

Executive Commentary

Tuberculosis in the United States

Since 1953, when CDC began conducting public health surveillance for tuberculosis (TB) in the United States, the TB case rate has declined more than tenfold from 53 cases per 100,000 to 5.1 per 100,000 in 2003 (Table 1). During 2003, a total of 14,874 TB cases were reported to CDC from the 50 states and the District of Columbia (DC), representing a 1.3% decrease from 2002 and a 44.2% decrease from 1992, when the number of cases and case rate most recently peaked during a resurgence in the United States. The 1.3% decline in 2003 is the smallest yearly decline since 1992.

During 2003, a total of 12 states and DC reported rates above the national average (5.1 cases per 100,000 population), and 24 states met the definition for low incidence (≤ 3.5 cases per 100,000 population) (Table 20). In 2003, 19 states reported increases in case counts. Three of those states, California, New York, and Texas, accounted for 42.4% of the overall 2003 national case total. Among those areas reporting < 100 cases in 2003, only Alaska and DC had rates higher than the national average (Table 28).

Tuberculosis deaths increased 5% in 2002 (the most recent year for which data were available) to 802, from 764 in 2001. This is the first time TB deaths have increased in the United States since 1989 (Table 1).

In 2003, the proportion of total cases occurring in foreign-born persons was 53%, comprising a majority of cases for the second consecutive year. In addition, the case rate among foreign-born persons is now more than eight times higher than among U.S.-born persons (Table 5).

To address the high rate among foreign-born persons, CDC is collaborating with public health partners to implement TB control initiatives among

recent international arrivals and residents along the border between the United States and Mexico and to strengthen TB programs in countries with a high incidence of TB disease.¹

Age, Race, and Ethnicity

The declining numbers of TB cases and TB case rates during the last decade varied by factors such as age, race/ethnicity, and country of origin. The largest declines occurred in children under 15 years of age (from 3.0 per 100,000 in 1993 to 1.5 in 2003), as well as in adults aged 25 to 44 years (from 11.6 to 6.0), 45 to 64 years (from 12.5 to 6.3), and 65 years and older (from 17.8 to 8.4), each group having decreased approximately 50%. The case rate declined by 25% in those 15 to 24 years of age (from 5.1 to 3.8) (Table 4).

In 2003, Asians had the highest TB rate, 29.3, which was down from 45.0 per 100,000 in 1993. (Race category Asian was first reported in 2003; from 1993 to 2002 the category was reported as Asian or Pacific Islander). Asians also had the least percentage decline over the decade (35%). Rates declined more than 50% over the decade in the other racial/ethnic groups: among non-Hispanic blacks from 29.1 in 1993 to 11.6 in 2003, among Hispanics from 20.6 to 10.3, among American Indians and Alaska Natives from 14.5 to 8.1, and among non-Hispanic whites from 3.6 to 1.4 (Table 2). For the first time, Hispanics (28%) equaled blacks (28%) as the racial/ethnic group with the largest percentage of cases (Table 2).

Two race categories were added to the RVCT in 2003, Native Hawaiian or Other Pacific Islander and Multiple Race. Those in the first category, Native Hawaiian and Other Pacific Islander, had the second-highest TB case rate (21.8), and Multiple Race (cases for which two or more races were reported) had the lowest case rate (1.0) for only 37 cases.

Nativity

In 1993, 69% of reported cases were among U.S.-born persons (7.4 cases per 100,000) while 29% were in foreign-born persons (33.6 per 100,000). In comparison, in 2003, 53% of reported cases occurred among foreign-born persons, and the respective case rates were 2.7 per 100,000 for U.S.-born persons and 23.6 for foreign-born persons (Table 5).

During 2002-2003, the gap between the number of cases among U.S.- and foreign-born persons widened. Cases among persons born in the U.S. decreased by 393 (from 7,296 in 2002 to 6,903 in 2003). Among foreign-born persons, cases increased by 243, (from 7,659 in 2002 to 7,902 in 2003) (Table 5). This represents a 5% decrease in cases among U.S.-born persons and a 3% increase in cases among foreign-born persons during 2002-2003.

Rates varied by racial/ethnic group and nativity. U.S.-born blacks had the highest rate of any U.S.-born racial/ethnic population,² and comprised the largest number of TB cases among persons born in the United States. Blacks represented 45% of TB cases in U.S.-born persons and more than one fourth of all cases (Tables 17 and 18).

