

**TB OR NOT TB:  
Treatment of Latent Tuberculosis Infection  
in Harlem, New York**

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## ABSTRACT

### **TB OR NOT TB:**

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An estimated 9 to 14 million persons in the United States have latent tuberculosis infection (LTBI) and are therefore at risk for progression to active disease.<sup>1</sup> Diagnosis and treatment for LTBI has been identified by the Centers for Disease Control and Prevention (CDC) and the Institute of Medicine as a major strategy for elimination of tuberculosis (TB) in the U.S.<sup>2,3</sup> Approximately 200,000 - 300,000 Americans are treated for LTBI each year.<sup>4</sup> This dissertation investigates patient characteristics that are associated with LTBI treatment completion and assesses the impact of a peer-based experimental intervention on adherence to, and completion of, LTBI treatment. A review of the literature (Chapter 2) demonstrates that LTBI treatment completion rates in the U.S. and Canada generally fall below established targets and have been reported to range from 20 to 65% for a 6-month course of self-administered treatment. Associations between patient factors, clinic facilities, or treatment characteristics and adherence to LTBI treatment were found to be inconsistent across studies. Additionally, adherence interventions have been developed but no single intervention has shown consistent effectiveness.

This suggests that a ‘one-size-fits-all’ approach to LTBI treatment adherence is not likely to succeed across all settings.

The remainder of the dissertation focuses on predictors of LTBI treatment completion and the impact of a peer-based experimental intervention on adherence to, and completion of, LTBI treatment in two separate randomized controlled trials. Data for these analyses are drawn from two sequential randomized controlled trials designed to compare a peer-based intervention to usual care for ensuring completion of treatment for LTBI in an urban clinic setting: the *Pathways to Completion Study* (recruitment from 1996 through 2000) as well as from the *Tuberculosis Adherence Partnership Alliance Study (TAPAS)* (recruitment from 2002 through 2005). Chapter 3 describes the change in demographic, social, and behavioral characteristics between the two study populations.

The first analysis (Chapter 4) examines predictors of LTBI treatment completion in this population. Our results suggest that foreign birth, homelessness, marriage, and alcohol or drug use all influence completion of TLTI through complex interactions. Overall, married persons had better completion rates, but married foreign-born patients were substantially more likely to complete therapy than unmarried foreign-born patients. Similarly, alcohol users were less likely to complete therapy, but homeless alcohol users were more likely to complete treatment than other homeless patients. The latter is probably an artifact of our clinic population, which includes patients from alcohol and substance abuse rehabilitation programs. Residence in such programs may have a positive effect on treatment completion. Race/ethnicity did not appear to be associated with treatment completion, although the differences between the two study populations made this difficult to assess.

Following from this, an analysis of the effectiveness of a peer-based experimental intervention on adherence to, and completion of, LTBI treatment in two separate randomized controlled trials (Chapter 5) finds peer support experimental intervention to be very effective in the Pathways population but not in the TAPAS population where completion rates increased substantially for both the intervention and control groups. The power for detecting an intervention effect in TAPAS was reduced by the higher than expected completion rates in both groups; however, the effect of the TAPAS intervention is statistically significant in the adherence model. Adherence analysis in TAPAS suggests that it is important to intervene early in the treatment as the first two months of treatment present a danger period where patients tend to default treatment. The most common reasons reported for not adhering to treatment were “forgot”, “ran out of medications”, and “other priorities.” Identifying reasons for missing medications can suggest possible foci for interventions in the early months, such as weekly reminders to take the medications and ensuring that prescriptions are refilled on schedule.

Taken together, the findings of this research have significant implications for improving adherence to and completion of LTBI treatment. Currently, the primary intervention for improving LTBI adherence consists of educational programs to increase knowledge and modify attitudes. Our findings suggest that tangible assistance would be more effective in encouraging treatment completion. Additionally, adherence analysis in TAPAS suggests that it is important to intervene early in the treatment. Close follow-up of patients during the first two months of treatment, with prompt intervention to encourage completion among those stopping treatment, may yield better outcomes and reduce costs over the long term.

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## **DEDICATION**

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