

Evidence-based Tuberculosis Diagnosis

One-page plain language summaries of systematic reviews - #12

Title: A screening rule for tuberculosis for people living with HIV in resource-constrained settings

This *systematic review* presents *evidence* from a collection of studies evaluating tests or strategies for the diagnosis of tuberculosis (TB). Terms in *italics* are defined in the TB Evidence Glossary.

Why this review is important: HIV is the strongest risk factor for developing TB in people with latent or new TB infection, with the risk estimated to be at least 20 times greater in people with than without HIV infection. In 2009, there were 9.4 million new cases of TB of which 1.2 (13%) million occurred among people living with HIV. In 2009, 1.7 million people died from TB, including 380,000 people with HIV. The signs and symptoms of TB in people with HIV may differ from those in people without HIV. For example, cough is reported less frequently in people living with HIV. Smear microscopy and chest radiography perform poorly in people with HIV because they may have either smear-negative pulmonary TB or extrapulmonary TB. Among people living with HIV, how can a person who is unlikely to have active TB be distinguished from a person who should be investigated for TB?

Objective: To develop a simple, standardized TB screening rule (also called a diagnostic algorithm) for people living with HIV in resource-constrained settings that could separate patients into 2 groups: (1) people without active TB in whom isoniazid preventive therapy (IPT) and antiretroviral therapy (ART), if indicated, could be started; and (2) people suspected of having active TB who need further investigation for TB and other diseases. After signing confidentiality agreements with primary study authors, the researchers used individual participant data (without names) to identify 5 TB symptoms common to most studies. They then devised 23 screening rules derived from these 5 symptoms and performed a *meta-analysis* to evaluate the *sensitivity* and *specificity* of each rule.

Main findings: 12 studies were included; 8,148 participants from 9 studies had nearly complete information for the 5 symptoms. The best performing rule was the presence of one of the following: current cough, fever, night sweats, or weight loss. The pooled sensitivity was 79% (95% CI 58, 91) and specificity was 50% (95% CI 29, 70).

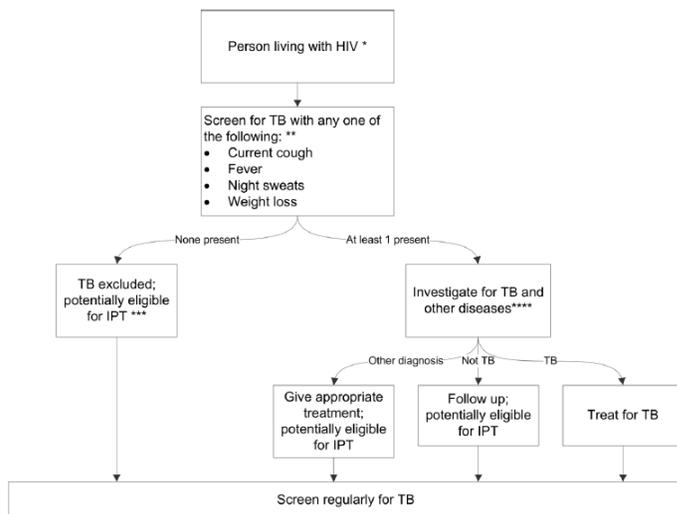


Figure. Algorithm for TB screening in person living with HIV in HIV prevalent and resource-constrained settings.

Authors' conclusions: In resource-constrained settings, the absence of current cough, fever, night sweats, and weight loss will identify people living with HIV who have a low probability of having active TB.

Policy implications: In December 2010, WHO issued new guidelines on TB prevention in people with HIV (strong recommendation): Adults and adolescents living with HIV should be screened for TB with a clinical algorithm and those who do not report any one of the symptoms of current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered IPT.

Comments: Extrapulmonary TB is an important cause of morbidity and mortality in people living with HIV, but most studies included in the meta-analysis focused on screening for pulmonary TB.

Systematic review: Getahun H et al. Development of a standardized screening rule for tuberculosis in people living with HIV in resource-constrained settings: individual participant data meta-analysis of observational studies. *PLoS Med.* 2011;8(1):e1000391.

Publications and other resources of related interest

1. Harries A. How does the diagnosis of tuberculosis in persons infected with HIV differ from diagnosis in persons not infected with HIV? In: Frieden T, editor. *Toman's tuberculosis: case detection, treatment, and monitoring – questions and answers*. 2nd ed. Geneva: WHO; 2004. p. 80-3. 2. Guidelines for intensified tuberculosis case-finding and isoniazid preventive therapy for people living with HIV in resource-constrained settings www.who.int/hiv/pub/tb/9789241500708/en/index.html

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