

# A New Approach for Tuberculosis Disease Screening and Diagnosis in People with HIV/AIDS

## TB: The Leading Cause of Death for People Living with HIV/AIDS

Tuberculosis (TB) is the leading cause of death among adults living with HIV/AIDS. Late diagnosis of TB is a major contributor. Although routine screening for TB disease is recommended for people living with HIV/AIDS (PLWHA), until now, there has been no internationally accepted, evidence-based approach to screening and diagnosis among this population.

## Moving Towards an Evidence-Based Screening and Diagnostic Approach

A study conducted by the Centers for Disease Control and Prevention (CDC), in collaboration with the United States Agency for International Development (USAID), and partners in Thailand, Cambodia, and Vietnam, has identified a new evidence-based screening and diagnostic approach that can accurately identify almost all patients who have TB disease. The study included over 1700 PLWHA.

To determine the actual burden of TB disease and the most accurate diagnostic methods:

- All patients were screened for TB symptoms.
- All patient sputum and extrapulmonary specimens were examined with smear microscopy and culture on solid and liquid media.

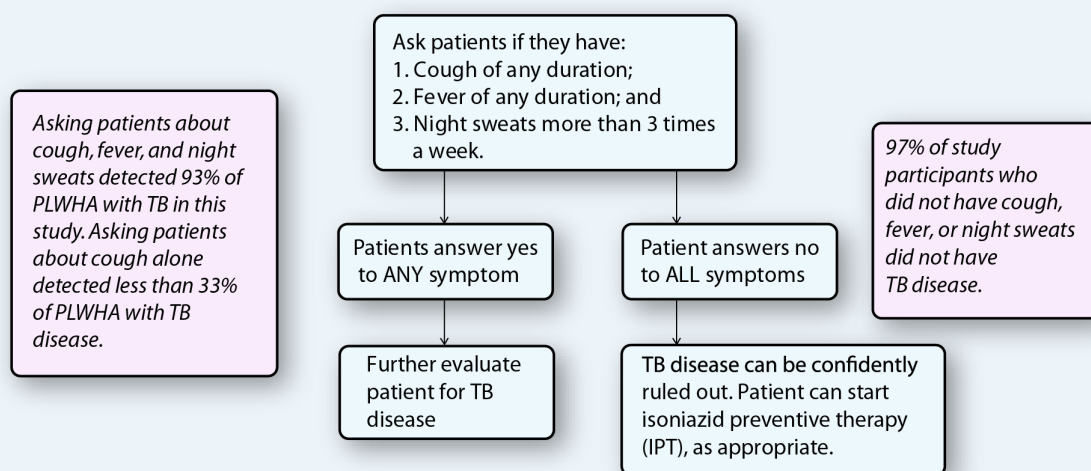
Characteristics of patients diagnosed with TB disease were compared with patients who did not have TB disease. The results of this comparison were used to develop an evidence-based approach for screening and diagnosis of TB.

## A New Approach: Detecting More TB Cases

Most clinicians outside of the United States screen PLWHA for TB disease by asking if they have had a cough for 2 to 3 weeks or longer. Only patients who answer yes are further evaluated for TB disease. Many programs rely on sputum smear microscopy of 2 or 3 specimens to diagnose TB disease. This study found that:

- Asking patients about cough alone failed to detect over 66% of patients who actually had TB disease.
- Screening for a combination of TB symptoms resulted in far fewer missed diagnoses (Figure 1).
- Culturing specimens in liquid media accurately identified as many TB cases with 1 specimen, as solid culture identified with 3.
- Using smear microscopy alone detected approximately 30% of TB cases. Adding liquid culture of 2 specimens identified more than 75% of TB cases.

Figure 1: The Best Evidence-Based Approach to Screening for TB Disease Among PLWHA



