



# County of Orange Health Care Agency Pulmonary Disease Services Tuberculosis Fact Sheet, 2010

## Tuberculosis Trend in Orange County

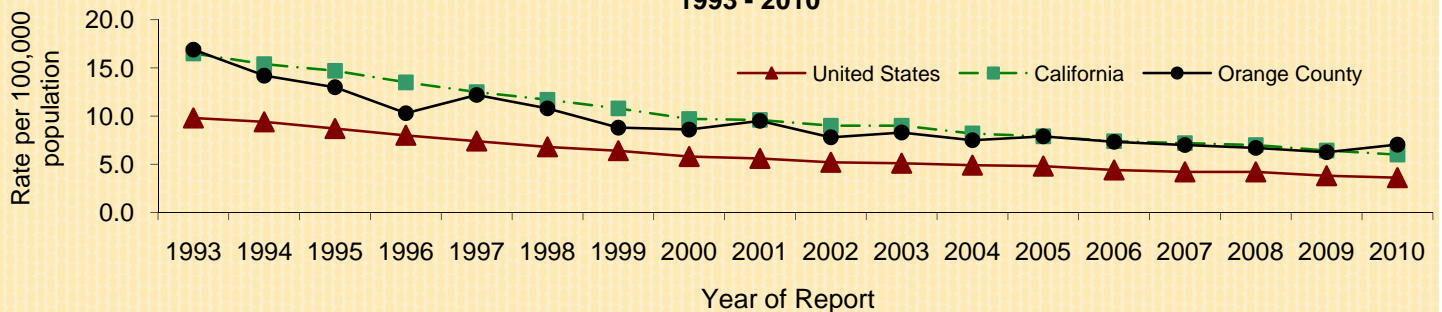
Orange County reported 224 cases of tuberculosis (TB) in 2010. This represents an increase of 13.7% in the number of TB cases from 2009 when 197 cases were reported, a 19.4% decrease since 2001 when a 10-year high of 278 cases were reported and a 47.9% decrease from a historic high of 430 cases reported in 1993. The TB case rate for 2010 was 7.0 cases for every 100,000 Orange County residents. This compares to a rate of 6.0 and 3.6 cases per 100,000 population for California and the United States, respectively. TB rates in California and the United States decreased 6.3% and 3.9%, respectively, as compared to 2009, while the rate of reported TB cases in Orange County increased 12.9% from 2009. For 2010, Orange County TB cases were more likely to be Asian, foreign-born and 65 years and older.

In 2010, Orange County ranked eighth in the State based on TB case rates and had the second highest number of TB cases in California behind Los Angeles County. Orange County's 2010 rate of 7.0 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*
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
2009	197	6.2
2010	224	7.0

\* Rate per 100,000 population

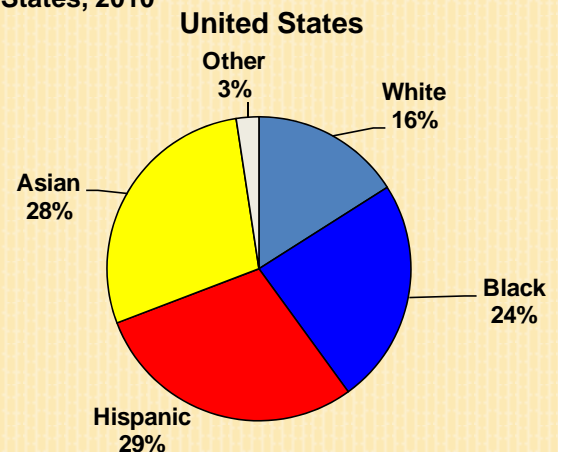
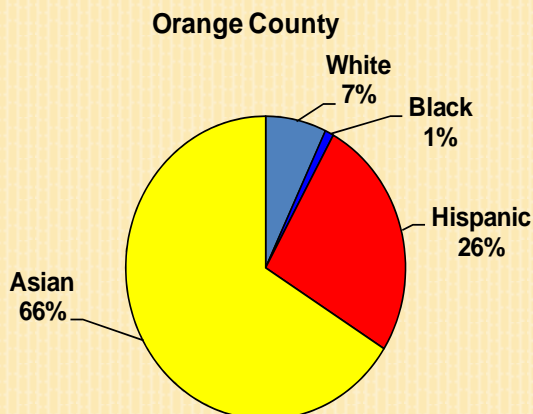
**Tuberculosis Rates,  
Orange County, California, and the United States,  
1993 - 2010**



