

a symptom screen and TST or BAMT for persons with previously negative test results) should be performed.

HCWs transferring from low- or medium-risk settings to settings with a temporary classification of potential ongoing transmission. After a baseline result for infection with *M. tuberculosis* is established, a decision should be made regarding follow-up screening on an individual basis. If transmission seems to be ongoing, consider including the HCW in the screenings every 8–10 weeks until a determination has been made that ongoing transmission has ceased. When the setting is reclassified back to medium-risk, annual TB screening should be resumed.

Calculation and Use of Conversion Rates for *M. tuberculosis* Infection

The *M. tuberculosis* infection conversion rate is the percentage of HCWs whose test result for *M. tuberculosis* infection has converted within a specified period. Timely detection of *M. tuberculosis* infection in HCWs not only facilitates treatment for LTBI, but also can indicate the need for a source case investigation and a revision of the risk assessment for the setting. Conversion in test results for *M. tuberculosis*, regardless of the testing method used, is usually interpreted as presumptive evidence of new *M. tuberculosis* infection, and recent infections are associated with an increased risk for progression to TB disease.

For administrative purposes, a TST conversion is ≥ 10 mm increase in the size of the TST induration during a 2-year period in 1) an HCW with a documented negative (< 10 mm) baseline two-step TST result or 2) a person who is not an HCW with a negative (< 10 mm) TST result within 2 years.

In settings conducting serial testing for *M. tuberculosis* infection (medium-risk settings), use the following steps to estimate the risk for test conversion in HCWs.

- Calculate a conversion rate by dividing the number of conversions among HCWs in the setting in a specified period (numerator) by the number of HCWs who received tests in the setting over the same period (denominator) multiplied by 100 (see Use of Conversion Test Data for *M. tuberculosis* Infection To Identify Lapses in Infection Control).
- Identify areas or groups in the setting with a potentially high risk for *M. tuberculosis* transmission by comparing conversion rates in HCWs with potential exposure to patients with TB disease to conversion rates in HCWs for whom health-care-associated exposure to *M. tuberculosis* is not probable.

Use of Conversion Test Data for *M. tuberculosis* Infection To Identify Lapses in Infection Control

- Conversion rates above the baseline level (which will be different in each setting) should instigate an investigation to evaluate the likelihood of health-care-associated transmission. When testing for *M. tuberculosis* infection, if conversions are determined to be the result of well-documented community exposure or probable false-positive test results, then the risk classification of the setting does not need to be adjusted.
- For settings that no longer perform serial testing for *M. tuberculosis* infection among HCWs, reassessment of the risk for the setting is essential to ensure that the infection-control program is effective. The setting should have ongoing communication with the local or state health department regarding incidence and epidemiology of TB in the population served and should ensure that timely contact investigations are performed for HCWs or patients with unprotected exposure to a person with TB disease.

Example Calculation of Conversion Rates

Medical Center A is classified as medium risk and uses TST for annual screening. At the end of 2004, a total of 10,051 persons were designated as HCWs. Of these, 9,246 had negative baseline test results for *M. tuberculosis* infection. Of the HCWs tested, 10 experienced an increase in TST result by ≥ 10 mm. The overall setting conversion rate for 2004 is 0.11%. If five of the 10 HCWs whose test results converted were among the 100 HCWs employed in the ICU of Hospital X (in Medical Center A), then the ICU setting-specific conversion rate for 2004 is 5%.

Evaluation of HCWs for LTBI should include information from a serial testing program, but this information must be interpreted as only one part of a full assessment. TST or BAMT conversion criteria for administrative (surveillance) purposes are not applicable for medical evaluation of HCWs for the diagnosis of LTBI (see Supplement, Surveillance and Detection of *M. tuberculosis* Infections in Health-Care Workers [HCWs]).

Evaluation of TB Infection-Control Procedures and Identification of Problems

Annual evaluations of the TB infection-control plan are needed to ensure the proper implementation of the plan and to recognize and correct lapses in infection control. Previous hospital admissions and outpatient visits of patients with TB disease should be noted before the onset of TB symptoms. Medical records of a sample of patients with suspected and confirmed TB disease who were treated or examined at the setting should be