

# Tuberculosis (TB):

## Pre-decision Brief for Public Health Action

Haiti ■ March 2010

### Key Recommendations

#### Prevention

- Rapidly identify and restore to therapy persons with tuberculosis (TB), particularly those with multidrug-resistant TB (i.e., TB resistant to isoniazid and rifampin; MDR TB) who were receiving TB medications before the earthquake. Interruptions in therapy may require adjustments, such as extension or restarting of treatment.
- Assess status of ongoing TB and HIV services, ensure continuity of HIV services at TB facilities, and screen HIV-positive persons in care for TB.
- Implement basic infection control measures—including prompt identification of persons with TB symptoms, separation of infectious patients, consistent use of cross-ventilation where feasible, cough etiquette, and education of staff and patients about such efforts—in areas where TB patients are seen or housed.

#### Diagnostic capacity and surveillance

- Implement screening for persons with TB symptoms (e.g., cough, fever, night sweats >3 weeks) in health care facilities, especially those that serve internally displaced persons (IDPs).
- Educate residents of large encampments or other congregate settings about the need to seek care when experiencing TB symptoms.
- Monitor adherence to TB medications.
- Expand methods for detection of drug-resistant TB, including implementation of a national survey of TB drug resistance.

#### Critical treatment and supplies

- Confirm that an adequate supply of anti-TB drugs is maintained.
- Ensure that the National Public Health Laboratory (LNSP) is able to access needed equipment, reagents, and supplies.

### Supporting Information

#### 1. What was the situation in Haiti prior to the earthquake?

- The director of Haiti's National TB Control Program (PNLT) reports that more than 7,000 patients were receiving treatment for TB disease in Port-au-Prince before the earthquake.
- The infrastructure of the PNLT is limited, but does include a 2006–2015 strategic plan that is consistent with the WHO's global Stop TB strategy. Some patients receive diagnosis and treatment from NGOs.
- In 2007, the estimated incidence for all forms of TB disease in Haiti was 306 cases/100,000<sup>1</sup>. The estimated case-detection rate was 47%.<sup>1</sup> As in most areas of the world, TB surveillance in Haiti depends on sputum smear microscopy; culture is more sensitive, but is costly and not widely available.



- Haiti has not participated in the WHO's global surveys of TB drug resistance. In 2007, the WHO estimated the rate of MDR TB among all new TB cases in Haiti at 1.8%.<sup>1</sup> The only publication on MDR TB in Haiti reported a rate of 6% among new cases and 20% among retreatment cases in an HIV voluntary counseling and testing (VCT) clinic in 2000–2002. In the past decade in the United States, the rate of MDR TB among reported TB cases in persons born in Haiti was 1.5%, and the rate of isoniazid resistance was 11.6%.<sup>3</sup> The rates did not differ significantly by HIV status, but were 2–6 times higher in persons reporting prior TB disease.
- The WHO estimates that 23% of new TB patients in Haiti are co-infected with HIV.<sup>1</sup> Persons with HIV-related TB disease may have atypical presentations, making diagnosis more difficult. Through the President's Emergency Plan for AIDS Relief (PEPFAR), the United States supports HIV testing, counseling, and treatment in TB clinics, TB screening and treatment in HIV clinics, limited TB infection-control activities, and monitoring and evaluation of these activities throughout the country.
- TB culture and drug sensitivity testing (DST) capacity is limited to two NGO facilities (GHESKIO and Partners In Health) outside Port-au-Prince.
- In 2010, the WHO recommended the global use of rifampin in both the initiation and continuation phases of treatment. Many programs, including those in Haiti, still use rifampin only in the initial phase.
- No formal policy on management of interruptions in therapy existed in Haiti before the earthquake. Several sets of recommendations exist, including those published by CDC<sup>4</sup> and the WHO<sup>5</sup>; the most detailed recommendations are from the New York City Bureau of TB Control<sup>6</sup> and are attached as Annex 1.
- Bacille Calmette-Guerin vaccine is routinely administered to children in Haiti (75% estimated coverage) to prevent severe disseminated forms of TB.<sup>7</sup> There is no effective TB vaccine for adults.

## 2. What is the likelihood of cases or outbreaks of this disease developing in the near future?

- TB outbreaks are likely. The convergence of active TB and HIV/AIDS in the context of service interruptions and congregate living arrangements will amplify transmission and increase morbidity and mortality from both drug-sensitive and drug-resistant TB, especially in persons with TB/HIV co-infection.
- There have been documented outbreaks of TB and MDR TB in settled refugee populations (e.g., 2004–2005 outbreak of MDR TB in Hmong refugees in Thailand).<sup>8</sup>

## 3. Should an outbreak occur, how would it be detected?

- An increase in reported or suspected cases in any group (e.g., persons residing in the same large tent; e.g., persons attending the same HIV clinic) should raise suspicion of an outbreak.
- Use of rapid molecular tests that identify *M. tuberculosis* and rifampin resistance is recommended if possible at a small number of reference laboratories in Haiti.
- Microscopy-based TB diagnosis based on sputum smears is practical and inexpensive, but it is relatively insensitive and cannot identify MDR TB.
- TB culture is available for only a small minority of TB patients in Haiti.
- In 2008, the WHO recommended the use of line-probe assays on sputa and cultures for rapid identification of MDR TB.<sup>9</sup> Line-probe assays provide results in 1–2 days. The sensitivity and specificity of line-probe tests for rifampin are sufficiently high to use susceptibility results in case management decisions. The LNSP already has PCR capability, and the Foundation for Innovative New Diagnostics (FIND) is planning to support introduction of the line-probe assay at the LNSP. A select number of internationally-supported laboratories may also be able to do so.
- Rifampin resistance is a reliable surrogate (positive predictive value >95%) for MDR TB because isolated rifampin resistance is uncommon.

## 4. What options for public health action should be considered in the event of an outbreak?

- The highest priority is an immediate campaign to find persons who were being treated for TB before the earthquake in order to resume their therapy.
- Active screening for symptoms (e.g., cough, fever, sweats >3 weeks)<sup>10</sup> and evaluation of suspects should be initiated if an outbreak is suspected. Settings of particular concern include residential encampments and similar congregate settings, and HIV care settings. Consideration should be given to identification and evaluation of close contacts as well.
- An important control measure would be to strengthen laboratory capacity of the PNLT by adding culture and more rapid methods of identifying TB and drug-resistant TB.

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### References

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9. World Health Organization. Policy statement: molecular line probe assays for rapid screening of Patients at risk of multidrug-resistant tuberculosis. 27 June 2008. Accessed 16 March 2010 at: [http://www.who.int/tb/features\\_archive/policy\\_statement.pdf](http://www.who.int/tb/features_archive/policy_statement.pdf). For assays such as the INNO-LiPA® Rif.TB (Innogenetics) and the GenoType® MTBDR(plus) (Hain LifeScience GmbH), the region of a gene associated with resistance is PCR-amplified, and the labeled PCR products hybridized to oligonucleotide probes immobilized on a nitrocellulose strip. Mutations are detected by lack of binding to wild-type probes or by binding to probes specific for commonly occurring mutations. Compared to culture-based tests, the MTBR(plus) line probe assay displays a pooled sensitivity of 0.98 and a pooled specificity of 0.99 for detecting rifampin resistance in isolates or directly from clinical specimens.
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