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TB Strain May Be Linked to Unpasteurized Dairy; Highest Incidence Among Hispanics

The incidence of a strain of tuberculosis (TB) called *Mycobacterium bovis*, or *M. bovis*, associated more often with cattle than humans, is increasing in San Diego and is concentrated mostly in Hispanics of Mexican origin, according to a study conducted by researchers at the University of California, San Diego School of Medicine in collaboration with San Diego County public health officials. Their analysis shows that changing patterns of TB in the United States are increasingly being driven by conditions outside of the country, especially in binational communities. The study is now on line in advance of publication in the June issue of *Emerging Infectious Diseases*.

Lead author Timothy C. Rodwell, M.D., Ph.D., MPH, associate physician and fellow in the Division of International Health & Cross Cultural Medicine at UC San Diego, and his colleagues analyzed regional data for TB cases in San Diego County obtained from the Tuberculosis Information Management System database maintained by the San Diego County TB Control Program. In their review of 3,291 culture-positive cases of TB covering 1994 to 2005, *M. bovis* was isolated in only eight percent of cases, but the strain accounted for 45 percent of TB cases in children under the age of 15, with almost all *M. bovis* cases from 2001 to 2005 found in persons of Hispanic ethnicity.

"This strain of TB is thought to be primarily spread to humans through consumption of raw dairy products from infected cattle, with only minimal human-to-human contagion," Rodwell said. "Some raw dairy products from Mexico, for instance, unpasteurized cheese like the popular *queso fresco*, have been found to contain *M. bovis* and should be considered unsafe."

Because of the widespread adoption of pasteurization of all commercially available dairy products in the United States, along with aggressive programs designed to keep dairy cattle in this country free of the disease, the threat of *M. bovis* in U.S. dairy products was largely eliminated in the mid-20th century. The San Diego-Tijuana bi-national region, however, shares one of the busiest border crossings in the United States with the Mexican state of Baja California, where *M. bovis* is prevalent in cattle and consumption of unpasteurized dairy products is common.

The researchers found that more than 90 percent of *M. bovis* cases in San Diego occurred in Hispanics, most born in Mexico, Rodwell said. He added that collaborations with Mexico on prevention strategies including education and regulation of unpasteurized dairy products, along with elimination of the disease from dairy cattle would be required long term to ensure that this mode of transmission of TB is stopped.

"The changing face of TB in San Diego County may reflect a new pattern of the disease in the United States," Rodwell said.

During the period studied, cases of *M. bovis* TB increased at a rate of just over four percent per year, while cases from the more common strain of TB, *M. tuberculosis*, declined. Since *M. bovis* is resistant to one of the four drugs in the standard, six-month course of treatment for TB, treatment for *M. bovis* is usually extended to nine months. While *M. bovis* has been most often documented in Hispanic communities with close proximity to Mexico, the researchers point out that a recent review of such cases in New York City – also linked to unpasteurized cheese from Mexico – indicated that the problem is not limited to U.S. regions bordering Mexico.

Additional contributors to the study include senior author Steffanie A. Strathdee, Ph.D., Chief of UC San Diego's Division of International Health & Cross Cultural Medicine; Marisa Moore and Kathleen S. Moser, County of San Diego Health and Human Services; and Stephanie K. Brodine, San Diego State University.

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