Treatment of Latent Tuberculosis Infection in North Carolina: Strategies for Improving Adherence

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Successful treatment of patients with latent tuberculosis infection is an important part of North Carolina’s strategy for controlling this disease. Latent tuberculosis infection is defined as the presence of Mycobacterium tuberculosis, which might later cause disease, in a patient who currently has no symptoms [1]. By successfully treating persons with latent infection who are most at risk of developing active disease, new cases of tuberculosis can be prevented.

The North Carolina Division of Public Health sets goals for adherence to treatment of latent tuberculosis infection. These goals specify the target completion rates of prescribed treatment for patients in 3 categories: 83% of contacts to sputum acid-fast bacilli (AFB) smear-positive tuberculosis patients who start treatment for newly diagnosed latent tuberculosis infection; 73% of immigrants and refugees with abnormal chest radiographs read overseas as consistent with tuberculosis, and who are diagnosed with latent tuberculosis infection during evaluation in the United States and started on treatment; and 65% of all persons (non-contact) who begin treatment for latent tuberculosis infection [2].

Local health departments are challenged to meet these goals. With the world’s population becoming more mobile, increasing numbers of people from countries with high rates of tuberculosis infection immigrate to North Carolina. New residents and visitors from other countries may have different cultural beliefs about health and illness, and many do not speak English. Transportation difficulties and coinfection with human immunodeficiency virus (HIV) and viral hepatitis are other obstacles to treatment adherence.

The traditional treatment of choice for latent tuberculosis infection is isoniazid—also known as isonicotinylhydrazine (INH)—taken daily for 9 months without observation. Given the long treatment course, reliance on self-administration, and occasional side effects, it is not unusual for patients to discontinue their medication without consulting a health care provider. When cultural, language, and transportation barriers are also present, there are even more reasons why treatment adherence may fall short of the desired goals.

How can local health departments improve patient compliance with treatment of latent tuberculosis infection? Strategies that increase treatment adherence include shorter treatment regimens with medications other than isoniazid, efficient utilization of human resources to facilitate directly observed treatment, and changes in the messages given to patients.

During the past year, the Centers for Disease Control and Prevention approved guidelines for new treatment regimens for latent tuberculosis infection, which have been adopted by the North Carolina Division of Public Health. Rifampin, one of the mainstays of antibiotic treatment for active tuberculosis, has been approved for unsupervised daily use to treat latent tuberculosis, which allows for a shorter course of therapy (currently 4 months for adults or 6 months for children). Another approved regimen calls for administration of isoniazid and rifapentine once weekly for 12 weeks, under direct observation by a health care professional [3]. Use of these regimens cuts the length of treatment by more than half and improves the chances that patients will complete treatment.

Efficient use of health care personnel can also increase treatment success. As the number of active cases of tu-
Berculosis continues to decline in North Carolina, health departments are turning their attention to preventing new cases. A retrospective chart review of patients with latent tuberculosis infection who were seen in Mecklenburg County during the period 1996–2003 showed that, among patients with latent infection who were close contacts of a patient with active disease, direct observation of treatment resulted in an additional 30% of patients completing treatment (compared with self-administered treatment) [4]. Outreach nurses sometimes take tuberculosis medications to the homes of patients with active tuberculosis, and there are often others living in the same households who have been exposed and who need treatment for latent tuberculosis infection. The outreach nurse can directly observe treatment of these household members with latent infection at the same time that he or she visits the patient with active disease. Health departments have also engaged health care workers other than health department nurses to facilitate directly observed treatment. To minimize transportation barriers and increase convenience, pharmacists and nurses in physician practices have been utilized to observe patients with active disease as they swallow their medications, and these personnel could also observe treatment of those with latent infections. Some states have also been exploring the use of video technology for “direct” observation, which could increase a health department’s capacity to observe treatment of latent tuberculosis infection.

Finally, tuberculosis control staff members in North Carolina have found that how they communicate with patients can make a difference in patient compliance. Because patients with latent tuberculosis infection are by definition asymptomatic, many do not understand the importance of treatment to prevent active disease. Spending a few extra minutes to explain how taking 1 or 2 medications for several months can prevent illness, loss of work time, disability, and even death can usually make an impact on the patient’s perspective.

All of these strategies can improve adherence to treatment of latent tuberculosis infection, particularly when they are employed in patients at highest risk: close contacts of patients with active disease, children, and those with HIV infection or another chronic illness. Successful treatment of latent tuberculosis can in turn contribute to the continuing decline in North Carolina’s tuberculosis rate.

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