



VOLUME 13  
NUMBER 12  
DECEMBER 2009  
SUPPLEMENT 1

PAGES 51-5406  
ISSN 1027 3719

The  
International  
Journal of Tuberculosis  
and Lung Disease

*The Official Journal of the International Union Against Tuberculosis and Lung Disease*

**ABSTRACT BOOK**

**40th World Conference  
on Lung Health of the  
International Union Against  
Tuberculosis and Lung Disease (The Union)**

CANCÚN • MEXICO  
3-7 DECEMBER 2009

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## **PC-95540-05 Evaluation of molecular testing of stool samples for pulmonary TB diagnosis and drug susceptibility**

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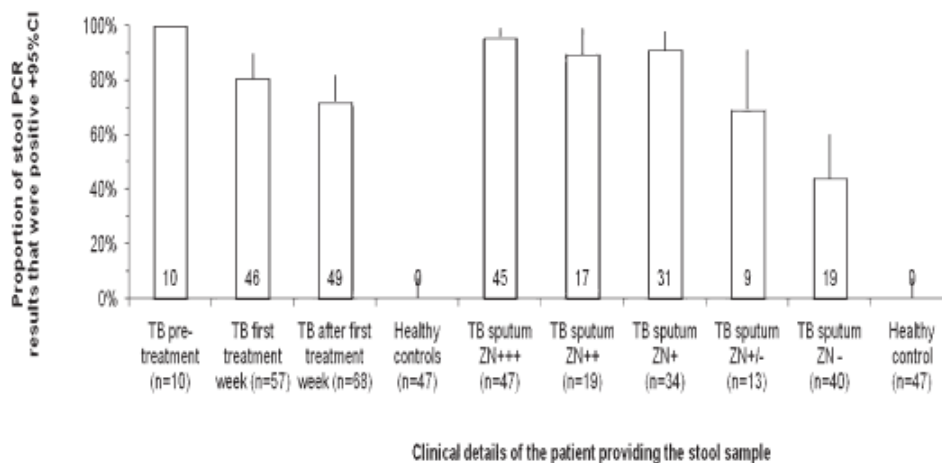
**Background:** Pulmonary tuberculosis diagnosis is difficult when patients cannot produce sputum. Most sputum is swallowed and tuberculosis DNA can survive intestinal transit, so we evaluated stool specimens for detecting tuberculosis originating from the lungs.

**Methods:** 159 paired stool and sputum samples were collected from 89 patients with sputum culture-proven pulmonary tuberculosis. 47 control stool samples were collected from patients without tuberculosis symptoms. The diagnostic accuracy of the polymerase chain reaction (PCR) in stool was compared with sputum testing by PCR and culture. A hemi-nested IS6110-PCR was used for tuberculosis detection and IS6110-PCR positive stool samples then had rifampicin sensitivity-testing by heteroduplex-PCR.

**Results:** For newly diagnosed pulmonary tuberculosis patients, stool IS6110-PCR had 86% sensitivity and 100% specificity compared with sputum culture. Stool PCR had similar sensitivity for HIV-positive and HIV-negative patients. The agreement between rifampicin susceptibility-testing by sputum culture vs. stool heteroduplex-PCR was 98% for diagnostic samples and 96% considering all samples. Stool heteroduplex-PCR at the time of diagnosis correctly predicted multidrug-resistant tuberculosis in 100% of

cases. Tuberculosis detection and drug susceptibility-testing by stool PCR took 1–2 days compared with an average of nine weeks for traditional culture-based testing. Considering all 159 stool samples from patients, stool PCR was more sensitive for patients with sputum microscopy-positive tuberculosis ( $P < 0.001$ ) and remained positive for most patients for more than one week of treatment.

**Conclusions:** Stool PCR is a sensitive, specific, rapid and relatively biosecure technique for the diagnosis and drug-susceptibility testing of pulmonary tuberculosis and should be considered when sputum samples are unavailable.



**Figure** Evaluation of molecular testing of stool samples for pulmonary TB diagnosis and drug susceptibility testing.