

Tijuana injection drug users on collision course for HIV and TB

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A study by researchers from the University of California, San Diego School of Medicine, in collaboration with Mexican researchers and health officials, shows that as many as 67 percent of injection drug users in Tijuana test positive for tuberculosis (TB) infection. The analysis, which underscores the urgent need for TB screening and treatment for populations that are also at risk for HIV infection, will be published in the May issue of the *International Journal of Tuberculosis and Lung Disease* (IJTLD).

"While [injection drug](#) users are known to be at risk for TB, this is one of the highest [infection](#) rates ever reported among this group," said principal investigator Richard Garfein, PhD, MPH, associate professor in the Division of Global Public Health and Department of Medicine at UC San Diego. The analysis is part of a bi-national, community-based study called Proyecto El Cuete that includes more than 1,000 illicit drug injectors residing in Mexico's largest U.S. border city.

What most concerns Garfein is that injection drug users are not only likely to have weakened immune system due to illicit drug use, but are also at high risk for HIV infection. This makes the situation much worse for individuals infected with TB, because HIV further weakens a patient's immune system.

Worldwide, tuberculosis is a leading cause of death among persons with AIDS. Once a person becomes infected from breathing in TB bacteria, the immune system generally encapsulates the bacteria and prevents it from growing. When this happens, the bacteria remain alive in an inactive state called latent TB infection. But the TB bacteria can become active at a later date if the person's [immune system](#) is weakened, for example, in those with AIDS.

"Persons with latent TB infection are not sick and are not contagious," said co-investigator Dr. Rafael

Laniado-Laborin, MD, chief of Tijuana General Hospital's [tuberculosis](#) clinic, adding that, in otherwise healthy individuals, the chance of the latent TB becoming active is about 10 percent over their lifetime. "However, if individuals become infected with HIV, their chance of developing active TB increases to 10 percent per year."

Once active, TB bacteria replicate in the lungs. Symptoms include coughing, which facilitates the airborne spread of bacteria to others.

"Given that two-thirds of Tijuana's injection drug users have latent TB infection, the majority of those who become HIV infected - a risk that is increasing - are also likely to develop active, contagious TB," said Garfein.

TB is endemic in Mexico, where children are routinely vaccinated with the Bacillus Calmett-Guerin (BCG) vaccine, which is not highly effective but can prevent some serious forms of childhood TB. Unfortunately, the vaccine can cause false-positive results with the tuberculin skin test (TST), used for over a century to detect TB infection. For this reason, estimates of TB prevalence using the TST are unreliable in areas of Mexico where the BCG vaccine is given, making it difficult to anticipate future health care needs for at-risk populations.

Instead of TST, participants in this study were given a TB test called interferon-gamma release assay (IGRA) which measures the substance released by sensitized immune cells when they are exposed to TB bacteria. Neither test can differentiate between latent and active TB. However, the IGRA is more sensitive and specific in testing for TB because it doesn't cross-react with the BCG vaccine.

Injection drug users, age 18 years or older, were asked about past TB diagnosis, illness and treatment as well as the presence of TB symptoms such as persistent cough, fever or chills, shortness

of breath, fatigue and unexplained weight loss. Participants with TB symptoms were referred to a municipal health clinic for further evaluation.

Of the 1,025 participants who received IGRA results, 681 (67%) tested positive for TB, with 13 individuals reporting symptoms. Injection drug users recruited from two neighborhoods nearest the U.S./Mexico border had 64% higher odds of being IGRA-positive than non-drug users. These odds increased by 20% for every five years of reported injection drug use.

Additional years of residence in Tijuana were also associated with greater prevalence of IGRA-positive results. One explanation is that more time spent among other injection drugs users in Tijuana increased the likelihood of exposure to TB. Only 4% of study participants tested positive for HIV infection. However, if HIV is not controlled and its prevalence increases, the number of injection drug users whose latent TB infection becomes active is destined to increase, according to the researchers.

"This at-risk population urgently needs better screening and treatment for TB," said Laniado-Laborin. "Treatment reduces the TB reactivation risk by nearly 75%, while cutting the death rate of patients with HIV and TB in half."

Source: University of California - San Diego ([news](#) : [web](#))

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