The number of states with $\geq 50\%$ of their annual total of reported TB cases among foreign-born persons increased from five in 1993 to 24 in 2003. Of these 24 states, 11 (California, Connecticut, Hawaii, Iowa, Massachusetts, Minnesota, Nebraska, New Hampshire, New Jersey, Utah, and Vermont) had $\geq 70\%$ of their annual total of cases among foreign-born persons (Table 23).

Country of Origin and World Region

From 1999 through 2003, the top five countries of origin of foreign-born persons with TB were Mexico, the Philippines, Viet Nam, India, and China (Table 6). However, fluxes in immigration patterns are leading to changes in the distribution of TB cases by global region of origin (as designated

by the World Health Organization [WHO]).³ In 2003, of the 7,902 cases of TB in foreign-born persons, 44.7% occurred among persons from the Americas (Central and South America or the Caribbean), and 31% were in persons from the Western Pacific. These regions also had the largest number of cases in 1993 (48% and 40%, respectively). During 1993 through 2003, the number of cases increased among persons from the Eastern Mediterranean (3% in 1993 and 4% in 2003) and approximately doubled among persons from Southeast Asia (6% in 1993 and 11% in 2003), while the number of cases among persons from Africa more than tripled (2% in 1993 and 7% in 2003) (Table 19).

Multidrug-Resistant TB

Since 1993, when the case report was expanded to include drug-susceptibility results, the proportion of patients with primary MDR TB (no previous TB, and multidrug-resistant, defined as resistance to at least isoniazid and rifampin) decreased from 2.5% to 1.0% each year during 1998-2001, with an increase to 1.2% in 2002. In 2003, the proportion declined to 0.9%. The number of overall primary MDR TB cases dropped below 100 for the first time ever, and only 25 of those cases were in U.S.-born persons. Both the U.S.-born and foreign-born have seen decreases in the percentage of cases with primary MDR TB, although the decline in the U.S.-born has been greater. Since 1999, the percentage of U.S.-born persons with MDR TB has remained at approximately 0.6%. However, of the total number of reported primary MDR TB cases, the proportion occurring in foreign-born persons increased from 26% (105 of 410) in 1993 to 72% (65 of 90) in 2003 (Table 10).

Tuberculosis Therapy

The proportion of TB patients placed on a recommended initial treatment regimen (i.e., isoniazid, rifampin, pyrazinamide, and streptomycin or ethambutol [4]), increased during 1993 through 2003 (Table 12). The proportions of patients who completed treatment within 1 year,

and of persons who were treated with directly observed therapy (at least for a portion of treatment), also increased from 1993 through 2001, the latest year with available outcome data (Table 12).

Summary

During 1993 through 2003, TB case rates in the United States decreased for U.S.-born and foreign-born persons; however, the decrease among foreign-born persons was less substantial. Both groups have seen decreases in the number and proportion of cases with primary MDR TB, although the decline in the U.S.-born has been greater. The overall improvement is consistent with the finding of an increasing proportion of patients receiving initial four-drug regimens, completing treatment within 1 year, and being treated with directly observed therapy (DOT).

Despite the decreased case rate among foreign-born persons, more than half of the TB cases in the United States in 2003 occurred in this population, and the case rate was more than eight times greater in this population than among U.S.-born persons. To address the high rate, CDC is collaborating with other national and international public health organizations to 1) improve overseas screening of immigrants and refugees by developing systematic tools for monitoring and evaluating the screening process; 2) improve the current notification system that alerts local health departments about the arrival of immigrants or refugees with suspected TB to assist patients in obtaining a medical evaluation and, if necessary, in completing a course of necessary drugs; 3) improve coordination of and communication about TB control activities between the United States and Mexico to ensure completion of treatment among TB patients who cross the border; and 4) test recent arrivals from high-incidence countries for latent TB infection and ensure completion of treatment. In addition, CDC continues to strengthen collaborations with international partners, including the WHO, to improve TB control in high-incidence countries.

Accelerating progress in national TB elimination activities, however, will require broader prevention efforts aimed at evaluating and addressing unmet needs in other population risk groups such as

African Americans, persons living with HIV, and persons living in poverty with limited access to medical care and adequate housing and nutrition.

In addition, low-incidence areas in the United States need continued support to ensure they maintain the capacity and expertise needed to respond to cases when they occur.⁵ CDC has recently updated its comprehensive national action plan to reflect the alignment of its priorities with the 2000 Institute of Medicine report on TB⁶ and to ensure that priority prevention activities are undertaken with optimal collaboration and coordination among national and international public health partners.⁷ Commitment and participation by CDC in efforts towards curtailing the global TB epidemic remains a critical component of the national plan.

References

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