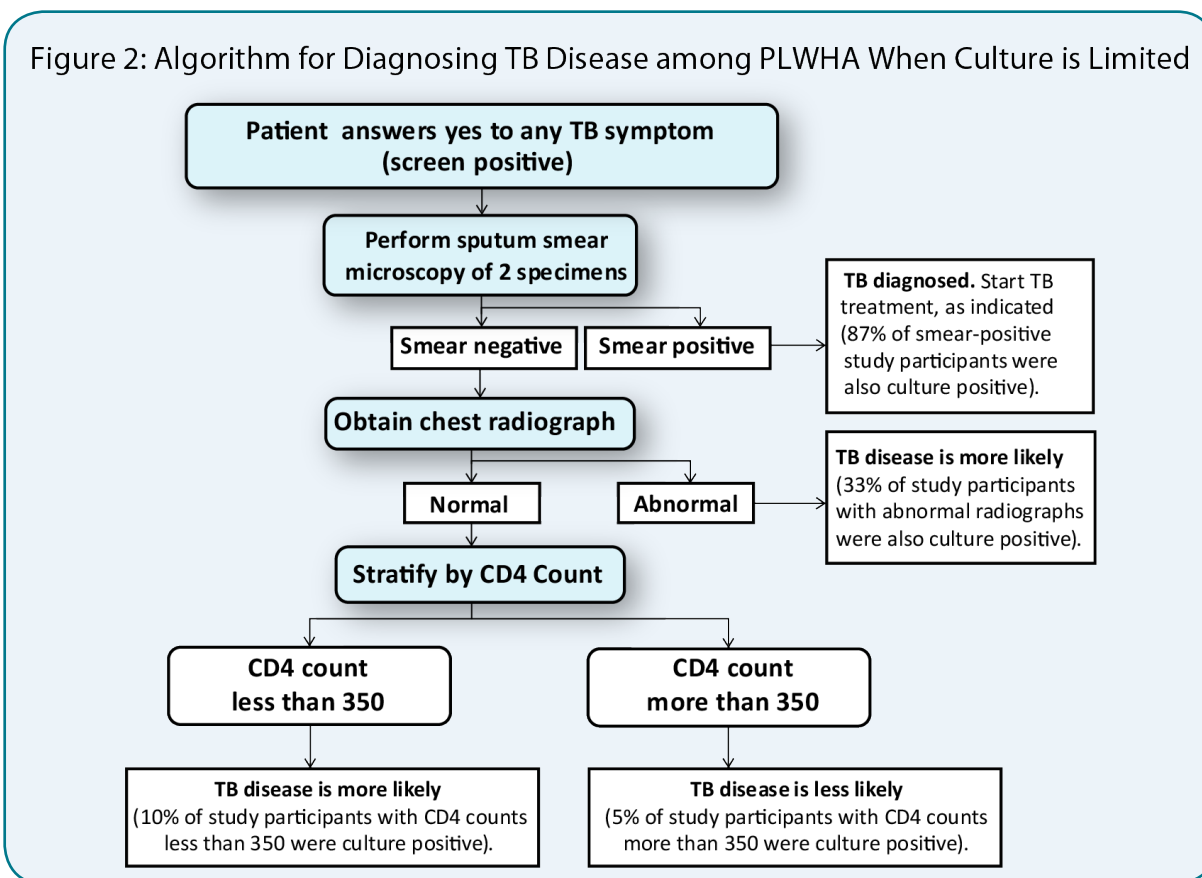
## Implications for Program Implementation

Based on this study's findings, all PLWHA should be screened for a combination of 3 TB symptoms: cough, fever, and night sweats.

- Patients answering no to all 3 symptoms can have TB disease ruled out and may be treated with isoniazid preventive therapy (IPT), if eligible, without further evaluation for TB disease.
- Patients who answer yes to at least 1 symptom should undergo a diagnostic evaluation for TB disease. This evaluation should include:
  - Smear microscopy and liquid culture of at least 2 sputum specimens;
  - Liquid culture of a lymph node aspirate, if the patient has an enlarged lymph node.

In situations where liquid and solid culture is limited or unavailable, a diagnostic algorithm can be used to identify patients most likely to have TB disease (Figure 2). This approach allows limited resources to be targeted to patients most likely to have TB disease.

Figure 2: Algorithm for Diagnosing TB Disease among PLWHA When Culture is Limited



## Conclusion

This new screening and diagnostic approach has resulted in national, regional, and global policy changes. By using this new approach to TB disease screening and diagnosis, PLWHA can have TB disease accurately diagnosed or ruled-out more quickly, allowing appropriate treatment to start earlier. This is an important step towards helping PLWHA to live longer.

## References

This fact sheet highlights key information about a recent study regarding TB disease screening and diagnosis among people living with HIV/AIDS in international settings. For more information about the study, please refer to:

1. Cain KP, McCarthy KD, Heilig CM, Monkongdee P, et al. An algorithm for tuberculosis screening and diagnosis in people with HIV. *N Engl J Med.* 2010 Feb 25;362(8):707-16.
2. Monkongdee P, McCarthy KD, Cain KP, et al. Yield of acid-fast smear and mycobacterial culture for tuberculosis diagnosis in people with human immunodeficiency virus. *Am J Respir Crit Care Med.* 2009 Nov 1;180 (9):800-1.