The global prevalence of latent tuberculosis: a systematic review and meta-analysis

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ABSTRACT In 1999, the World Health Organization (WHO) estimated that one-third of the world’s population had latent tuberculosis infection (LTBI), which was recently updated to one-fourth. However, this is still based on controversial assumptions in combination with tuberculin skin test (TST) surveys. Interferon-γ release assays (IGRAs) with a higher specificity than TST have since been widely implemented, but never used to estimate the global LTBI prevalence.

We conducted a systematic review and meta-analysis of LTBI estimates based on both IGRA and TST results published between 2005 and 2018. Regional and global estimates of LTBI prevalence were calculated. Stratification was performed for low, intermediate and high TB incidence countries and a pooled estimate for each area was calculated using a random effects model.

Among 3280 studies screened, we included 88 studies from 36 countries with 41 IGRA (n=67 167) and 67 TST estimates (n=284 644). The global prevalence of LTBI was 24.8% (95% CI 19.7–30.0%) and 21.2% (95% CI 17.9–24.4%), based on IGRA and a 10-mm TST cut-off, respectively. The prevalence estimates correlated well to WHO incidence rates (R=0.70, p<0.001).

In the first study of the global prevalence of LTBI derived from both IGRA and TST surveys, we found that one-fourth of the world’s population is infected. This is of relevance, as both tests, although imperfect, are used to identify individuals eligible for preventive therapy. Enhanced efforts are needed targeting the large pool of latently infected individuals, as this constitutes an enormous source of potential active tuberculosis.