

Comprehensive treatment of extensively drug-resistant TB works, study finds

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The death sentence that too often accompanies a diagnosis of extensively drug-resistant tuberculosis (XDR-TB) can be commuted if an individualized outpatient therapy program is followed – even in countries with limited resources and a heavy burden of TB.

A study conducted in Peru between 1999 and 2002 shows that more than 60 percent of XDR-TB patients not co-infected with HIV were cured after receiving the bulk of their personalized treatment at home or in community-based settings. The paper appears in the August 7, 2008 issue of *The New England Journal of Medicine*.

"It's essential that the world know that XDR-TB is not a death sentence," says lead author Carole Mitnick, instructor in the Department of Global Health and Social Medicine at Harvard Medical School (HMS). "As or even more importantly, our study shows that effective treatment does not require hospitalization or indefinite confinement of patients."

In some parts of the world, however, patients with XDR-TB and other drug-resistant forms of the disease are confined against their will in TB hospitals that resemble prisons, Mitnick adds.

Researchers from HMS, Brigham and Women's Hospital, Partners In Health, Harvard School of Public Health, and the Massachusetts State Laboratory Institute, along with Lima, Peru-based organizations Socios en Salud, the Peruvian Ministry of Health, and Hospital Nacional Sergio E. Bernales, had already demonstrated that aggressive, outpatient

treatment could cure multi-drug resistant tuberculosis (MDR-TB), which is resistant to two first-line anti-TB drugs. That pilot program has been adopted as a national endeavor by the Peruvian government.

A similar protocol was used for the recent study of XDR-TB, which is caused by TB bacteria that are resistant not only to the same first-line anti-TB drugs, but also to the two most important second-line drug classes.

A total of 810 patients with unsuccessfully treated tuberculosis were referred for free individualized drug treatment and additional services as needed, including surgery, adverse-event management, and nutritional and psychological support. Sputum culture and drug-susceptibility testing results, performed at the Massachusetts State Laboratory Institute in Boston, were available for 651 patients. Based on susceptibility results for 12 anti-TB drugs, clinicians developed regimens that included five or more drugs to which the infecting strains were likely to respond. Forty-eight patients had XDR-TB; 603 had MDR-TB. None of the XDR-TB patients were co-infected with the HIV virus.

At the end of treatment, 60.4 percent in the XDR-TB group were cured; 66.3 percent with MDR-TB were cured. The outcomes among XDR-TB patients were better than most reported from hospital settings in Europe, the U.S., and Korea, Mitnick says.

Frequent contact with healthcare workers afforded many benefits and was an important element of success. Daily, supervised treatment was delivered in patient homes and at community health centers. The community health workers ensured a high level of treatment adherence and promptly detected circumstances requiring additional attention, including adverse events. Psycho-social needs were also assessed continuously and addressed through a range of interventions.

"It's important for people to understand that this ambulatory form of treatment exists, is successful, and can be widely implemented in resource-poor settings," Mitnick says.

Community-based interventions also protect hospital patients and staff from transmission of TB and allow TB patients to remain with their families during this protracted treatment. If hospitals have to accommodate only those with serious medical needs, this intervention can be implemented widely, and earlier in the disease course.

The benefits would be profound, Mitnick says. In addition to reduced morbidity and mortality among patients, an epidemiologic impact could be expected: a decrease in the incidence of resistant TB has been reported only in places where universal screening and treatment for DR-TB are offered at first TB diagnosis.

"DR-TB is everywhere in the world it's been looked for and it's not going away without additional resources," Mitnick says. According to a notice issued by the World Health Organization this year, ever since it was first described in 2006, XDR-TB has been reported in 49 countries, including the United States. Approximately 1.5 million people are estimated to have MDR-TB, "but no one really knows how many have XDR-TB." Expanded community-based delivery of improved treatment is essential to stem this epidemic.

Source: Harvard Medical School

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