



United States–México Border Health Commission

Tuberculosis along the United States-México Border

**A White Paper
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Background: The United States-México border is approximately 2,000 miles long and includes four U.S. States (Arizona, California, New Mexico, and Texas), and six Mexican States (Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas.) Approximately one million border crossings occur every day.¹

TB in México: The World Health Organization (WHO) reported 21,283 new tuberculosis (TB) cases in México in 2007, reflecting a case rate of 20 per 100,000 population.² In comparison, the United States reported 13,299 TB cases with a rate of 4.4 per 100,000 population in 2007. The most important risk factor for Mexican-born TB patients appears to be birth and/or residence in a country with a relatively high incidence/prevalence of TB.³

TB in foreign-born persons in the United States: Foreign-born persons and racial/ethnic minorities continue to bear a disproportionate burden of TB disease in the United States. In 2007, the TB rate in foreign-born persons in the United States was 9.7 times higher than in U.S.-born persons. TB rates among Hispanics, blacks, and Asians were 7.4, 8.3, and 22.9 times higher than among non-Hispanic whites, respectively.⁴

México was listed as the most common country of birth among foreign-born persons with TB in the United States. Mexican-born active TB cases comprise 25% of all foreign-born TB cases in the United States. In addition, the National Health and Nutrition Examination Survey, 1999-2000, found a higher prevalence of latent TB infection (LTBI) in Mexican Americans (9.4%) compared with the U.S.-born (4.2%) (total estimated number of persons with LTBI in the U.S. was 11,213,000 or 4.2% of the civilian, non-institutionalized population).⁵

Drug-resistant TB in the United States and México: In February 2008, WHO released its fourth global report on anti-TB drug resistance, which indicated that the number of multidrug-resistant (MDR) TB cases worldwide was the highest ever reported (489,139 cases in 2006) and that extensively drug-resistant (XDR) TB had been reported in 45 countries, including the United States and México. In the United States, foreign-born persons are disproportionately impacted by MDR TB, accounting for 84.5% of cases in the United States in 2007. In addition, the *Puentes de Esperanza* program experience shows that drug-resistant TB is an issue for México, as rates of acquired drug resistance are high and practices that fuel drug-resistant TB (e.g., lack of directly observed therapy or DOT, patient case management, laboratory culture, and drug susceptibility testing) exist and are common. The first national drug resistance survey in México was carried out in 2007-2008 in nine states; results are expected to be available by the end of 2009.

Division of Tuberculosis Elimination's TB prevention activities: U.S. state and local TB programs perform essential TB prevention, control, and laboratory activities to effectively diagnose and adequately treat cases, thereby interrupting further transmission. State and local TB programs assure treatment is provided for all TB cases, including TB cases originally identified in México. They also conduct contact investigations and evaluations for those exposed to infectious TB cases who reside in their respective U.S. state or local jurisdiction. Currently, U.S. surveillance data include only those TB cases diagnosed in the United States. A revision in 2009 of the surveillance methods will allow inclusion of cases, regardless of country of diagnosis of TB, facilitating a more accurate measure of the total TB burden in U.S. jurisdictions.

Care for TB patients along the border and in travel: In Arizona, local health departments provide second-line TB drugs to patients residing in México when these drugs are unavailable there. Arizona also implemented a "Meet and Greet" program—an informal agreement between the public health departments in Arizona and Sonora, México, that requires Sonoran Health Officials to meet TB patients who are being deported through Sonora at the border and assume responsibility for treatment. The goal of the "Meet and Greet" is to ensure continuity of care for individuals being treated for TB and are being deported to México. In California, the CureTB project (based in the San Diego County TB Program, with oversight and funding provided by the State of California TB Control Branch and the U.S. Centers for Disease Control and



Prevention or CDC) has been providing referrals for patients with active TB moving between the U.S. and México for over 10 years. To facilitate referrals and ensure patients who cross the border continue their entire course of treatment, U.S. and Mexican programs provide wallet-sized “binational cards.” The cards provide toll-free phone numbers for patient referrals and patient treatment information; this information is key to ensuring that patients remain on treatment without interruption for their entire treatment course, usually six months. However, the utility of binational cards and CureTB has been limited in México due to lack of guidance about which patients should be prioritized for such referrals, lack of training for frontline case managers, and uneven implementation in key areas. To improve outcomes, the State of California has worked with CureTB to more effectively use the binational cards. The binational card and flip charts have been produced and distributed to local health department staff in California, along with training on how and when to use these tools. Counties using the flip charts and binational cards have reported great satisfaction with these tools. With funding support from CDC, the San Diego TB Branch plans to introduce the tools in Mexicali, Baja California and San Luis Colorado, Sonora, with an evaluation of outcomes at 6, 12, 18, and 24 months after introduction. The San Diego County TB Program also coordinates Project Concern International, a binational program for directly observed therapy, with funding support from CDC.

