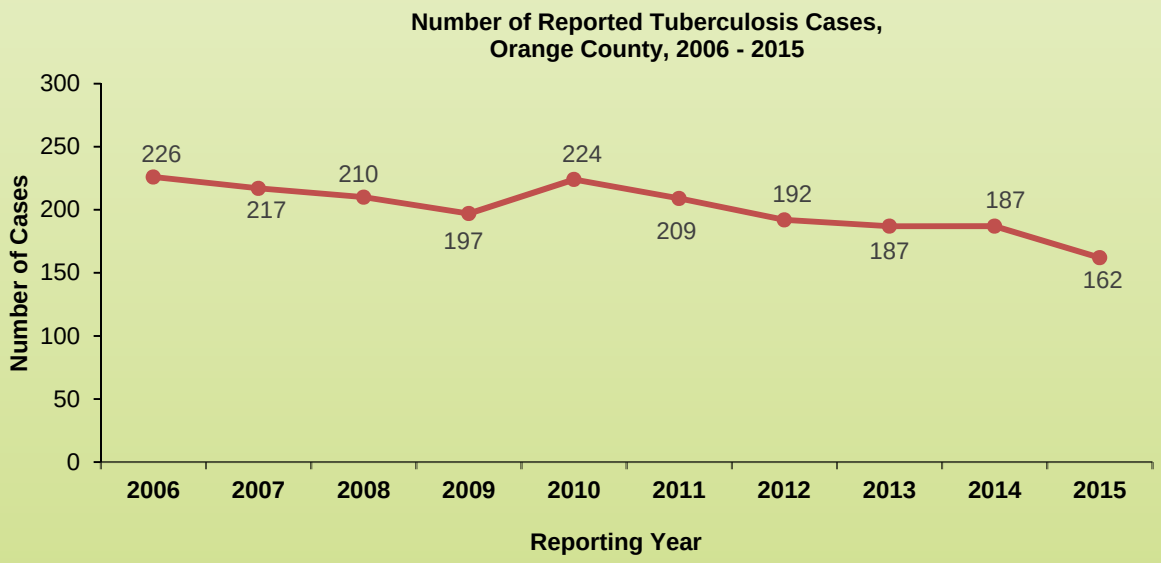
Pulmonary Disease Services
Tuberculosis Fact Sheet, 2015

Tuberculosis Trend in Orange County

In 2015, Orange County reported 162 cases of tuberculosis (TB). This represents a 28.3% decrease since 2006 when a 10-year high of 226 cases were reported and a 69.0% decrease from a historic high of 523 cases reported in 1981. The TB case rate for 2015 was 5.1 cases for every 100,000 Orange County residents. This compares to a rate of 5.5 and 3.0 cases per 100,000 population for California and the United States, respectively. TB rates in California increased 0.1%, remained unchanged in the United States, and decreased 15.0% in Orange County from 2014.

The highest burden of disease continues to be among older adults. In 2015, adults aged 65 years and older had a TB case rate of 14.3 cases per 100,000 population, while children aged 19 years and younger had the lowest rate at 1.3 case per 100,000 population. In 2015, Orange County TB cases were more likely to be male, Asian, foreign-born and 65 years and older.

In 2015, Orange County ranked fourteenth in the State based on TB case rate and had the fourth highest number of TB cases in California behind Los Angeles, San Diego and Santa Clara Counties. Orange County's 2015 rate of 5.1 cases per 100,000 remained higher than the national Healthy People 2020 objective of one (1) TB case per 100,000.

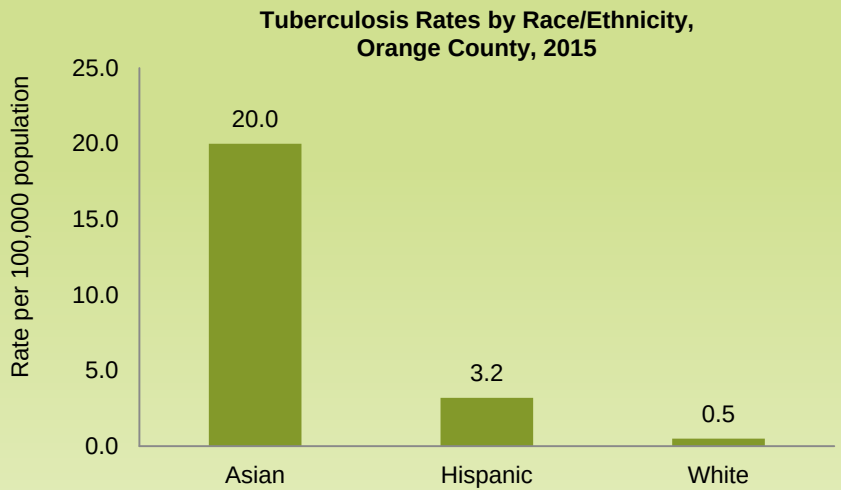


Year	Rate*
2006	7.6
2007	7.3
2008	7.0
2009	6.6
2010	7.4
2011	6.9
2012	6.2
2013	6.0
2014	6.0
2015	5.1

