



## Tuberculosis in San Francisco, 2006

### Disease Incidence

In 2006, 120 (14.9 per 100,000) new cases of active tuberculosis (TB) were diagnosed in San Francisco, representing a 9% decline in cases from 2005 (132 cases) and the lowest annual incidence of TB ever reported in the city. Through intensive efforts over the last decade to prevent infection and active disease among San Francisco residents, we are moving closer to our goal of TB elimination. While declines in active disease over the last few years are encouraging, the rate of TB in San Francisco is still more than 3 times the 2005 national average of 4.8 cases per 100,000, and far from the Healthy People 2010 goal of 1 case per 100,000.

### Demographic Characteristics

**Age:** In 2006, there was a fairly equal distribution of cases across the 25-44, 45-64, and 65+ age groups and only 10 cases reported among persons younger than 25 years of age. The previous increase in cases among the elderly was not seen this year and corresponds with a decline in Chinese cases reported this year. Many of the elderly cases reported in San Francisco tend to be among Chinese migrants, and immigration patterns may be influencing the incidence of disease in this group.

**Race and Ethnicity:** In San Francisco, the largest proportion of cases is reported among the Asian population, although in 2006 the disease rate continued to decline, as in previous years. Among white non-Hispanics, the number of cases has remained relatively stable for the past four years, with approximately 13 cases per year. The number of cases among the Hispanic population has also remained relatively stable over the same time period, though much higher than the white, non-Hispanic population, with a case rate of 21.6 per 100,000. Following an increase in the number of cases reported among black non-Hispanics in 2005—likely due to an increase in homeless cases identified through mandatory shelter screening—the number of cases in this population has remained steady for the past two years.

**Place of birth:** In 2006, 77% of all cases were reported among foreign-born individuals, with 44% of these cases from China. Since 2000, the number of TB cases among U.S.-born persons has remained relatively stable, with the exception of 2001 and 2002, when the number of cases increased due to ongoing outbreaks in the homeless population. Much of the TB seen among the U.S.-born is a result of recent transmission, while TB in the foreign-born population tends to represent reactivation of disease or infection in their country of origin.

### Social Factors

**Homelessness/Marginal Housing:** In 2006, 23 homeless cases were reported. Although this represents a significant increase in the number of homeless cases compared to 2004 and 2005, it can be largely ascribed to several outbreaks in private single-room occupancy (SRO) hotels. While the incidence of TB cases in city shelters has significantly decreased due to the implementation of mandatory TB screening for shelter clients in 2005, several large outbreaks in SRO hotels have created a spike in cases among marginally housed individuals. In 2005, a strain resistant to three drugs was introduced to the Tenderloin for the first time and has resulted in six cases to date (including one death, and one patient acquiring additional drug resistance). Another large SRO outbreak involves nine cases over the past two years in the Tenderloin district. Control of SRO hotel transmission has been complicated by the high HIV rate of the occupants and difficulty in doing contact investigations in an environment of high crime and drug use.

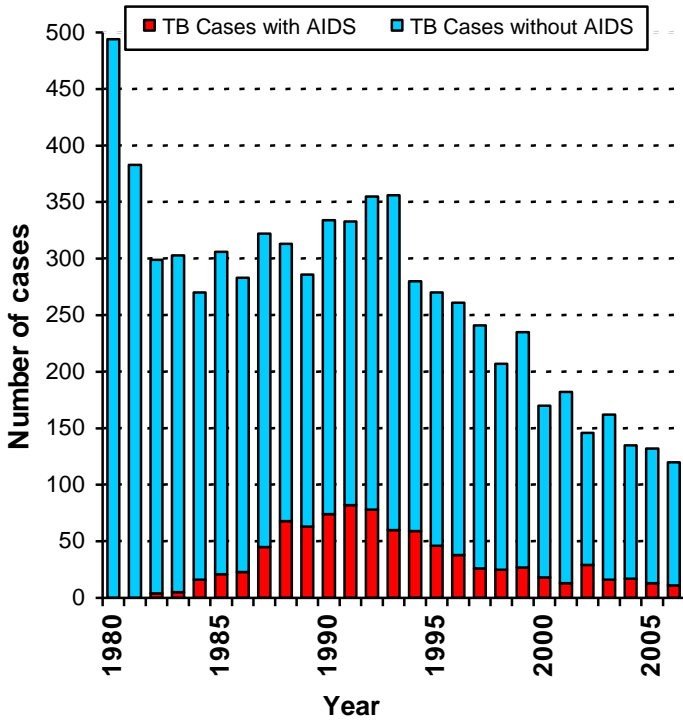
**Substance Abuse:** In 2006, 13% of cases reported excess alcohol use, 13% reported non-injection drug use, and 3% reported injection drug use. These co-factors are often associated with homelessness and HIV-infection.

**AIDS:** Although the overall number of cases with AIDS has declined annually since the peak in 1991, in 2002, the number of TB cases reported with AIDS more than doubled, increasing from 13 cases in 2001 to 29 cases in 2002. This increase was associated with the increase in homeless cases reported that year. In 2003 and 2004, the number of cases with TB and HIV returned to the pre-2000 baseline of approximately 10-12% of all cases reported. In 2006, an all-time low in HIV co-infected cases were reported, with only 9.2% of TB cases being infected with HIV.

