Executive Commentary

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Highlights of 2006 Report

Since 1953, in cooperation with state and local health departments, the Centers for Disease Control and Prevention (CDC) have collected information on each newly reported case of tuberculosis (TB) disease in the United States. Currently, each individual TB case report (Report of Verified Case of Tuberculosis, or RVCT) is submitted electronically to CDC's Division of Tuberculosis Elimination. The following are highlights of the 2006 report:

1. Updated case counts for each year from 1993 through 2005.

2. Case counts: 13,779 TB cases were reported to CDC from the 50 states and the District of Columbia (DC) for 2006, representing a 2.1% decrease from 2005.
   - Twenty states reported increased case counts from 2005 (Table 28).
   - California, New York, Texas, and Florida accounted for 48% of the national case total (Table 28).
   - For the third consecutive year, Hispanics (30%) exceeded non-Hispanic blacks or African-Americans (27%) as the racial and ethnic group with the largest percentage of total cases (Table 2).
   - Blacks or African-Americans born in the United States represented 44% of TB cases in U.S.-born persons and accounted for approximately 19% of the overall national case total (Tables 17, 18).

3. Case rates: The TB case rate declined from 4.7 to 4.6 per 100,000 population, representing a 3.1% decrease from 2005.
   - Twelve states and DC reported rates above the national average (Table 20).
   - Twenty-six states met the definition for low incidence, which is ≤3.5 cases per 100,000 population (Table 20).
   - The TB case rate was 2.3 per 100,000 for U.S.-born persons and 22.0 for foreign-born persons (Table 5).
   - Asians and Native Hawaiians or Other Pacific Islanders continue to have the highest case rates (25.6 per 100,000 population) among all racial and ethnic groups (Table 2).

4. Burden in the foreign-born: The percentage of cases occurring in foreign-born persons continued to increase and was 57%.
   - Hispanics and Asians together represented almost 80% of TB cases in foreign-born persons and accounted for 45% of the national case total (Tables 17, 18).
   - In 27 states, the percentage of TB cases among foreign-born persons was ≥ 50% (Table 23).
   - In 11 states, the percentage of cases among foreign-born persons was ≥70% (Table 23).
   - The top five countries of origin of foreign-born persons with TB were Mexico, Philippines, Vietnam, India, and China (Table 6).

5. Drug resistance: Less than 1% of reported cases had primary multidrug resistance, which is defined as no previous history of TB disease and resistance to at least isoniazid and rifampin (Table 10).

Tuberculosis in the United States

In 2006, the number of TB cases reported (13,779) and case rate (4.6 cases per 100,000) both decreased; this represented declines of 2.1% and 3.1%, respectively, compared to 2005. Since the 1992 TB resurgence peak in the United States, the number of TB cases reported annually decreased by 48%. However, the decreasing trend in the annual case rate has slowed, from an annual average decline of 6.6% for 1993 through 2002 to an annual average decline of 3.1% for 2003 through 2006 (Table 1).

The proportion of total cases occurring in foreign-born persons has been increasing since 1993. In 2006, 57% of TB cases occurred in foreign-born persons. Foreign-born persons accounted for the majority of TB cases in the United States for the sixth consecutive year. Moreover, the case rate among foreign-born persons was more than nine times higher than among U.S.-born persons (Table 5).

Tuberculosis deaths decreased by 1.7%, from 657 deaths in 2004 to 646 deaths in 2005, the latest year for which complete data are available (Table 1).

Age

Since 1993, TB case rates have declined annually for all age groups. TB case rates vary by well-known factors such as age, race and ethnicity, and country of origin. In 2006, TB case rates declined for all age groups except adults aged 25 to 44 years, which remained constant, compared to 2005. The highest burden of disease continues to be among older adults. In 2006, adults aged 65 years and older had the highest TB case rate at 7.2 cases per 100,000, and children aged 0 to 14 years had the lowest at 1.3 cases per 100,000 (Table 4).

Race and Ethnicity

In 2003, the race and ethnicity category, "non-Hispanic, Asian or Pacific Islander," was split into two categories: "non-Hispanic Asian" and "non-Hispanic Native Hawaiian or Other Pacific Islander." In 2006, non-Hispanic Asians had the highest TB case rate at 25.6 cases per 100,000, which was a slight decline from 25.7 in 2005. In 2006, non-Hispanic Native Hawaiians or Other Pacific Islanders had the second-highest TB case rate at 13.6 cases per 100,000, an increase compared to 12.8 cases per 100,000 reported in 2005. Both Native Hawaiian or Other Pacific Islanders and American Indian or Alaska Natives race and ethnicity categories had increases in TB case rates compared to 2005 (Table 2).

Since 1993, TB case rates declined over 50% in each of the other racial and ethnic groups: among Hispanic or Latinos from 19.9 to 9.2 cases per 100,000; among black or African-Americans from 28.5 to 10.2 cases per 100,000; and among non-Hispanic whites from 3.6 to 1.2 cases per 100,000 (Table 2).

