Tuberculosis in Fresno County

Preliminary figures indicate that 46 cases of tuberculosis disease were recognized in Fresno County during 2011.* This is the third consecutive annual decrease in TB disease incidence in Fresno County and a 60% decrease in the number of cases since 2003 (See Figure 1). The number represents 4.6 cases per 100,000 people (4.6/100,000). In 2010 tuberculosis (TB) affected 3.8/100,000 people in the US, 6.0/100,000 in California, and 5.5/100,000 in Fresno County. In California in 2010 Fresno ranked 13th among the counties in TB incidence.

Of the 46 cases of TB disease in 2011, 33 were male (72%) and 13 were female (28%). Nine of the 46 had disease outside of the lung. These extrapulmonary sites of disease included mesentery, pleura, groin, colon, kidney, peritoneum, and meninges (see Figure 2).

Twenty eight TB disease patients (61%) were Hispanic, three (6.5%) were East Indian, and eight (17%) were Hmong (See Figure 3 for further details on ethnicity distribution). Thirty five patients (76%) were foreign born (countries of birth included Mexico, Laos, Zambia, Pakistan, Philippines, Russia, United Kingdom, Guatemala, El Salvador, China, and India). Of these 35 foreign born patients the average time in the United States prior to diagnosis was 21 years, with a range from one year to 65 years.

Two of the TB disease patients were homeless at the time of diagnosis in 2011. Five (11%) patients with TB reported significant drug use, and two (7.4% of those TB disease patients tested) were HIV positive. (Nineteen of the 46 cases, or 41%, had unknown HIV status). Five (11%) patients with TB died in 2011. Twenty five (54%) patients had medical conditions or behaviors (other than HIV or significant drug use) that put them at increased risk for TB disease (including alcohol abuse, smoking, diabetes, renal disease, pregnancy, and immunosuppression due to medication or cancer). One patient had a history of treatment for TB disease in the past.

The average age of TB patients diagnosed in Fresno County in 2011 was 51.4 years with a range from one year to 87 years. (See Figure 4 for age related details). Four (8.7%) patients were age five or younger.

* These figures may vary slightly from subsequently published data from state and federal agencies due to minor differences in interpretation of RVCT (Report of Verified Case of Tuberculosis) criteria and time lines, as well as the use of different population estimates.
Of the 46 cases of diagnosed TB in 2011, 11 (24%) were culture negative. Of the 35 culture positive TB cases, none were extensively drug resistant tuberculosis (XDR-TB), none were multi-drug resistant TB (MDR-TB), one (2.8%) was isoniazid (INH) resistant only, one (2.8%) was pyrazinamide resistant only, one (2.8%) was Streptomycin resistant only, one (2.8%) was resistant to both INH and Streptomycin, and three were pending at the time of this report (see Figure 5). Twenty eight (80%) of the culture positive patients were pansensitive.

Referral for TB disease in Fresno County came from hospitals (26), private medical providers (12), Department of Public Health contact investigations (4), interjurisdictional notification (2), homeless shelter screening (1), and screening of immigrants (1) (see Figure 6). Forty three (93%) of the county’s 46 TB disease patients received their treatment from the Fresno County Public Health Department.

The extent of pulmonary involvement at the time of diagnosis in those patients with TB in 2011 is noted in Figure 7. Twenty eight percent of patients presented with radiological evidence of very advanced disease (cavitary lesion or miliary pattern).

Figure 8 indicates TB disease by zip code in Fresno County in 2011.

Patients with TB disease in 2011 came from all walks of life. Figure 9 demonstrates the different occupations held by these patients.

Recognized missed opportunities for TB control among the 2011 TB disease patients included one instance of failing to complete recommended treatment for latent TB infection (LTBI), four instances of delayed or missed diagnosis of active TB, one instance of treatment for latent TB infection (LTBI) not being offered, and one instance of poor compliance with prior treatment of active TB disease.

**Tuberculosis in California, the United States, and other Nations**

Fully 1/3 of the world’s population is infected with TB. Worldwide there are nine million new cases of TB disease annually with two million deaths annually. TB is the second leading cause of infectious disease – related deaths worldwide and the leading cause of death in those with HIV/AIDS.

It has been estimated that 4.2% of American’s were infected with TB in 1999/2000. Of these it is expected that 10% will develop TB disease during their lifetime.

**Development of Drug Resistant TB**

Recent recognition of TB disease that is resistant to both INH and rifampin as well as any fluoroquinolone and any second line injectable medication poses a grave threat to public health. In the United States between 2000 and 2006, 2% of patients with MDR or multi-drug resistant TB (TB resistant to at least INH and rifampin) were found to have this XDR (extensively drug resistant) TB. These drug resistances make the disease almost
untreatable with currently available antibiotics and the mortality rate in those with this disease and co-infection with AIDS is extremely high. There have been two cases of XDR-TB recognized in Fresno County to date. Both were successfully treated.

Public Health Strategies to Control, Prevent, and Eliminate TB

Currently four recognized processes are involved in the control of, and attempt to eliminate, TB. The first of these is finding, and promptly and adequately treating, individuals that have active disease. The second process in TB control is 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. The third process in the control of TB is “targeted testing” and involves 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. The final process in TB control is the application of control measures in high risk settings. The dedicated, knowledgeable, and professional staff of the Chest Clinic Program identify and treat TB disease, identify and evaluate exposures to TB and offer treatment if needed, screen certain high risk populations, and assist the public with the application of control measures in high risk environments.

California statute (Title 17) requires 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. Health and Safety Code statute (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.
Figure 3
Fresno County 2011 TB cases by Race/Ethnicity Distribution

Figure 4
Age Distribution of Patients with TB Disease
Fresno County 2011 TB cases by Age
Figure 7

Fresno County 2011 TB Cases
by Pulmonary Disease Extent

Figure 8

Tuberculosis Cases
Within the
County of Fresno
2011

Source: Chest Clinic, County of Fresno