



County of Orange, Health Care Agency Pulmonary Disease Services Tuberculosis Fact Sheet, 2008

Tuberculosis Trend in Orange County

Orange County reported 210 cases of tuberculosis (TB) in 2008, representing a decrease of 3.2% in the number of TB cases compared to 2007 when 217 cases were reported and a 24.5% decrease since 2001 when a 10-year historic high of 278 cases were reported. TB in Orange County surpassed 200 cases reported annually in 1979 and rose significantly above that level to a high of 430 cases reported in 1993. The increases are closely related to immigration from Southeast Asia, Mexico, and Central and South America. A significant delay in case reporting in 1996 resulted in an artificially steep decline in reported cases that year followed by an increase in 1997. The TB case rate for 2008 was 6.7 cases for every 100,000 Orange County residents. This compares to a rate of 7.0 and 4.2 cases per 100,000 population for California and the United States, respectively. TB rates in California and the United States decreased 2.8% and 3.8% respectively as compared to 2007, while the rate of reported TB cases in Orange County decreased 4.3% from 2007.

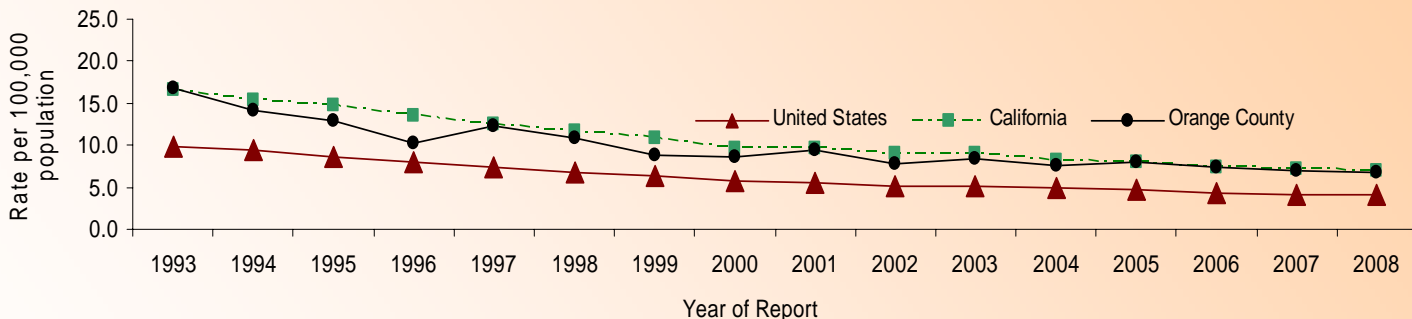
In 2008, Orange County ranked eighteenth in the State based on TB case rates and had the third highest number of TB cases reported in California behind Los Angeles and San Diego Counties.

Orange County's 2008 rate of 6.7 cases per 100,000 remained higher than the national Healthy People 2010 objective of one (1) TB case per 100,000 population.

Year	Cases	Rate*
1999	246	8.8
2000	246	8.6
2001	278	9.5
2002	230	7.8
2003	248	8.3
2004	230	7.6
2005	242	7.9
2006	226	7.3
2007	217	7.0
2008	210	6.7

* Rate per 100,000 population

**Tuberculosis Rates,
Orange County, California, and the United States,
1993 - 2008**

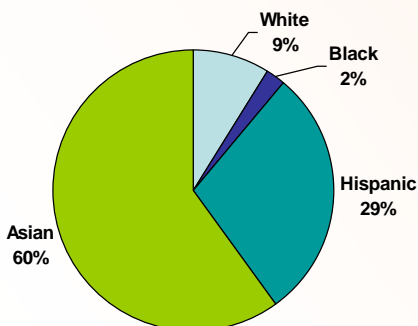


Race and Ethnicity

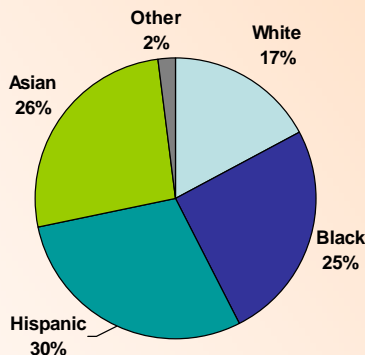
Racial and ethnic minorities disproportionately represent the majority of TB cases in Orange County. Asian (60%) and Hispanic (29%) accounted for 89% of Orange County's total TB cases for 2008. Orange County's TB case demographics differ from national statistics in which nearly half (42%) of U.S. cases were either White (17%) or Black (25%) compared to just 11.0% of Orange County cases.

