

# Extensively drug-resistant tuberculosis found in California

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In the first statewide study of extensively drug-resistant tuberculosis (XDR TB) in the United States, California officials have identified 18 cases of the dangerous and difficult-to-treat disease between 1993 and 2006, and 77 cases that were one step away from XDR TB. The study appears in the August 15 issue of *Clinical Infectious Diseases*, now available online.

California reports almost 3,000 cases of tuberculosis annually, the largest number of TB cases of any U.S. state. California has also led the nation since 2002 in the number of multidrug-resistant tuberculosis (MDR TB) cases—those that are resistant to isoniazid and rifampin, the two antibiotics that form the backbone of TB treatment.

XDR TB is resistant to even more classes of antibiotics, including fluoroquinolones and one of three injectable second-line drugs. The authors of the new study evaluated drug susceptibility data of MDR TB cases identified by the California TB Registry between 1993 and 2006, looking for cases that fit the XDR TB definition.

Of the 424 MDR TB cases, 4 percent were XDR and 18 percent were pre-XDR, which are one drug away from XDR TB. The proportion of patients with pre-XDR isolates increased from 7 percent in 1993 to 32 percent in 2005. XDR TB occurred due to inadequate treatment of MDR TB, XDR TB transmission within California, and infection of persons with XDR strains prior to U.S. arrival.

Over the course of the study, TB outcomes improved. Deaths declined among XDR TB cases identified after 2000. However, the authors wrote, strategies must be implemented to identify and cure MDR and pre-XDR TB cases before they develop into XDR TB. Modeling studies suggest that unless evolution of MDR into XDR is slowed, XDR cases could increase exponentially. Prevention is more cost-effective than treatment,

they noted.

"Globally, XDR TB has resulted from a combination of poor TB control practices, poor adherence to medications, inappropriate use of second-line drugs, lack of laboratory capacity to culture TB or assess drug susceptibility, and high HIV prevalence," said lead author Ritu Banerjee, MD, PhD of the University of California at San Francisco. "In order to prevent an escalation in XDR TB we need to ensure adherence to the cornerstones of TB management, which include directly observed therapy, isolation of infectious cases, and contact investigations. We also need to institute routine, rapid, and standardized methods to assess drug susceptibility of TB isolates," she concluded.

Source: Infectious Diseases Society of America

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