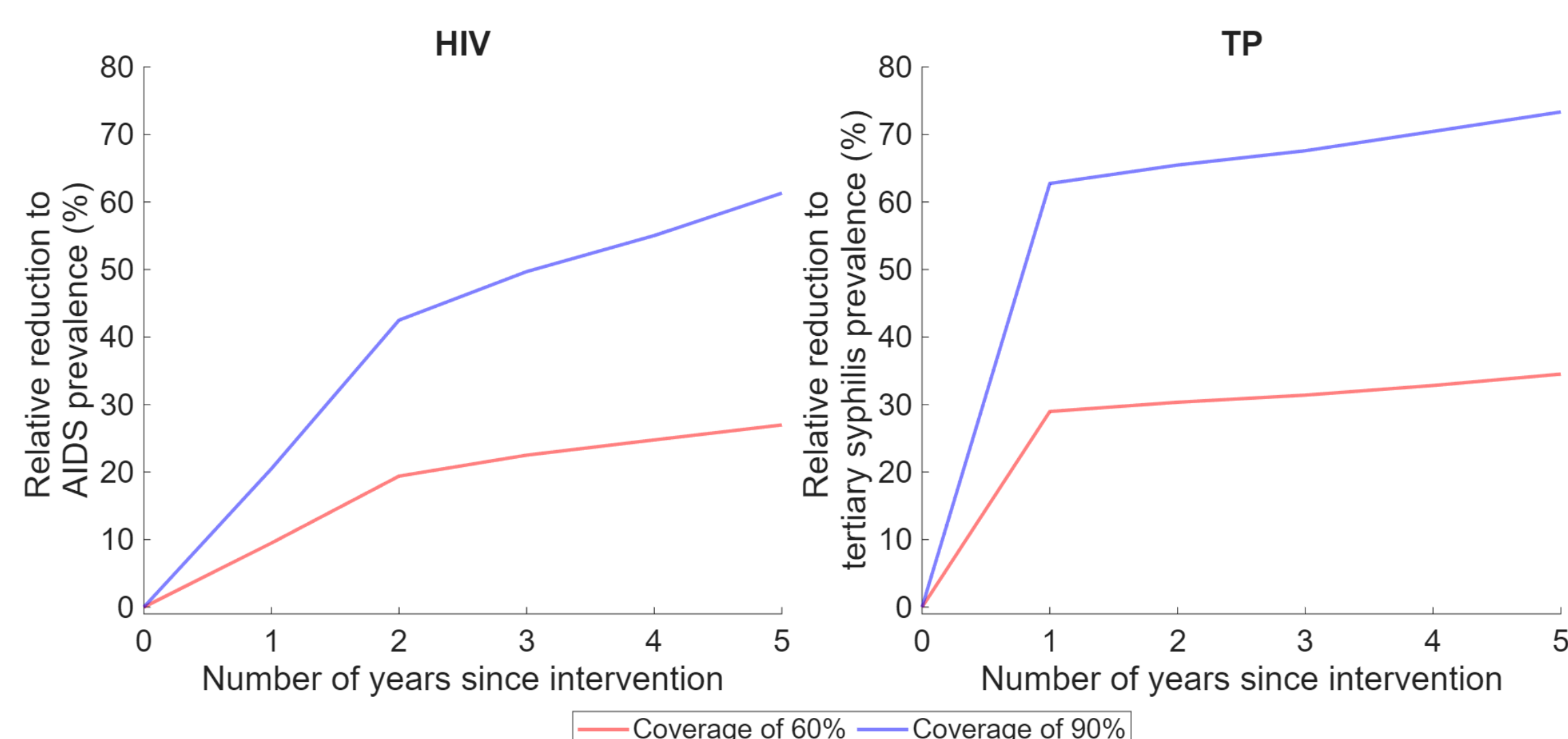


Figure 2: Reduction in AIDS and tertiary syphilis prevalence under increased testing coverage scenarios (60% and 90%), relative to the baseline scenario where testing coverage remains at 34%.

References: 1. Morineau et al. *AIDS Behav.* 2011;15(5):1033-44, <https://dx.doi.org/10.1007/s10461-009-9590-6>. 2. Wilson et al. *Phase A of the National Gay Men's Syphilis Action Plan: modelling evidence and research on acceptability of interventions for controlling syphilis in Australia.* Sydney: National Centre in HIV Epidemiology and Clinical Research; 2009.

Conclusion

- Increasing annual HIV/syphilis testing coverage among MSM in Jakarta can significantly reduce incidence and prevalence.
- HIV reductions are most rapid in the first two years.
- Syphilis reductions may continue beyond five years.
- Further research is needed to assess the feasibility of expanding testing to other STIs, such as gonorrhoea and chlamydia.

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