



County of Orange Health Care Agency Pulmonary Disease Services Tuberculosis Fact Sheet, 2013

Tuberculosis Trend in Orange County

Orange County reported 187 cases of tuberculosis (TB) in 2013, the lowest number recorded in thirty years. This represents a decrease of 2.6% in the number of TB cases from 2012 when 192 cases were reported, a 22.7% decrease since 2005 when a 10-year high of 242 cases were reported and a 56.5% decrease from a historic high of 430 cases reported in 1993. The TB case rate for 2013 was 6.0 cases for every 100,000 Orange County residents. This compares to a rate of 5.7 and 3.0 cases per 100,000 population for California and the United States, respectively. TB rates in California and the United States decreased 1.7% and 6.3% respectively, as compared to 2012, while the rate of reported TB cases in Orange County decreased 3.2% from 2012.

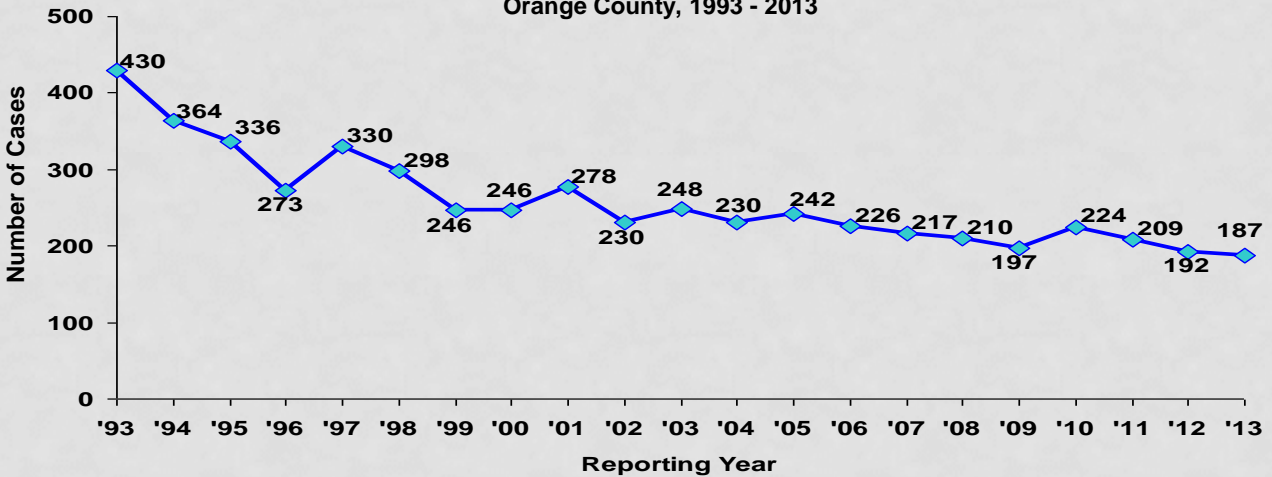
The highest burden of disease continues to be among older adults. In 2013, adults aged 65 years and older had a case rate of 14.6 cases per 100,000 population, while children aged 19 years and younger had the lowest rate at 1.0 case per 100,000 population. In 2013, Orange County TB cases were more likely to be Asian, foreign-born and 65 years and older.

In 2013, Orange County ranked eleventh in the State based on TB case rate and had the third highest number of TB cases in California behind Los Angeles and San Diego Counties. Orange County's 2013 rate of 6.0 cases per 100,000 remained higher than the national Healthy People 2020 objective of one (1) TB case per 100,000 population.

Year	Cases	Rate*
2004	230	7.8
2005	242	8.2
2006	226	7.6
2007	217	7.3
2008	210	7.0
2009	197	6.6
2010	224	7.4
2011	209	6.9
2012	192	6.2
2013	187	6.0

* Rate per 100,000 population

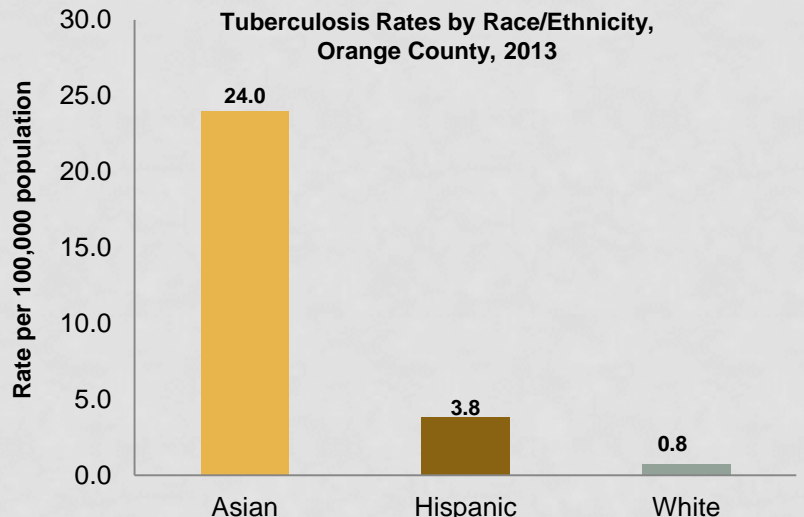
**Number of Reported Tuberculosis Cases,
Orange County, 1993 - 2013**