* Rate per 100,000 population

Race and Ethnicity

In Orange County, TB continues to disproportionately affect minorities. In 2015, Asians continued to have the highest TB case rate at 20.0 cases per 100,000; a 11.1% decrease from 22.5 in 2014. The TB case rate for Hispanics was 3.2 cases per 100,000, which was a decrease of 3.0% compared to 3.3 cases per 100,000 in 2014. The TB case rate for Whites was 0.5 per 100,000; a decrease of 44.4% from 0.9 in 2014. Case counts for other races were less than five; case rates are not calculated for case counts less than five. In 2015, the TB case rate among Asians was approximately six times and forty times higher than the rates of Hispanics and Whites, respectively.



Pulmonary Disease Services
Tuberculosis Fact Sheet, 2015

Age

In 2015, TB cases were reported among persons ranging from 1 to 94 years of age with 89.5% of all TB cases occurring among individuals 25 years and older. Of the three pediatric cases, one was younger than five years of age**.** 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. 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.

Gender

In 2015, 61.1% (99 of 162) of persons with TB in Orange County were male; this compares to 58.7% male California TB cases. In 2015, the TB case rate in Orange County was 6.4 and 4.0 cases per 100,000 population among males and females, respectively. In California, the 2015 TB case rate for males and females was 6.5 and 4.5 cases per 100,000 population, respectively. During the 2006 to 2015 time frame, males accounted for an average of 59% of the Orange County TB cases per year (range: 52%-66%), while females accounted for an average of 41% (range: 34%-48%).

Foreign-born Cases

Foreign-born persons continue to be disproportionately affected by TB; these persons predominately originate from countries with a high prevalence of tuberculosis. Of the 162 cases reported in Orange County in 2015, 146 (90.1%) were among persons born outside the United States. The top five countries of origin of foreign-born persons with TB were Vietnam (41.1%), Mexico (19.2%), Philippines (16.4%), Korea (6.8%), and India (3.4%). By comparison, 80.9% of California and 66.8% of U.S. 2015 cases with known birthplace were foreign-born. Of the 136 foreign-born persons with known U.S. arrival date, 128 (94.1%) were living in the United States for more than 5 years prior to TB diagnosis. This indicates reactivation of latent TB infection that was likely acquired before U.S. arrival rather than recent transmission. In 2015, the TB rate for foreign-born persons living in Orange County was 15.1 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 2015 TB rate for foreign-born persons is lower than the California rate of 16.5 and 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 2006 to 2015, 33 cases were reported with TB/HIV co-infection in Orange County. Approximately 90.9% of these TB cases were foreign-born, and 60.0% of these foreign-born TB/HIV co-infected cases were Hispanic.

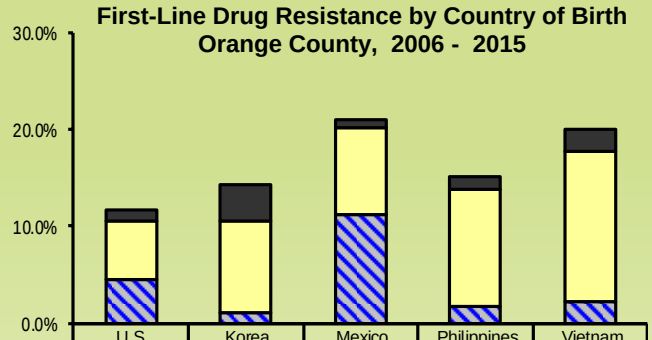
Drug Resistant TB

Drug susceptibility results for *Mycobacterium tuberculosis* isolates were available for all (100.0%) 148 Orange County 2015 culture positive TB cases. Of these 148 cases, 15 (10.1%) were resistant to one or more of the first-line drugs used to treat TB (isoniazid (INH), rifampin (RIF), ethambutol (EMB) and pyrazinamide (PZA)).

Multi-drug-resistant (MDR) and extensively drug-resistant (XDR) TB cases greatly complicate TB control. 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, levofloxacin, moxifloxacin or ofloxacin) and resistance to at least one second-line injectable drug (e.g., amikacin, capreomycin, or kanamycin).

In 2015, two MDR-TB and no XDR-TB cases were reported in Orange County. As compared to 2014, the incidence of MDR-TB in Orange County increased from zero to two cases. In comparison, in 2015, there were 22 MDR-TB cases and no XDR-TB cases in California.

