

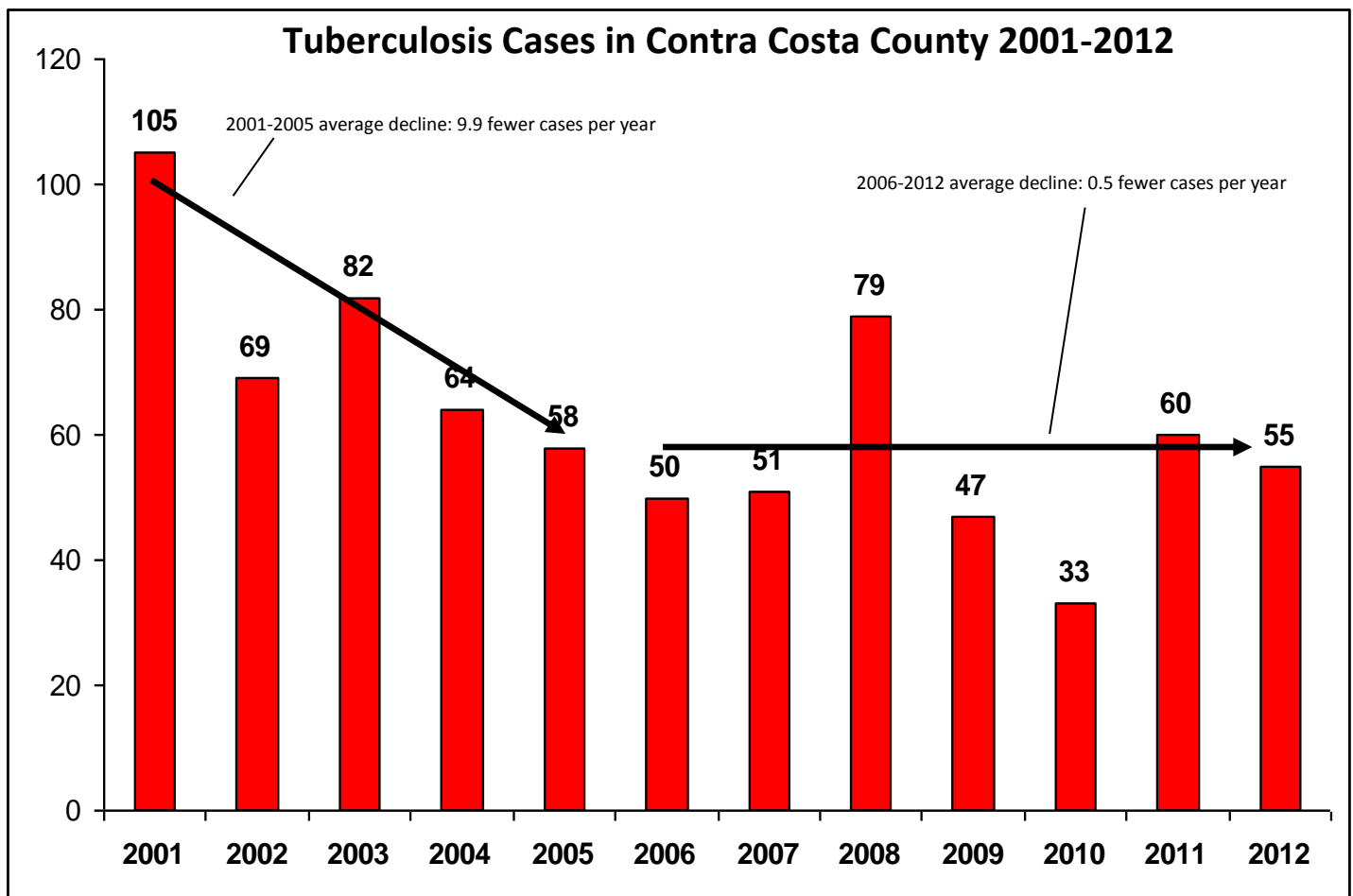


March, 2013

TUBERCULOSIS EPIDEMIOLOGY REPORT – 2012

Fifty-five (55) cases of active tuberculosis (TB) were diagnosed and reported in Contra Costa County (CCC) in 2012 (Figure 1). This is a decrease of 8% from 2011 (60 cases), but it is similar to the average number of cases in the past 5 years (54 cases from 2007-11). The case rate in 2012 was 5.2/100,000, which is 10% lower than the rate for CA as a whole (5.8/100,000)¹. The relative stability of our number of cases in recent years represents a leveling off of the steady decline in numbers in the period from 2001-05 (average decline: 10 fewer cases per year), and a return to the case numbers of the 1970s (average of 58 cases from 1971-80) (Figure 2), prior to the prolonged outbreak in West CCC².

