

Estimating HIV incidence and associated risk factors using longitudinal community-based testing data across the WHO European Region: Insights from the COBATEST Network

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BACKGROUND

Although global HIV incidence has declined, progress has slowed or reversed in certain regions and key populations (KPs). Longitudinal incidence estimates remain scarce due to logistical and economic barriers. Community-based testing services are critical for reaching KPs and collecting real-world data. The COBATEST Network connects such services across Europe and Central Asia, enabling harmonised data collection and use of anonymised unique identifiers to track repeat testers over time.



PURPOSE

This study aimed to assess the feasibility of estimating HIV incidence and identifying associated risk factors using routine data from the COBATEST Network.

METHODS

A retrospective longitudinal analysis was conducted on data collected by COBATEST members using the online data collection tool between 2014-2023. Participants with at least two visits and a negative-HIV test at first visit, or one visit with self-reported previous HIV-negative test during the study period, were included. HIV incidence rates were calculated using person-time measures and 95% confidence intervals (CIs). Associated risk factors were assessed using multivariable Poisson regression model with robust standard errors to estimate adjusted incidence rate ratios.

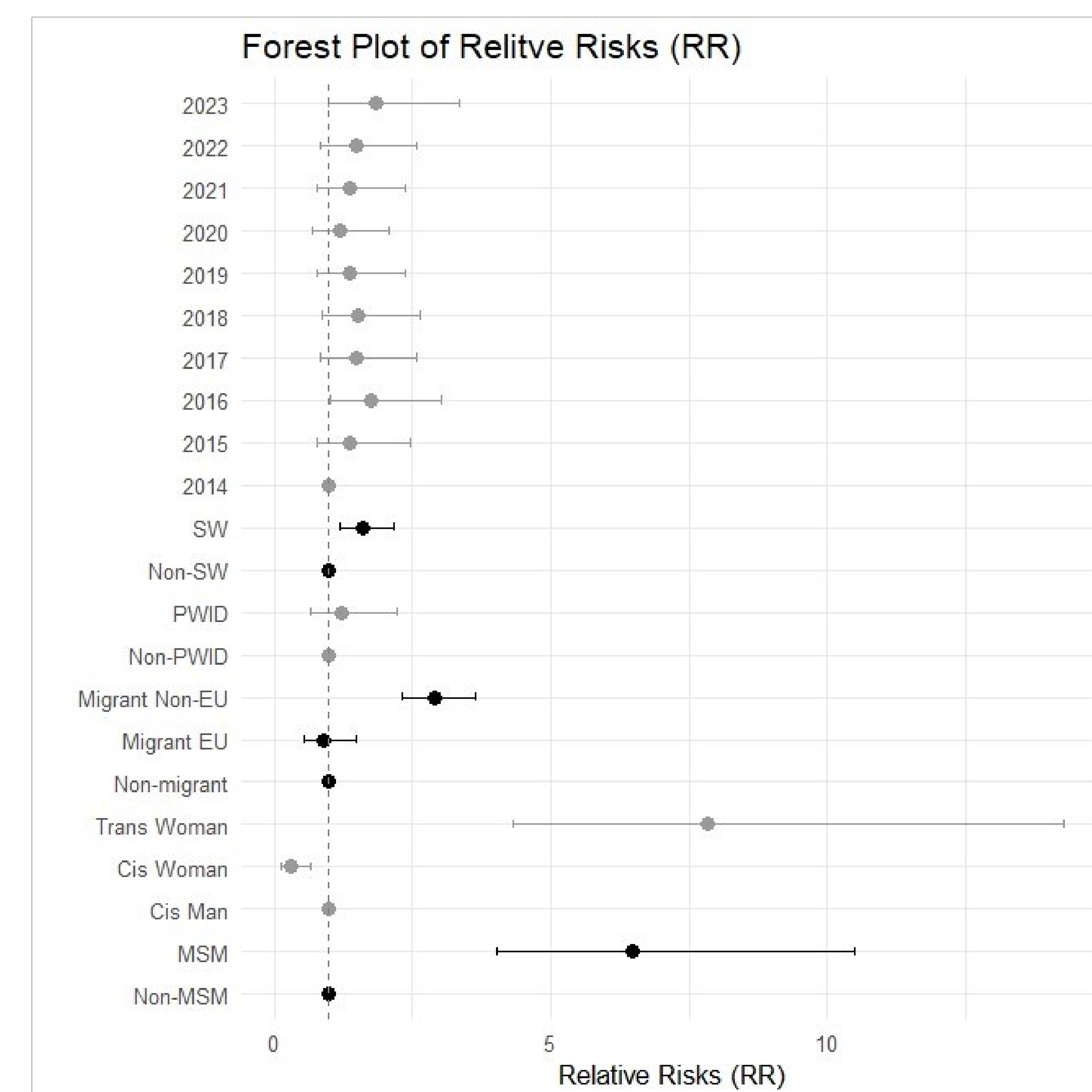
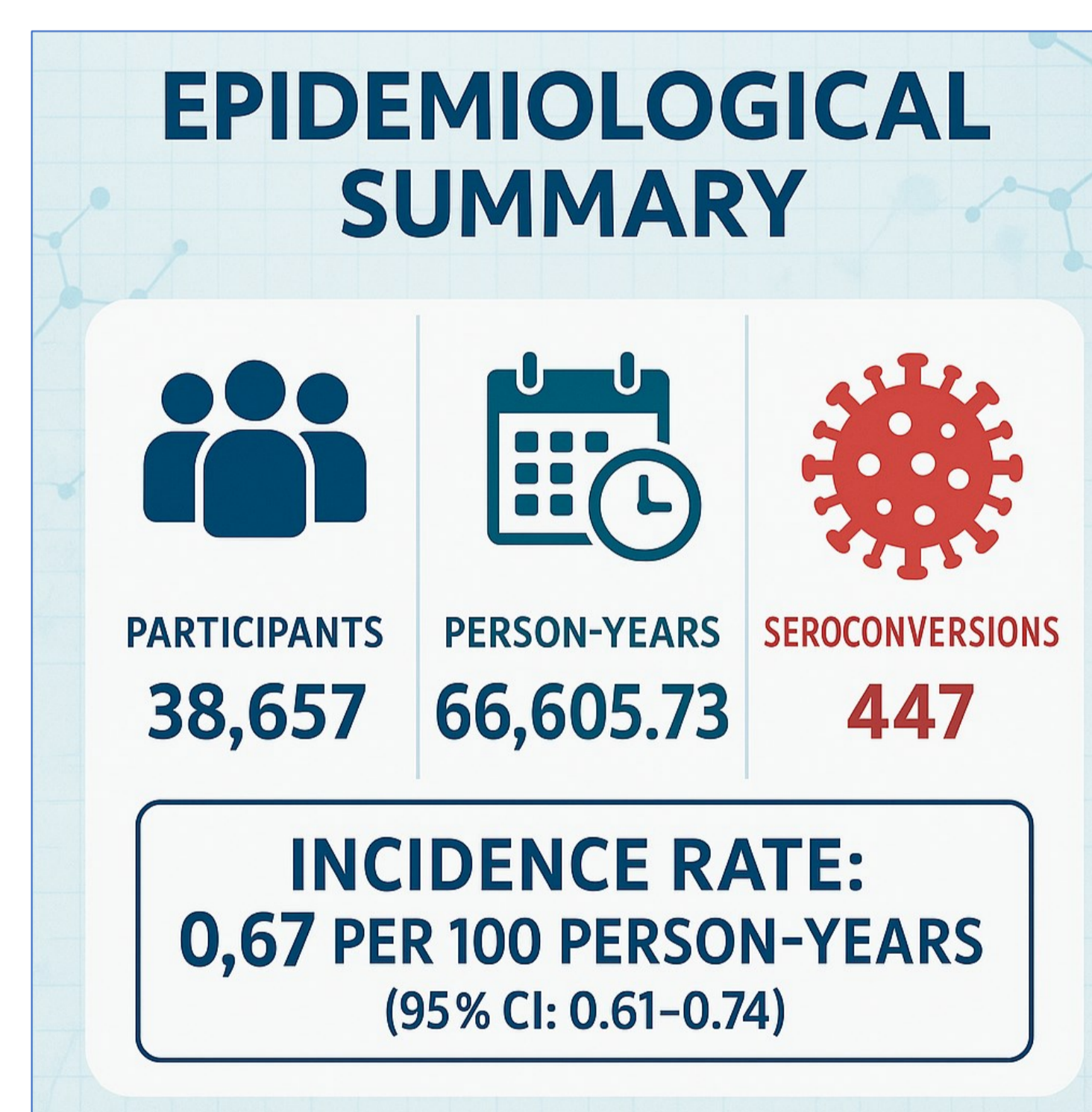
CONCLUSIONS

- Routine community-based testing data can be effectively used to estimate HIV incidence.
- The persistently **higher HIV incidence among MSM, transgender individuals, SW, and non-EU migrants** highlight the need for sustained, targeted prevention.
- Community-based testing networks provide valuable real-world evidence to inform tailored public health responses and policy.

RESULTS

A total of 38,657 participants were included, contributing 66,605.7 person-years. Overall, 447 individuals seroconverted, resulting in an HIV incidence of 0.67 per 100 person-years (95% CI: 0.61–0.74), ranging from 0.44 in 2014 to 0.92 in 2016, with no major temporal variation.

Higher incidence was associated with being **transgender (RR=7.85)**, **men who have sex with men (MSM) (RR = 6.49)**, **migrant from outside EU (RR=2.91)**, and **sex workers (SW) (RR = 1.61)**. Women had 71% lower risk than men (RR = 0.29).



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