tion, and hygiene education activities; and (4) ensuring appropriate sanitation measures in cholera treatment centers to prevent contamination of the environment.

The findings in this report are subject to at least four limitations. First, cholera cases and deaths, particularly those not evaluated or occurring in health facilities, likely are underreported, and how reporting might differ among facilities and age groups is not well understood. Second, the mortality assessment was conducted in one area of Artibonite Department, and sampling was not systematic; as such, demographic characteristics, circumstances of illness, and location of death might not be representative of all deaths in the country. Third, family member responses in the mortality assessment might not have provided an accurate account of the decedent’s perceptions or experiences. Finally, population estimates used to calculate rates for cholera morbidity and mortality are uncertain, particularly because of the mortality caused by the earthquake in Haiti.

Despite strong responses from MSPP and governments and nongovernmental agencies, the size and speed of this cholera outbreak, combined with the lack of safe water and sanitation infrastructure in Haiti, indicate that further action is urgently needed to reduce cholera transmission and mortality. All parties should extend their periods of involvement and redouble their efforts to support efforts in Haiti to reduce the burden of this disease.

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(Reprinted) JAMA, January 26, 2011—Vol 305, No. 4 351

HIV Testing and Treatment Among Tuberculosis Patients—
Kenya, 2006-2009

MMWR. 2010;59:1514-1517

1 figure, 1 table omitted

IN RESOURCE-LIMITED SETTINGS, HIGH case-fatality rates are seen among tuberculosis (TB) patients with human immunodeficiency virus (HIV) infection, especially during the early months of TB treatment.1 HIV prevalence among TB patients has been estimated to be as high as 80%-90% in some areas of sub-Saharan Africa.2 In 2004, the World Health Organization (WHO) recommended increasing collaboration between HIV and TB programs.3 Since then, many countries, including Kenya, have worked to increase TB/ HIV collaborative activities. In 2005, the Kenya Division of Leprosy, Tuberculosis, and Lung Disease (DLTLD) added questions regarding HIV testing and treatment to the existing TB surveillance system.4 This report summarizes HIV data collected from Kenya’s extended TB surveillance system during 2006-2009. During this period, HIV testing among TB patients increased from 60% in 2006 to 88% in 2009, and the prevalence of HIV infection among TB patients tested decreased from 52% to 44%. In 2009, 92% of HIV-infected TB patients received cotrimoxazole prophylaxis for the prevention of opportunistic infections.5 Although these data highlight the increase in HIV services provided to TB patients, only 34% of HIV-infected TB patients started antiretroviral therapy (ART) while being treated for TB. Innovative interventions are needed to increase HIV treatment among TB patients in Kenya, especially considering the 2009 WHO guidelines recommending that all HIV-infected TB patients be started on ART as soon as possible, regardless of CD4 count.6 Although these guidelines have not yet been implemented in Kenya, officials are working to identify methods of increasing access to ART for TB patients.

In 2004, the Kenya Ministry of Health (which in 2008 became the Ministry of Public Health and Sanitation [MOPHS]) established the TB/HIV Coordinating Committee to help develop policy and guidance for implementation of TB/HIV collaborative activities. The committee recommended using the existing national TB program infrastructure to expand HIV counseling and testing services7 to TB patients. In addition, the committee recommended using provider-initiated testing and counseling, an “opt-out” model in which HIV testing is performed routinely unless the patient declines. Because cotrimoxazole prophylaxis has been shown to reduce opportunistic infections and to decrease morbidity and mortality for HIV-infected TB patients, the committee recommended that TB clinics offer cotrimoxazole prophylaxis to all HIV-infected TB patients (i.e., those with documentation of a positive HIV test result in the facility TB register).8 Finally, the committee recommended that HIV-infected patients be referred to separate HIV care and treatment clinics for additional HIV care and evaluation for eligibility for ART.9

DLTLD is responsible for overseeing clinical activities at approximately 2,200 TB diagnostic and treatment facilities and for collecting routine surveillance data. Provincial and district TB/leprosy coordinators manage the network of TB facilities. District coordinators receive quarterly reports regarding all patients with active TB disease who are newly registered (i.e., currently diagnosed with active TB disease and receiving TB treatment) at each TB clinic, compile this information into quarterly aggregate district reports, and then forward the reports to the provincial coordinators, who submit the information to DLTLD.

In 2005, DLTLD added key HIV-related information to the local TB facility register and the district-level reporting forms: HIV testing status for TB...
HIV prevalence among TB patients varied widely by province, ranging from 5% in North Eastern Province to 70% in Nyanza Province. Provision of cotrimoxazole prophylaxis to HIV-infected TB patients remained high throughout this period; 87% received cotrimoxazole in 2006, and 92% in 2009. During the same period, the percentage of HIV-infected TB patients receiving ART increased from 26% to 34%.

