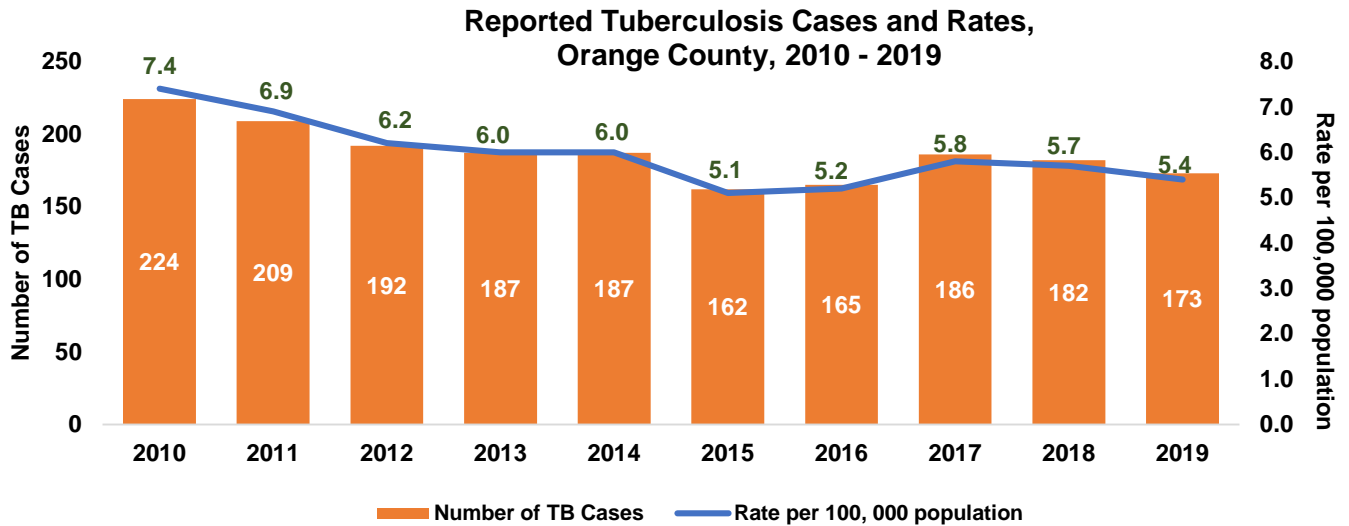


Tuberculosis Trend in Orange County

In 2019, Orange County reported 173 cases of active tuberculosis (TB) disease. This represents a 22.8% decrease since 2010 when a 10-year high of 224 cases were reported and a 59.8% decrease from a historic high of 430 cases reported in 1993. The TB case rate for 2019 was 5.4 cases for every 100,000 Orange County residents, which is double the national incidence rate of 2.7 per 100,000 population. The TB case rate for California was 5.3 per 100,000 population. Compared to 2018, the TB case rate in California stayed the same, while the rates in the U.S. and in Orange County decreased 1.6% and 5.3%, respectively.

The highest burden of disease continues to be among older adults. In 2019, persons aged 65 years and older had a TB case rate of 15.1 per 100,000 population. In 2019, Orange County TB cases were more likely to be male, Asian, non-U.S. born and 65 years and older.

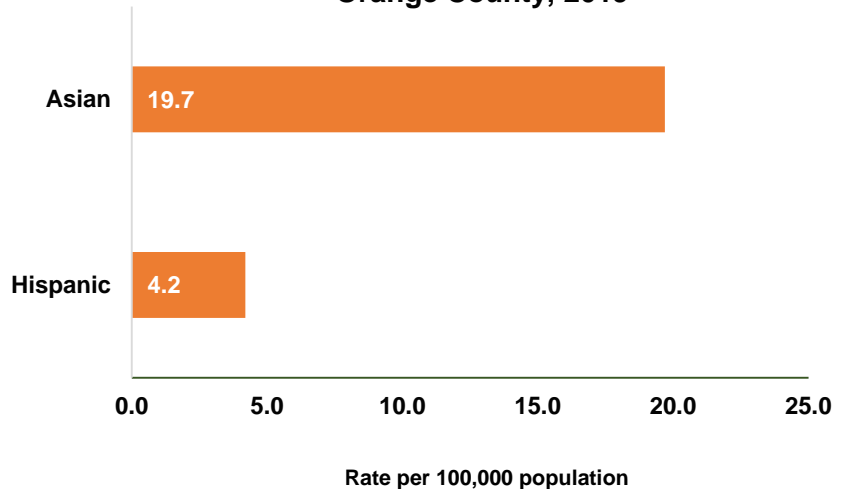
In 2019, Orange County ranked tenth in the State based on TB case rate. Orange County reported the third highest number of TB cases in California behind Los Angeles and San Diego Counties. Orange County's 2019 TB case rate of 5.4 cases per 100,000 population remained higher than the national Healthy People 2020 objective of one TB case per 100,000 population.



Race and Ethnicity

In Orange County, TB continues to disproportionately affect minorities. In 2019, the TB case rate among Asians was nearly five times higher than the rate for Hispanics. The TB case rate among Asians was 19.7 cases per 100,000 population, which was a 5.3% decrease from 20.8 cases per 100,000 population in 2018. The TB case rate among Hispanics was 4.2 cases per 100,000 population, which was an increase of 7.7% compared to 3.9 cases per 100,000 population in 2018. Case counts for other races were less than five. Case rates are not calculated for case counts less than five.