## Race and Ethnicity

Racial and ethnic minorities disproportionately represent the majority of TB cases in Orange County. Asian (66%) and Hispanic (26%) accounted for 92% of Orange County's total TB cases for 2010. Orange County's TB case demographics differ from national statistics in which 40% of U.S. cases with known race/ethnicity were either White (16%) or Black (24%) compared to just 8% of Orange County cases.

**Tuberculosis Cases by Race/Ethnicity,  
Orange County and the United States, 2010**





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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 224 cases with known birthplace reported in Orange County in 2010, 90.2% were among persons born outside the United States; 42% of these were from Vietnam, 20% from Mexico, 10% from the Philippines, 6% from Korea, 5% from India and 3% from China. By comparison, 60.5% of U.S. 2010 cases and 78.3% of California 2010 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 2001 to 2010, 55 cases were reported with TB/HIV co-infection in Orange County. Approximately 85.4% of these TB cases were foreign-born, and 80.9% of these foreign-born TB/HIV co-infected cases were Hispanic.

## City of Residence

Five Orange County cities accounted for more than half (58.9%) of the Orange County TB cases in 2010: Santa Ana (n=39), Garden Grove (n=35), Anaheim (n=30), and Westminster (n=14) and Irvine (n=14).

## Age Groups and Gender

Between 2001 and 2010, 85.3% 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 31.0%, 29.0% and 25.3% of cases, respectively. During this ten-year period, the gender distribution of cases remained stable, 57.6% male and 42.4% 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 (2.7%) under five years were reported in 2010, an increase from the four cases (2.0%) reported in 2009. Screening high priority 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

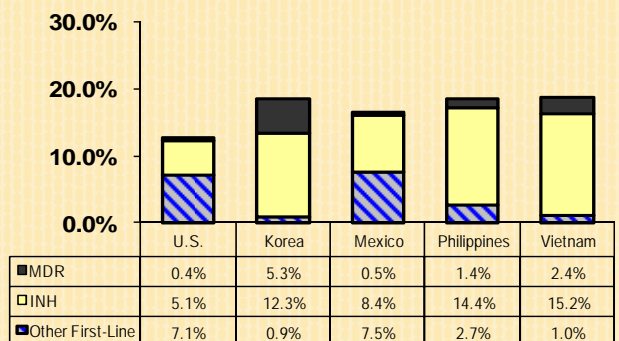
Drug susceptibility results for *Mycobacterium tuberculosis* isolates were available for 196 (97%) of the 202 Orange County 2010 culture positive TB cases. Of these 196 cases, 31 (15.8%) were resistant to one or more of the first-line drugs used to treat TB (isoniazid (INH), rifampin (RIF), ethambutol (EMB) and pyrazinamide (PZA)). Twenty-two (11.2%) 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 (e.g. ciprofloxacin, ofloxacin, levofloxacin, or moxifloxacin) and resistance to at least one second-line injectable drug (e.g., amikacin, capreomycin, or kanamycin).

As compared to 2009, incidence of MDR-TB in Orange County decreased in 2010, from six cases to one case (0.5% of those with susceptibilities available). In comparison, 1.3% of U.S. cases for which drug-susceptibility test results were reported in 2009 were MDR-TB (latest year available). In 2010, no XDR-TB cases were reported in Orange County. Nationally, one case of XDR-TB has been reported in 2010.

In Orange County, drug resistance patterns vary by country of birth. During the 10-year time period 2001-2010, the proportion of TB cases with INH drug resistance was highest in persons born in Vietnam (15.2%) and the Philippines (14.4%). However, a higher proportion of Korean-born cases are multidrug-resistant (5.3%). In Orange County, first-line drug resistance among U.S. born persons with TB remains low at 12.6% (0.4% MDR, 5.1% INH resistant-not MDR, and 7.1% other first-line drug resistance).

**First-Line Drug Resistance by Country of Birth  
Orange County, 2001- 2010**



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