New Mexico has proposed a three-year pilot program (funding by the U.S.-México Border Health Commission is pending) in the Columbus, New Mexico, and Palomas, México, border region. The project’s purpose is to contribute to the development of a binational network of effective TB surveillance and control in this specific region. One objective of this project is to establish agreed protocols for improved surveillance and diagnostics, a binational patient registry, communication and data transfer systems, case management and treatment therapies, case/contact investigations, and project administration.

The Texas TB Net program provides referrals for patients returning to México from Texas. In addition, three Binational TB Projects provide services along the Texas-México border and are jointly managed by public health entities in sister cities on both sides of the border. The Binational TB Projects work in Texas and México to enhance TB services provided along the border by increasing awareness of TB, providing TB education to healthcare professionals and to lay persons, and to provide expert consultation for complicated TB cases identified along the border. All of the projects described above are funded by CDC and coordinated by the Texas Department of State Health Services. Finally, the Department of Immigration Health Services (DIHS) works with the Department of Homeland Security (DHS) to provide TB therapy for detainees diagnosed with TB until they are deported or released. The CDC, DHS, and local health authorities also work together to ensure that TB patients known to have infectious TB do not embark on air travel until they are no longer at risk for transmitting TB disease.

Revised Technical Instructions: In 2007, CDC published revised requirements for TB screening among persons applying for immigration to the United States (http://www.cdc.gov/ncidod/dq/panel_2007.htm).⁶ The revised technical instructions 1) expand TB screening by adding targeted tuberculin skin testing of children aged 2-14 years who live in countries with high TB incidence (WHO-estimated rates of ≥ 20 cases per 100,000 population) and all contacts of persons known to have infectious TB, 2) require cultures and drug-susceptibility testing for persons with suspected TB, and 3) require treatment delivered as directly observed therapy using ATS/CDC/IDSA regimens until cure for all TB cases who are diagnosed with TB disease. Implementation of these new guidelines began October 1, 2007, for all applicants screened in México. The examining physicians in Ciudad Juárez, where all applicants for immigration in México receive their medical screening, interact with the U.S. Consulate in Ciudad Juárez and health departments on both sides of the border to coordinate care for applicants diagnosed with TB disease and ensure that key medical information is made known to U.S. receiving health departments. The culture and drug-susceptibility laboratory and directly observed therapy program developed by the examining physicians in Ciudad Juárez could be a resource for non-U.S.-bound persons suspected of having TB in México.



Challenges: TB program officials on both sides of the border acknowledge that key components of TB prevention, such as directly observed therapy, laboratory diagnostic services, and access to care remain challenging in México. Continued efforts to implement WHO guidelines for TB control are needed.

In the United States, Mexican-born persons who did not enter as legal permanent residents (such as workers, students, laser visa holders, and undocumented persons) are not screened for TB before U.S. entry. Once in the United States, factors including lack of health insurance coverage and medical care, fear of deportation, and lack of knowledge about the disease cause treatment delays, prolonging the time in which persons with infectious disease can expose others. For undocumented persons, living in crowded conditions is common and increases the potential for transmission. Persons with LTBI are often not detected and, therefore, miss opportunities for preventive care.

Economic analyses conclude that U.S. efforts to reduce TB in México would ultimately lower costs for TB prevention and control in the United States. In an article published in the New England Journal of Medicine, authors using decision analysis tools concluded that U.S.-funded efforts to expand directly observed therapy programs in México at a cost of \$34.9 million would result in 2591 fewer cases of TB in the United States, 349 fewer TB deaths, and a net discounted savings of \$108 million over a 20-year period.⁷ These analyses demonstrate that strengthening U.S. involvement in TB prevention and control activities collaboratively with México would benefit both countries significantly.

¹ United States-Mexico Border Health Commission. See http://www.borderhealth.org/about_us.php (last visited May 8, 2009).

² World Health Organization. Global tuberculosis control: epidemiology, strategy, financing: WHO report 2009.

³ Schneider, E, Laserson, K, Wells, C, Moore, M Tuberculosis along the United States-Mexico border, 1993-2001, Rev Panam Salud Publica. 2004;16(1):23-34.

⁴ CDC Morbidity and Mortality Weekly Report, Trends in Tuberculosis – United States, 2007, 57(11);281-285 2008.

⁵ Bennet, D, Courval, J, Onorato, I, Agerton, T, Gibson, J, Lambert, L, McQuillan, G, Lewis, B, Navin, T, Castro K Prevalence of Tuberculosis Infection in the United States Population, The National Health and Nutrition Examination Survey, 1999-2000.

⁶ CDC Morbidity and Mortality Weekly Report, Revised Technical Instructions for Tuberculosis Screening and Treatment for Panel Physicians, 57(11);292-293, 2008.

⁷ Schwartzman, K, Oxlade, O, Barr, R, Grimard, F, Acosta, I, Baez, J, Ferreira, E, Melgen, R, Morose, W, Salgado, A, Jacquet, V, Maloney, S, Laserson, K, Mendez, A, Menzies, D, Domestic Returns from Investment in the Control of Tuberculosis in Other Countries, N Engl J Med 353;10 September 8, 2005.



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