Origin of Birth

Since 1993, the TB case rate among U.S.-born persons has declined annually. In 2006, the TB case rate for U.S.-born persons was 2.3 cases per 100,000, representing a 69% decrease from 7.4 cases per 100,000 in 1993. The TB case rate among foreign-born persons also declined during the same interval, but was less substantial. In 2006, the TB case rate among foreign-born persons was 22.0 cases per 100,000, representing a 35% decrease from 34.0 cases per 100,000 in 1993 (Table 5).

The proportion of TB cases among persons born in the United States has declined annually since 1993. In 2006, 43% of TB cases were among U.S-born persons compared to 69% in 1993 (Table 5). In 27 states, the proportion of TB cases among foreign-born persons was ≥ 50%. In 11 states (California, Hawaii, Iowa, Massachusetts, Minnesota, Nebraska, New Hampshire, New Jersey, New York, Rhode Island, and Washington), the proportion of TB cases among foreign-born persons was ≥ 70% (Table 23).

Country of Origin and World Region
From 2001 through 2006, the top five countries of origin of foreign-born persons with TB were Mexico, Philippines, Vietnam, India, and China (Table 6). However, the changes in the distribution of TB cases by world region of origin reflect the changing immigration patterns among persons settling in the United States[1]. Of the 7,799 TB cases reported among foreign-born persons in 2006, 45% occurred among persons born in the Americas region, and 30% occurred among persons born in the Western Pacific region (Table 19). From 1993 to 2006, the proportion of cases increased among persons born in the Eastern Mediterranean region (3% in 1993 to 5% in 2006), the Southeast Asia region (6% in 1993 to 10% in 2006), and the African region (2% in 1993 and 8% in 2006) (Table 19).

Multidrug-Resistant Tuberculosis
Since 1993, when the RVCT was expanded to include drug-susceptibility results, the proportion of patients with primary multidrug-resistant TB (MDR TB), which is defined as no previous history of TB disease and resistance to at least isoniazid and rifampin, has decreased from 2.4% to 0.9% in 2006. Since 1998, the percentage of U.S.-born patients with MDR TB has remained ≤ 0.7%. However, of the total number of reported primary MDR TB cases, the proportion occurring in foreign-born persons increased from 25.5% (103 of 407) in 1993 to 80% (73 of 91) in 2006 (Table 10).

Extensively Drug-Resistant Tuberculosis
For the first time in 2006, CDC included a case count of extensively drug-resistant TB (XDR TB) cases from 1993 to 2006 in the slide set that accompanies this report. Extensively drug-resistant TB is defined as resistance to isoniazid and rifampin, plus resistance to any fluoroquinolone and at least one of three injectable second-line anti-TB drugs (i.e., amikacin, kanamycin, or capreomycin)[2,3]. Three cases of XDR TB were reported during 2006.

Tuberculosis Therapy
The proportion of TB patients prescribed an initial treatment regimen of three or more anti-TB drugs increased annually from 72.1% in 1993 to 87.8% in 2006. The proportion of patients who completed therapy within 1 year increased from 64.1% in 1993 to 82.3% in 2004, and the proportion of persons receiving directly observed therapy for at least a portion of treatment also increased from 35.4% in 1993 to 83.9% in 2004, the latest year for which complete outcome data are available (Table 12).

Summary
Essential elements for controlling TB in the United States include sufficient resources, interventions targeted to populations at high risk for TB, and collaborative efforts with the international community to reduce the burden of TB globally.

During 1993 through 2006, TB case rates in the United States decreased for U.S.-born and foreign-born persons; however, the decrease among foreign-born persons continues to be less substantial. Despite the decreasing case rate among foreign-born persons, more than half of the TB cases in the United States in 2006 occurred in this population, and the case rate was more than nine times higher than among U.S.-born persons. To address these high TB case rates among foreign-born persons, CDC is collaborating with other national and international public health organizations to 1) improve overseas screening of immigrants and refugees by systematically monitoring and evaluating the screening process; 2) strengthen the current notification system that alerts local health departments about the arrival of immigrants or refugees who have suspected TB to enhance the evaluation and treatment of such persons; 3) improve coordination of TB control activities between the United States and Mexico to ensure completion of treatment among TB patients who cross the border; 4) test recent arrivals from high-incidence countries for latent TB infection and monitor treatment completion; and 5) survey foreign-born TB patients in

the United States to determine opportunities for improving prevention and control interventions. In addition, CDC continues to strengthen collaborations with international partners, including the World Health Organization's Stop TB Partnership, to improve TB control in high-incidence countries.

Accelerating progress in national TB elimination activities will require broader prevention efforts among high-risk population groups such as African- and Asian-American communities, persons who are incarcerated, persons with excess alcohol and drug use, persons with human immunodeficiency virus infection, and persons living in poverty with limited access to medical care and stable housing.

In addition, low-incidence areas in the United States require continued support to maintain the capacity and expertise needed to respond to future TB cases[4]. CDC has updated the comprehensive national action plan to reflect the alignment of CDC priorities with the 2000 Institute of Medicine report on TB and to ensure that priority prevention activities are undertaken with optimal collaboration and coordination among national and international public health partners[5,6].

References

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