2015 Annual Report
Tuberculosis in Fresno County

Department of Public Health
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Tuberculosis in Fresno County

Tuberculosis (TB) is a common communicable disease caused by the bacterium *Mycobacterium tuberculosis* and occasionally *Mycobacterium bovis*. It most commonly infects the lungs, but can infect almost any organ system in the body. In 2015, 42 (4.3 per 100,000 population) new cases of active TB were diagnosed in Fresno County. This is a drop in the annual number of cases from the previous two years. With a rate of 5.3 per 100,000 population, Fresno County ranked 14th in active TB disease rate among the counties in California in 2014.

**Demographic Characteristics**

Of the 42 cases of TB disease in 2015, 28 (66.6%) were male and 14 (33.3%) were female. A total of 57% (n=24) of cases were over the age of 50 years old, as depicted in Figure 2. Three TB patients were under the age of five. The average age of TB patients diagnosed in Fresno County in 2015 was 50.2 years with a range in age from 0 year to 86 years. In 2015, 42.8% (n=18) of TB cases were among US-born residents, while the remaining 57.1% (n=24) were among foreign-born persons. The majority of foreign-born cases (n=13) immigrated from
Mexico. Others immigrated from Laos, Ethiopia, Thailand, Philippines, Cambodia and India. Of these 24 foreign-born patients, the average time in the US prior to diagnosis was 25.5 years, with a range from less than one year to 55 years.

**Figure 2: TB Age Distribution of Cases in Fresno County, 2015**

![Bar chart showing the age distribution of TB cases in Fresno County, 2015.](chart1)

**Figure 3: TB Race Distribution of Cases in Fresno County, 2015**

![Pie chart showing the race distribution of TB cases in Fresno County, 2015.](chart2)
As can be seen in Table 1, racial/ethnic disparities exist with respect to TB disease in Fresno County. While the overall incidence rate in 2015 was 4.3 per 100,000, the rates for Asian/Pacific Islanders and Hispanic/Latinos were 10.8, and 5.3 per 100,000 respectively. In year 2015, there were four cases among US-born, Non-Hispanic Whites, which were rare in previous years. The percentage of the population represented by the races/ethnicities affected by TB disease in 2015 is also noted in Table 1.

### TABLE 1. Cases / Incidence by Race / Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Number of Cases</th>
<th>Incidence Rate</th>
<th>% of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian/Pacific Islander</td>
<td>10</td>
<td>10.8</td>
<td>10.0%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>2</td>
<td>4.4</td>
<td>4.9%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>26</td>
<td>5.3</td>
<td>53.1%</td>
</tr>
<tr>
<td>White</td>
<td>4</td>
<td>1.3</td>
<td>32.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>42</td>
<td>4.5</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Figure 4 demonstrates the different occupational environments/status of the patients with TB disease in Fresno County in 2015. As can be seen, 23 (54.7%) were retired, unemployed or not seeking employment, 4 (9.5%) were migrant/seasonal workers and 15 (35.7%) were employed in other occupations.
Figure 5: TB Geographic Distribution of Cases by Zip Code, Fresno County, 2015

Fresno and Clovis Metropolitan Areas

Fresno County
Pathology and Organism Characteristics

Six (14.2%) of the 42 patients with TB had disease outside of the lung. These extra pulmonary sites of disease included the: pleura, cervical and spinal cord. Thirty-nine (92.8%) of the TB cases had lung involvement as noted in Figure 6.

Of the 42 cases of diagnosed TB disease in 2015, 33 (78.5%) cases were verified by positive culture, 5 (11.9%) were verified by clinical case definition, and 4 (9.5%) were verified by provider. No patients had extensively drug resistant Tuberculosis (XDR-TB) or multi-drug resistant TB (MDR-TB).

Contributing Risk Factors

In general terms the main risk factors for acquiring TB infection include being foreign born, being a known contact to someone with active TB disease, homelessness, living or working in a correctional facility or long-term care facility, and substance abuse. Medical factors that increase the risk for progression from TB infection to TB disease include immunosuppression, diabetes mellitus, alcohol abuse, and smoking. In 2015, 19 (45.2%) Fresno County patients had medical conditions or behaviors that put them at an increased risk for developing TB disease including: alcohol abuse, homelessness, liver disease and diabetes. One patient was co-infected with HIV.
Tuberculosis Burden in Fresno County

In 2015, the Department’s TB Control Program provided treatment, contact investigation, and follow-up for the 42 County residents newly diagnosed with active TB. Staff continued to provide care for patients diagnosed prior to 2015 who had not yet completed treatment (standard treatment regimens are 6-12 months; drug resistant TB patients may be treated for two years and all require at least monthly visits). Department staff visit pulmonary TB patients daily to observe them taking the TB medication to ensure that the medication is taken correctly.

