

## Tuberculosis in Texas

Tuberculosis is a disease caused by the bacterium *Mycobacterium tuberculosis*. These bacteria are transmitted from person-to-person by inhalation of droplet nuclei containing the bacteria. These bacteria primarily affect the lungs. Patients with pulmonary or laryngeal tuberculosis generate droplet nuclei when they talk, cough, or sneeze. A majority of patients experience pulmonary tuberculosis characterized by fever, night sweats, weight loss, difficulty breathing, and cough.

The initial treatment of tuberculosis involves administration of 4 drugs – Isoniazid, Rifampin, Pyrazinamide, and either Ethambutol or Streptomycin – until drug susceptibility test results are obtained. Drug susceptibility test results determine the choice of drugs and the duration needed to complete therapy. For patients with drug resistance, therapy may continue for 2 years or longer. In the United States, tuberculosis incidence rates are higher in males, low income racial/ethnic populations, and older age groups.

From 1997 through 2006, 16,512 tuberculosis cases were reported in Texas (Table). A total of 1,585 cases were reported in Texas in 2006. The number reported annually ranged from the 1,506 cases reported in 2000 to 1,992 cases reported in 1997. The 2006 total represents a 3.3% increase from

the number of cases reported in 2005 and 50 additional cases compared with the number of reported cases in 2005. The incidence rate in 2006 was 6.8 cases per 100,000 population.

In 2006 most patients were male (68.1%), and a majority (72.2%) were Hispanic or African American. Incidence rates (cases per 100,000 population) for Whites, Hispanics, and African Americans were 2.0, 13.3, and 9.3 respectively.

The 1,585 cases reported in 2006 ranged in age from 1 month to 94 years. A total of 67 patients were 5 years of age or younger, 9 were less than 1 year of age. A majority (70.1%) of patients 5 years of age or younger were Hispanic. Six patients were 90 years of age or older.

Almost half of the patients (47.9%) were born outside the United States. Only 9.0% of Whites and 14.6 % of African Americans were born outside the United States. A higher percentage of Hispanics (64.1%) and Asians (93.4%) were born outside the United States. The most frequent countries of birth for those born outside the United States were Mexico (51.4%), Vietnam (9.2%), Honduras (5.5%), and El Salvador (4.5%).

Human immunodeficiency virus (HIV) infection status was reported for 69.8% of tuberculosis cases. A total of 158

**Table 1. Tuberculosis cases and incidence rates, Texas, 1997-2006**

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Cases	1992	1820	1649	1506	1643	1550	1594	1683	1535	1585
Incidence Rate	10.3	9.3	8.2	7.4	7.9	7.2	7.3	7.6	6.7	6.8

(14.3%) tuberculosis patients were co-infected with human immunodeficiency virus. A higher percentage (28.2%) of African Americans were co-infected with HIV compared with Whites (15.1%), Hispanics (9.7%) or Asians (0.9%). A higher percentage of White males (17.2%) were co-infected with HIV compared to White females (8.3%).

A history of incarceration was reported for 9.8% of the cases, alcohol abuse for 19.8%, intravenous drug abuse for 2.0%, and homelessness for 6.3%. A previous history of tuberculosis was reported for 3.1% of the patients.

Of 1,585 tuberculosis cases, 1,230 (77.6%) were culture confirmed. Of culture confirmed cases, Isoniazid resistance, without resistance to Rifampin, was noted in 41 cases (3.3%). Rifampin resistance, without Isoniazid resistance, was noted in 5 (0.4%) of culture-confirmed cases. Any M. tuberculosis strain that is resistant to both Isoniazid and Rifampin is classified as multi-drug resistant tuberculosis (MDR-TB). Ten patients (0.8%) in 2006

were identified as having MDR-TB. Of 1,230 culture confirmed cases, 45 are recurrent cases, and 1185 are new cases. Multi-drug resistance was more common in recurrent cases (2.2%) compared with new cases (0.8%). Resistance to isoniazid or rifampin was noted in 2.6% of the patients born in the United States; 50% of the patients born in Burma, 16.1 % of the patients born in Vietnam, 11.1% of the patients born in India, and 6.4% of the patients born in Mexico.

Patients with tuberculosis resided in 117 counties throughout the state. A majority (66.8%) resided in only 7 of the 254 counties in Texas. Harris County was the county of residence for 413 patients; 244 patients resided in Dallas County. Annual incidence (cases per 100,000 population) rates for Harris and Dallas County were 10.9 and 10.2 respectively. Nineteen counties had an annual incidence rate at least twice the state rate of 6.8.

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