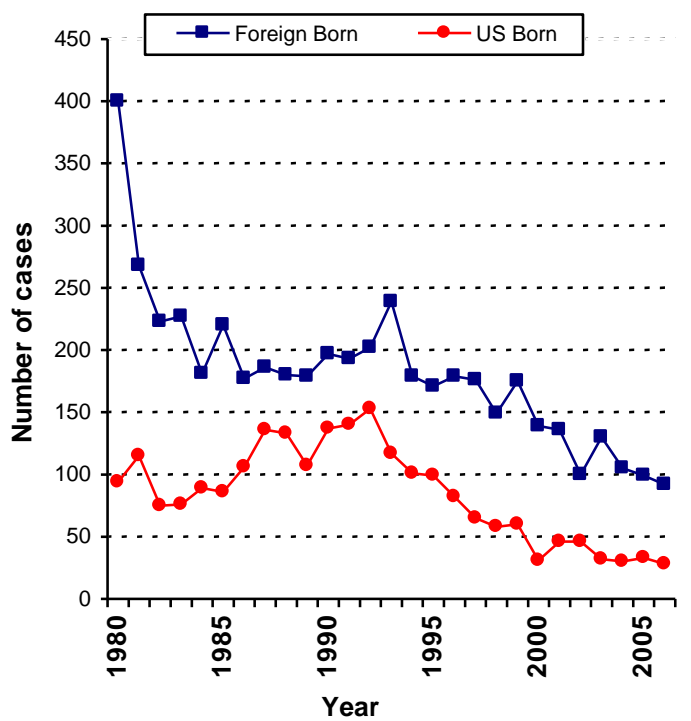
### Drug Resistance

For the last several years, drug resistance has remained relatively steady with the exception of 2004, when drug resistance to at least one drug increased from 15% to 22% of culture-positive TB cases. In 2005, drug-resistance among culture-positive cases reached an all-time low of 8% before climbing again to 13% in 2006. Isoniazid (INH) mono-resistance also showed a progressive decrease from 10% in 2004 to 2% in 2006, while INH resistance in combination with other non-Rifampin drugs increased significantly due to an outbreak of an INH-, Ethambutol-, and Streptomycin-resistant strain in 2006. While the number of MDR cases has remained relatively low (one-four cases per year, and 1-3% of all cases reported annually), these TB strains are usually highly resistant (four or more drugs) and are difficult and costly to manage. There was one case of acquired Rifampin resistance in a patient with INH resistance, leading to acquired MDR-TB in 2006 due to delayed drug susceptibility results. This issue highlights the need for adoption of more rapid drug-susceptibility technology by all laboratories.

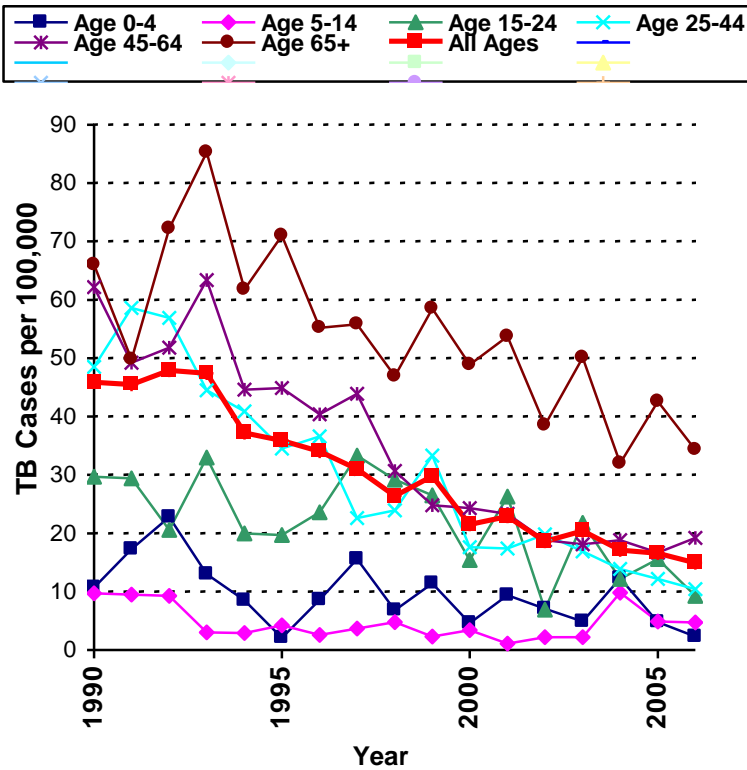
**TB Cases in San Francisco by AIDS Status, 1980-2006**



**TB Cases in San Francisco by Place of Birth, 1980-2006**



**Rates of TB in San Francisco by Age Group, 1990-2006**



**Rates of TB in San Francisco by Race and Ethnicity, 1990-2006**