**Tuberculosis Cases by Race/Ethnicity,
Orange County and the United States, 2008**

Orange County



United States





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Foreign-born Cases

Immigration of persons from countries with high rates of TB continues to be a major issue in TB control. Of the 210 cases reported in Orange County in 2008, 84.8% were among persons born outside the United States; 37.6% of these were from Vietnam, 23.6% from Mexico, 17.4% from the Philippines and 3.9% from Korea. By comparison, 58.8% of U.S. 2008 cases and 75.3% of California 2008 cases with known birthplace were foreign-born.

TB and HIV co-infection

HIV is the strongest risk factor for the progression of TB infection to active disease. In Orange County, the epidemiology of TB/HIV co-infection reflects the population at high risk for TB: foreign-born persons from countries with high prevalence of TB. From 1999 to 2008, 70 cases were reported with TB/HIV co-infection in Orange County. Approximately, 77.1% of these TB cases were foreign-born and 81.5% of these foreign-born TB and HIV co-infected cases were Hispanic.

City of Residence

Four Orange County cities accounted for more than half (52.4%) of the Orange County TB cases in 2008: Anaheim (n=35), Santa Ana (n=34), Garden Grove (n=28), and Westminster (n=13).

Age Groups and Gender

Between 1999 and 2008, 84.2% of all TB cases reported in Orange County occurred among individuals 25 years and older. Persons aged 25-44 years, 45-64 years and 65 years and older accounted for 33.0%, 27.1% and 24.2% of cases, respectively. During this ten-year period, the gender distribution of cases remained stable, 57.0% male and 43.0% female.

Pediatric Cases

TB in children under five years of age indicates ongoing or recent transmission. Children under five years are also susceptible to rapid progression from TB infection to TB disease. Six TB cases (2.9%) under five years were reported in 2008, a decrease from the nine cases reported in 2007. Screening close contacts to infectious TB cases and use of directly observed therapy for TB medications increase the success rate of finding and treating adult TB cases, thereby decreasing TB exposure and infection of children under five years of age.

Drug Resistant TB

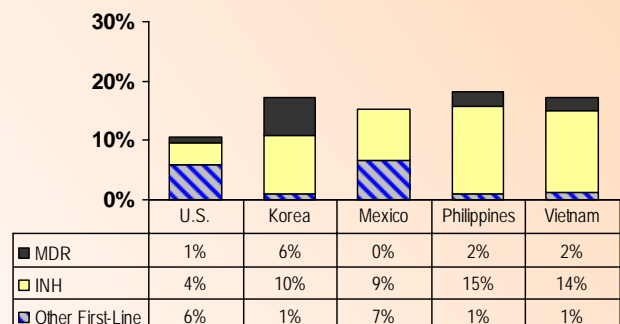
Drug susceptibility results for *Mycobacterium tuberculosis* isolates were available for 188 (100.0%) of the 188 Orange County 2008 culture positive TB cases. Of these 188 cases, 28 (14.9%) were resistant to one or more of the first-line drugs used to treat TB (isoniazid (INH), rifampin (RIF), ethambutol (EMB) and pyrazinamide (PZA). Twenty (10.6%) were resistant to at least INH.

Multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB cases greatly complicate the control of TB. MDR-TB is TB that is resistant to at least INH and RIF, while XDR-TB is MDR-TB plus resistance to any fluoroquinolone and resistance to at least one second-line injectable drug (e.g., amikacin, capreomycin, or kanamycin).

As compared to 2007, incidence of MDR-TB in Orange County decreased in 2008, from three to two cases (1.1% of those with susceptibilities available). In comparison, 1.2% of U.S. cases for which drug-susceptibility test results were reported in 2007 were MDR-TB (latest year available). In 2008, no Orange County XDR-TB cases were reported and four U.S. XDR-TB cases were reported.

In Orange County, drug resistance patterns vary by country of birth. During the 10-year time period 1999-2008, the proportion of TB cases with INH drug resistance was highest in persons born in the Philippines (15%), and Vietnam (14%). However, a higher proportion of Korean-born cases are multidrug-resistant (6%). In Orange County, first-line drug resistance among U.S. born persons with TB remains low at 11% (1% MDR, 4% INH resistant-not MDR, and 6% other first-line drug resistance).

**First-Line Drug Resistance by Country of Birth
Orange County, 1999 - 2008**



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