Data from Kenya indicate increases in HIV testing among TB patients from 60% in 2006 to 88% in 2009; cotrimoxazole prophylaxis for opportunistic infections was provided to 92% of HIV-infected TB patients in 2009, but only 34% received potentially lifesaving therapy with antiretroviral drugs during TB treatment.

Efforts to reach HIV-infected TB patients through national TB programs can be successful, but TB/HIV collaborative efforts must be strengthened to increase use of antiretroviral therapy among these patients.

What is already known on this topic?
TB is the leading cause of mortality worldwide for persons living with HIV infection, and HIV prevalence among TB patients in sub-Saharan Africa is estimated to be as high as 80%-90%.

What is added by this report?
Data from Kenya indicate increases in HIV testing among TB patients from 60% in 2006 to 88% in 2009; cotrimoxazole prophylaxis for opportunistic infections was provided to 92% of HIV-infected TB patients in 2009, but only 34% received potentially lifesaving therapy with antiretroviral drugs during TB treatment.

What are the implications for public health practice?
Efforts to reach HIV-infected TB patients through national TB programs can be successful, but TB/HIV collaborative efforts must be strengthened to increase use of antiretroviral therapy among these patients.

CDC Editorial Note: Within 5 years of the addition of HIV activities to the country’s TB program, 88% of TB patients in Kenya were tested for HIV, and 92% of HIV-infected TB patients received cotrimoxazole prophylaxis in TB clinical settings. Elsewhere in sub-Saharan Africa, success with HIV testing of TB patients varies widely; Malawi tests approximately 80% of TB patients, but estimates of testing are lower in Uganda (60%), Zambia (60%), and South Africa (40%) (CDC, unpublished data, 2010).

HIV testing and clinical services in Kenya historically have been provided through the National AIDS and STI Control Programme. However, the findings in this report show that DLTLD has been successful in providing key HIV services within the existing TB program infrastructure. Multiplex actions were critical to achieving this success, including establishment of the TB/HIV Coordinating Committee, which assisted with development of national guidelines for HIV testing in 2004 and promoted provider-initiated testing and counseling in multiple health-care settings. Provider-initiated testing and counseling has been shown to increase the proportion of patients tested when compared with traditional “opt-in” models in which patients must request HIV testing. As HIV testing among newly registered TB patients increased, the prevalence of HIV among TB patients decreased, indicating that providers might have targeted early testing efforts to patients at greater risk for HIV. Overall, HIV prevalence among newly registered TB patients remains high, particularly in Nyanza Province (70%).

In addition to strong commitment to TB/HIV collaborative activities at the national level in Kenya, local leaders have been recruited to form regional TB/HIV coordinating bodies to translate national policy into action. These regional bodies implemented continuing medical education modules to promote provider-initiated testing and counseling and cotrimoxazole prophylaxis for HIV-infected patients as standard interventions in all TB clinical settings. Financial support from international donors including the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR), WHO, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria also has been critical to the success of TB/HIV collaborative efforts. This funding has allowed MOPHS to hire additional staff members to support TB/HIV collaborative activities, and to ensure an uninterrupted supply of HIV rapid test kits, cotrimoxazole prophylaxis, ART, and monitoring and evaluation tools.

Despite these efforts, provision of ART to persons with HIV during TB treatment remains at only 34%. Data from the region indicate that more than 90% of HIV-infected TB patients in Kenya likely meet the country’s CD4 count criteria for initiating ART, underscoring a large unmet need for treatment in this population.

The findings in this report are subject to at least two limitations. First, the number of HIV-infected TB patients receiving ART might have been underestimated. Some HIV-infected TB patients might have received ART late in TB treatment or after the end of TB treatment, and this information might not be captured by the extended TB surveillance system. No formal mechanism exists for transmitting information from the HIV clinic that provides ART to the TB clinic that reports these data. Second, this report relies on surveillance data, which often are subject to reporting delays and might not reflect the most recent program performance.
Initiation of ART for persons with HIV during TB treatment has been shown to reduce mortality by approximately 50%.3 In 2009, WHO recommended that all HIV-infected TB patients be started on ART regardless of CD4 count.3 Although Kenya’s ART-eligibility criteria have not yet been changed, MOPHS has been working to identify methods of increasing access to ART for TB patients. Integration of HIV testing and cotrimoxazole provision into TB clinics in Kenya has resulted in increases in testing and cotrimoxazole prophylaxis. Similar increases might result with ART if offered within the TB clinic and not at another clinical site. One high-volume TB clinic in rural Kenya has integrated provision of ART into the clinic, resulting in a fourfold increase in ART initiation among HIV-infected TB patients.10 Additional strategies are needed to improve access to ART and strengthen linkages between TB clinics and HIV clinics to improve outcomes for HIV-infected TB patients.

**REFERENCES**


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