Race and Ethnicity

In Orange County, TB continues to disproportionately affect minorities. In 2013, Asians continued to have the highest TB case rate at 24.0 cases per 100,000; a slight decrease from 24.3 in 2012. Hispanics had the second highest TB case rate at 3.8 cases per 100,000, which was a decrease compared to 4.5 cases per 100,000 in 2012. The TB case rate for Whites was 0.8 per 100,000; a slight increase from 0.6 in 2012. In 2013, the TB case rate among Asians remained approximately six times and thirty times higher than the rates of Hispanics and Whites, respectively.

**Tuberculosis Rates by Race/Ethnicity,
Orange County, 2013**



Note: TB case rates not reported for African Americans [rates not calculated for counts less than or equal to 5 cases]



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Foreign-born Cases

Foreign-born persons continue to be disproportionately affected by TB. Of the 187 cases reported in Orange County in 2013, 91.4% were among persons born outside the United States. The top five countries of origin of foreign-born persons with TB were Vietnam (38.0%), Philippines (19.9%), Mexico (15.8%), Korea (6.4%), and China (4.1%). By comparison, 64.6% of U.S. 2013 cases and 78.2% of California 2013 cases with known birthplace were foreign-born. In 2013, the TB rate for foreign-born persons living in Orange County was 18.1 cases per 100,000. This compares to a rate of 0.7 cases per 100,000 population among U.S. born-persons. The Orange County 2013 TB rate for foreign-born persons is higher than the national Healthy People 2020 objective of 14.0 TB cases per 100,000 foreign-born population.

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 2004 to 2013, 37 cases were reported with TB/HIV co-infection in Orange County. Approximately 86.4% of these TB cases were foreign-born, and 71.9% of these foreign-born TB/HIV co-infected cases were Hispanic.

City of Residence

In 2013, the five cities in Orange County with the highest TB case rate were: Westminster (19.7 per 100,000), Garden Grove (17.9 per 100,000), Tustin (7.7 per 100,000), and Santa Ana and Lake Forest (7.6 per 100,000 each).

Age Groups and Gender

Between 2004 and 2013, 87% 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 28.6%, 29.6% and 28.7% of cases, respectively. During this ten-year period, the gender distribution of cases remained stable, 57.7% male and 42.3% 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. One TB case (0.5%) under five years was reported in 2013, a decrease from two cases reported in 2012. 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

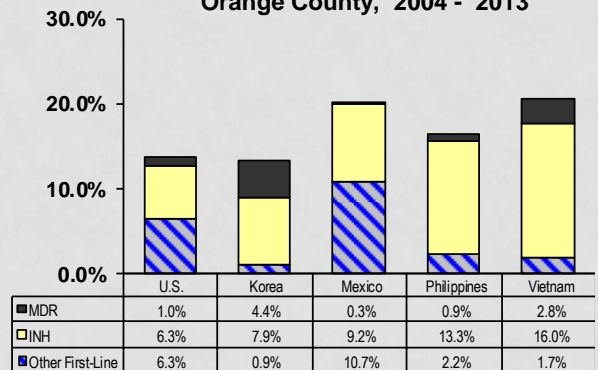
Drug susceptibility results for *Mycobacterium tuberculosis* isolates were available for 157 (99.4%) of the 158 Orange County 2013 culture positive TB cases. Of these 157 cases, 27 (17.2%) were resistant to one or more of the first-line drugs used to treat TB (isoniazid (INH), rifampin (RIF), ethambutol (EMB) and pyrazinamide (PZA)). Twenty-two (14.0%) were resistant to at least INH.

Multi-drug-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 2012, the incidence of MDR-TB in Orange County increased in 2013, from one case to three cases; two (1.3%) with susceptibilities available and one provider diagnosis. In comparison, 1.2% of U.S. cases for which drug-susceptibility test results were reported were MDR-TB (2012, latest year available). In 2013, no XDR-TB cases were reported in Orange County. Nationally, two XDR-TB cases were reported in 2013.

In Orange County, drug resistance patterns vary by country of birth. During the 10-year time period 2004-2013, the proportion of TB cases with INH drug resistance was highest in persons born in Vietnam (16.0%) and the Philippines (13.3%). However, a higher proportion of Korean-born cases were multidrug-resistant (4.4%). In Orange County, first-line drug resistance among U.S. born persons with TB was 13.6% (1.0% MDR, 6.3% INH resistant-not MDR, and 6.3% other first-line drug resistance).

**First-Line Drug Resistance by Country of Birth
Orange County, 2004 - 2013**



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