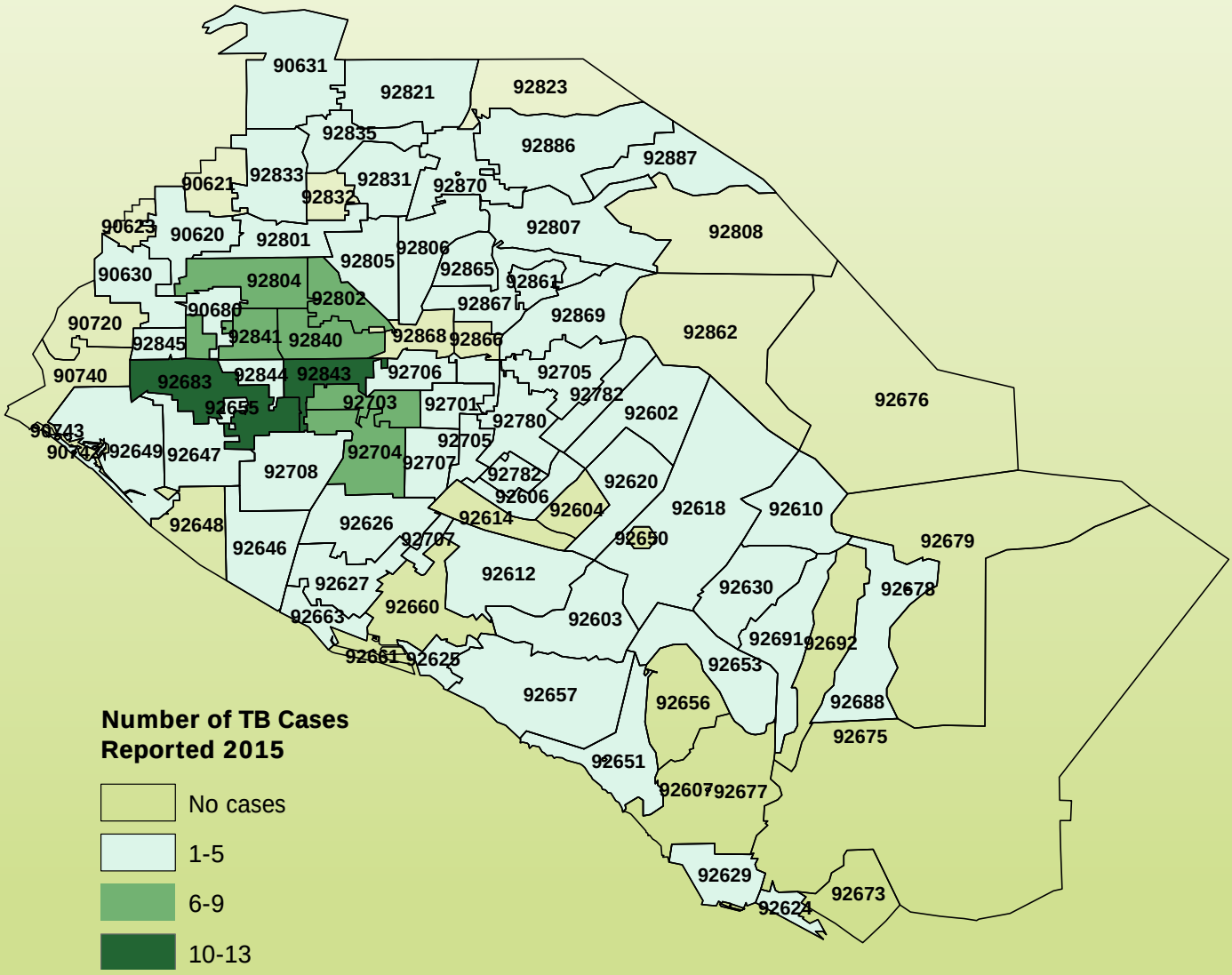
In Orange County, drug resistance patterns vary by country of birth. During the 10-year time period 2006-2015, the proportion of TB cases with INH drug resistance was highest in persons born in Vietnam (15.5%) and the Philippines (12.0%). However, a higher proportion of Korean-born cases were multidrug-resistant (3.8%). In Orange County, first-line drug resistance among U.S. born persons with TB was 11.7% (1.1% MDR-TB, 6.1% INH resistant-not MDR-TB, and 4.5% other first-line drug resistance).



	U.S.	Korea	Mexico	Philippines	Vietnam
MDR	1.1%	3.8%	0.7%	1.3%	2.3%
INH	6.1%	9.5%	9.0%	12.0%	15.5%
Other First-Line	4.5%	1.0%	11.3%	1.8%	2.2%

Pulmonary Disease Services
Tuberculosis Fact Sheet, 2015

TB Cases by Zipcode of Residence, Orange County 2015



Number of TB Cases Reported 2015

- No cases
- 1-5
- 6-9
- 10-13

For further information, contact:

Pulmonary Disease Services
1725 W. 17th Street, Suite 101-E
P.O. BOX 6099
Santa Ana, CA 92706

Phone: (714) 834-8406
Fax: (714) 834-8728
Website: http://www.ochealthinfo.com/phs/about/dcepi/tb