

## Evidence-based Tuberculosis Diagnosis

One-page plain language summaries of systematic reviews - #7

### **Title: Delay in the diagnosis and treatment of tuberculosis**

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:** A delay in the diagnosis of TB is significant because a delay may lead to more severe illness and death, especially for people co-infected with TB-HIV. Also, a delay in diagnosis means that an untreated individual with pulmonary TB may remain infectious for longer continuing to spread TB within the community. Patients may become more infectious as the delay in diagnosis increases. Several studies have found that patients with undiagnosed TB will contact a health worker, but for variety of reasons, the patient does not receive a TB diagnosis or treatment at this first contact. A WHO survey of non-TB programme providers suggested that delays in diagnosis were common. The delay was more often in receiving a diagnosis rather than in seeking care, although both elements are important.

**Objective:** To describe factors contributing to a delay in the diagnosis and treatment of TB in order to identify the core reasons for this delay.

**Main findings:** 58 observational studies were included in the review. Factors frequently described as contributing to delay in diagnosis included old age, female gender, rural residence, physical distance from a health facility, history of immigration, poverty, and lack of education/awareness about TB. Many studies described seeking care from non-specialized individuals and poor access to the national TB programme as key factors in delay in diagnosis. Stigma was also found to be an important barrier contributing to delay. The majority of studies (including studies from countries with high and low TB burden) reported a total diagnostic delay of between 60 and 90 days.

***“A majority of the studies identified as the direct or underlying problem a vicious circle of repeated consultations with a multitude of healthcare providers without a correct diagnosis. Several papers list multiple visits at the same level, while others focus on multiple visits to the same physician. Three groups of healthcare providers were particularly identified as sources of this vicious circle: primary- level government health posts, who have limited diagnostic facilities and poorly trained personnel; private practitioners with low awareness of TB; and unqualified vendors, quacks, and traditional practitioners.”***

**Authors’ conclusions:** The core reason for delay in TB diagnosis and treatment appeared to be a cycle of repeated visits at the same level of health care services and failure to access specialized TB services. Once a patient received a TB diagnosis, TB treatment was often started within a reasonable period of time.

**Policy implications:** There are several inter-related initiatives seeking to address delays in TB diagnosis. For patients who seek care but are not diagnosed, better diagnostic capacity is needed, both laboratory capacity and more knowledgeable and better trained staff, especially in community health-care facilities. In many countries, one of the best ways to improve TB diagnosis is for TB programmes to engage the full range of health-care providers (Public-Private and Public-Public Mix Initiatives).

**Comments:** The authors described how complicated it is to define delay in diagnosis. For example, 34 studies defined ‘first contact with a health provider’ as the first visit to a qualified healthcare provider. However, within this category, some of these studies included any western medicine provider as qualified and other studies, only a national TB programme provider as qualified. 18 studies defined first contact as the time when the patient sought contact with any health provider outside the household, including traditional providers.

**.Systematic review:** Storla DG, Yimer S, Bjune GA. A systematic review of delay in the diagnosis and treatment of tuberculosis. BMC Public Health. 2008;8:15. Available at [www.tbevidence.org](http://www.tbevidence.org)

### **Publications and other resources of related interest**

1. WHO: Diagnostic and treatment delay in tuberculosis. Geneva, World Health Organisation; 2006. <http://www.emro.who.int/dsaf/dsa710.pdf> 2. Involving Private Practitioners in Tuberculosis Control: Issues, Interventions, and Emerging Policy Framework. [http://whqlibdoc.who.int/hq/2001/WHO\\_CDS\\_TB\\_2001.285.pdf](http://whqlibdoc.who.int/hq/2001/WHO_CDS_TB_2001.285.pdf) 3. Karim F, Islam MA, Chowdhury AM, Johansson E, Diwan VK. Gender differences in delays in diagnosis and treatment of tuberculosis. Health Policy Plan. 2007 Sep;22(5):329-34.

**Contact:** Karen R Steingart, MD, MPH [karenst@uw.edu](mailto:karenst@uw.edu), Evidence Synthesis & Policy Subgroup, NDWG, Stop TB Partnership