Tuberculosis Rates by Race/Ethnicity, Orange County, 2019



Age

In 2019, Orange County TB cases were reported among persons ranging from 10 to 93 years of age with 43.9% of all TB cases occurring among individuals 65 years and older. The median age of TB cases was 53 years. There was one pediatric TB case (under 15 years of age).

Gender

In 2019, 61.3% of TB cases in Orange County were male. The TB case rate in Orange County, among males and females, was 6.6 and 4.1 cases per 100,000 population, respectively.

Country of Birth

Non-U.S. born persons continue to be disproportionately affected by TB. These persons predominately originate from countries with a high prevalence of TB. Of the 173 Orange County TB cases, 161 (93.1%) were non-U.S. born. By comparison, 81.6% of California and 71.2% of U.S. 2019 cases with known birthplace were non-U.S. born. The top countries of birth of TB cases in Orange County were Vietnam (33.5%), Mexico (19.1%), Philippines (15.6%), South Korea and the U.S. (6.9% each), and, China and India (3.5% each).

Of the non-U.S. born persons with known U.S. arrival date, 127 (82.5%) were living in the U.S. for more than five years prior to TB diagnosis. This indicates reactivation of latent TB infection (LTBI) that was likely acquired before U.S. arrival rather than recent transmission.

In 2019, the TB case rate for non-U.S. born persons living in Orange County was 16.9 cases per 100,000 population. This compares to a rate of 0.5 cases per 100,000 population among U.S. born-persons. The Orange County 2019 TB case rate for non-U.S. born persons is higher than the California rate of 16.0 and the national Healthy People 2020 objective of 14.0 TB cases per 100,000 non-U.S. born population.

TB and HIV co-infection

HIV is the strongest risk factor for the progression of LTBI to active disease. Provisional 2019 data shows that 90.5% of TB cases alive at TB diagnosis had a known HIV status. In Orange County, the epidemiology of TB/HIV co-infection reflects the population at high risk for TB: non-U.S. born persons from countries with high prevalence of TB. From 2010 to 2019, 31 cases were reported with TB/HIV co-infection. Approximately 96.7% of these TB cases with known country of birth were non-U.S. born, predominately Asian or Hispanic (48.3% each).

TB and Other Risk Factors

Diabetes and cigarette smoking increase the risk of progression from LTBI to active TB disease. In 2019, 28.8% of adult TB cases in Orange County had diabetes and 31.2% were current or past smokers.

Drug Susceptibility Testing

In 2019, drug susceptibility results for *Mycobacterium tuberculosis* isolates were available for 149 (92.5%) of the 161 Orange County culture positive TB cases.

Drug Resistance

Of 149 culture positive cases, 25 (16.8%) were resistant to one or more of the first-line drugs used to treat TB (isoniazid (INH), rifampin (RIF), ethambutol (EMB) and pyrazinamide (PZA)).

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 2019, there were two MDR-TB and no XDR-TB cases reported in Orange County. As compared to 2018 the incidence of MDR-TB in Orange County increased from one to two cases. Statewide in 2019, there were 17 MDR-TB cases and one XDR-TB case.

In Orange County, drug resistance patterns vary by country of birth. From 2010 to 2019, the proportion of TB cases with INH drug resistance was highest in persons born in Vietnam (15.2%) and South Korea (11.7%). A higher proportion of TB cases with multidrug-resistance were born in Vietnam and Philippines (1.8% and 1.4%, respectively). In Orange County, first-line drug resistance among U.S. born persons with TB was 9.5% (0.7% MDR-TB, 4.1% INH resistant only, and 4.7% other first-line drug resistance).

Treatment Completion

In 2017 (most recent year for which data is available), 95.5% of TB cases, for whom 12 months or less of treatment is indicated, completed their prescribed treatment within 12 months of diagnosis. Orange County met the national 2025 objective of 95% treatment completion in one year or less for patients for whom 12 months or less of treatment is indicated.

LTBI

Based on the National Health and Nutrition Examination Survey (NHANES) data, CDC estimates that over 200,000 people in Orange County have LTBI. One in six non-U.S. born persons in Orange County have LTBI. Without treatment for LTBI, persons with LTBI are at risk for developing TB disease. Focusing efforts with screen for and treat LTBI is key to eliminating TB disease in Orange County.

TB Reporting

In Orange County, all suspected or confirmed TB cases are assigned to a Public Health nurse case manager who provides individualized case management activities for the patient. In 2019, there were 837 persons with suspected or confirmed TB disease assigned to Public Health nurse case managers.

Program Highlight

In 2019, Orange County began using asynchronous video observed therapy (VOT). This patient-centered platform allows patients on TB treatment to record themselves taking medications from any location at a time that is convenient for them. Submitted videos are then reviewed and approved by program staff. Asynchronous VOT has been clinically validated to achieve adherence rates comparable to the traditional in-person directly observed therapy.

TB Cases by Zip Code of Residence, Orange County 2019