Tuberculosis activity, world, national, and California

Tuberculosis (TB) is one of the world’s deadliest diseases:

Over 95% of TB deaths occur in low- and middle-income countries, and it is among the top 5 causes of death for women aged 15 to 44.

In 2014, 9.6 million people around the world became sick with TB disease and there were 1.5 million TB-related deaths worldwide.

TB is a leading killer of people who are HIV infected. In 2015, 1 in 3 HIV deaths was due to TB.

National

A total of 9,421 TB cases (a rate of 2.96 cases per 100,000 persons) were reported in the United States in 2014. Although the number of TB cases continued to decline, challenges remain that slow progress toward the goal of TB elimination in the US. TB still persists at greater incidence rates in specific populations. Foreign born persons and racial/ethnic minorities continue to be affected disproportionately.

California

TB has reached an all-time low in California. In 2014, a total of 2,145 cases were reported, a 1% decline from 2,166 cases in 2013.

California reports the most TB cases in the U.S. and has a case rate of 5.6 per 100,000, which is nearly twice the national case rate.

Despite the overall decline of TB cases in California, of 21 local health jurisdictions with at least 15 cases in 2014, 11 (52%) had an increase in cases between 2013 and 2014.
An estimated 2.5 million Californians are infected with TB and are at risk of becoming sick with TB in the future if they are not diagnosed and treated for latent TB infection.

In 2014, there were 18 Multidrug Resistant (MDR) and no Extensively Drug Resistant (XDR) TB cases in California. MDR organisms are resistant to the strongest two primary anti-tuberculosis medications available for treatment, and XDR organisms are resistant to those two medications as well as the two strongest secondary anti-tuberculosis medications available.

Despite the significant growth of MDR TB in some global regions, in California, MDR TB has remained a small proportion of TB cases. Despite the significant growth of MDR TB in some global regions, in California, MDR TB has remained a small proportion of TB cases, averaging between 1% and 2% of TB cases during 1995-2014.

The majority (53%) of California counties with reported TB cases have had at least one MDR TB case in the last 10 years (2005-2014). More than one-third of California’s MDR TB cases have additional resistance, complicating treatment and increasing the risk of treatment failure and death. Of those, 51% are resistant to all first line drugs, 41% are one resistant drug away from becoming XDR, and 8% are XDR TB.

Among persons treated for MDR TB in California, the chance of dying has dropped significantly. In 1995, more than 1 in 5 (20%) patients treated for MDR died compared to 1 in 35 (3%) in 2011. No death occurred in 2012 MDR TB cases.

Patients with XDR TB have few treatment options because the drugs that are most effective against TB will be ineffective against their disease. Fourteen XDR TB cases were reported in California between 2004-2014.

Public Health Strategies to Control, Prevent, and Eliminate Tuberculosis Include:

1- Finding and adequately treating persons that have active disease

2- Identifying individuals who have been exposed to someone with TB disease, evaluating them for TB infection or TB disease, and treating them if they have either of these.

3- Screening individuals for TB infection that are known to be at higher risk for infection with TB or at higher risk for developing TB Disease if infected.

4- Applying control measures in high risk settings.
The FCDPH Chest Clinic Program identifies and treats TB disease, identifies and evaluates exposures to TB and offers treatment if needed, screens certain high risk populations, and assists the public with the application of control measures in high risk environments.

Title 17 of California Code of Regulations requires that notification be given to the county health department of all diagnosed or suspicious cases of tuberculosis by telephone or fax within one working day of identification. California Health and Safety Code 121362 also requires that providers treating persons with active TB report to the local health officer any pertinent information the health officer requests.

**Additional Information Available**

If you have any questions regarding TB infection or disease or the control of TB in Fresno County please contact our Community Liaison Nurse at 559-600-3413.