Figure 1



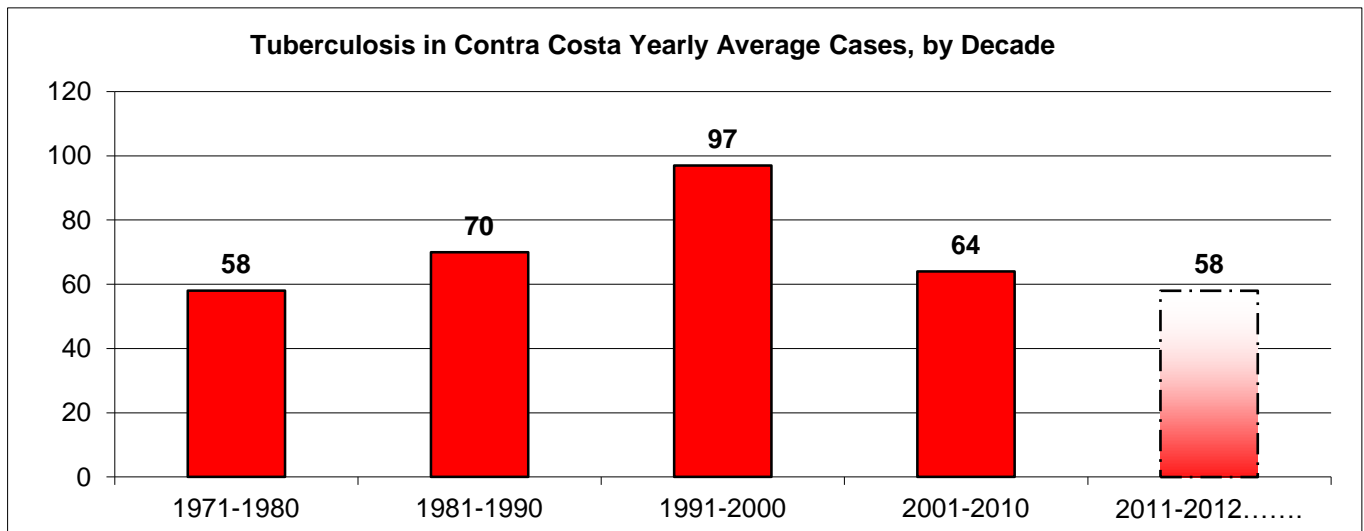
¹ CA Department of Public Health (CDPH), TB Control Branch (TBCB), preliminary data.

² Chin D et al. Spread of Mycobacterium Tuberculosis in a Community Implementing Recommended Elements of Tuberculosis Control, *Journal of the American Medical Association*, 2000; 283:2968.

Place of Birth

Of the 55 cases, 11 (20%) were born in the US, and 44 (80%) were foreign born (Table 1). The proportion of US and foreign born cases remained stable since 2010. Of the 44 foreign-born cases, 28 (64%) were from Asia and 13 (30%) were from the Americas, two (5%) were from Europe and one was from Africa (2%). The most common country of origin was the Philippines with 16 cases. Of the 44 foreign-born cases, 38 (86.4%) had an immigration visa (immigrant visas, student visas, tourist visas, work visas, and refugees/asylees). The remaining six had another or unknown immigration status.

Figure 2



Demographic Characteristics

Of the 55 cases, 30 (55%) were Asians, 13 (24%) were Hispanics, 4 (7%) were African Americans and eight (15%) were Whites (five US born and three foreign born). There were **no pediatric³ cases**. 26 (47%) cases were from West County. There were 22 cases from East County representing 40% of all cases. The Central County region had only 7 cases (13%).

Risk Factors and Co-morbidities

Four (7.2%) had previous TB. Three were foreign born and one was U.S. born. Among our cases, 5 (9%) had a substance use disorder⁴ and 1 (2%) was homeless. Three (5.4%) were HIV infected, 48 (87%) were HIV negative, and four (7.3%) had an unknown HIV status, either because they refused a test (n=2) or because they were not offered a test (n=1) or other reasons. Ten (18.2%) of our cases had diabetes, and three (5.5%) had end-stage renal disease. One (1.8%) was on post-transplant immunosuppressive therapy. No case was on anti-TNF- α suppressive therapy but three (5.5%) were immunosuppressed from other causes and a total of seven were at increased risk due to several factors including chronic renal disease, cancer, malnutrition and other.

³ Under the age of 14 years.

⁴ Including injection drug use, non-injection drug use and excessive alcohol use.

Table 1

<i>Year</i>	2006	2007	2008	2009	2010	2011	2012
Total Cases	50	51	79	47	33	60	55
<i>Gender</i>							
Male	32 (64%)	30 (59%)	50 (63%)	30 (64%)	22 (67%)	33 (55%)	26 (47%)
Female	18 (36%)	21 (41%)	29 (37%)	17 (36%)	11 (33%)	27 (45%)	29 (53%)
<i>Age</i>							
0-14 years	1 (2%)	3 (6%)	4 (5%)	2 (4%)	0	4 (7%)	0 (0%)
15-24 years	10 (20%)	6 (12%)	8 (10%)	3 (6%)	4 (12%)	5 (8%)	3 (6%)
25-44 years	16 (32%)	12 (24%)	31 (39%)	16 (34%)	10 (30%)	20 (33%)	20 (36%)
45-64 years	12 (24%)	19 (37%)	19 (24%)	12 (26%)	11 (33%)	14 (23%)	18 (33%)
65 + years	11(22%)	11 (22%)	17 (22%)	14 (30%)	8 (24%)	17 (28%)	14 (26%)
<i>Race/Ethnicity</i>							
White	4 (8%)	5 (10%)	9 (11%)	5 (11%)	1 (3%)	5 (8.5%)	8 (15%)
African American	13 (26%)	12 (24%)	15 (19%)	6 (13%)	6 (18%)	5 (8.5%)	4 (7%)
Hispanic	10 (20%)	12 (24%)	21 (27%)	11 (23%)	9 (27%)	15 (25%)	13 (24%)
Asian/PI	22 (44%)	22 (41%)	34 (43%)	25 (53%)	17 (52%)	35 (58%)	30 (55%)
<i>Country of Origin</i>							
US Born	21 (42%)	19 (37%)	24 (30%)	10 (21%)	6 (18%)	11 (18%)	11 (20%)
Foreign Born	29 (58%)	32 (63%)	55 (70%)	37 (79%)	27 (82%)	49 (82%)	44 (80%)
<i>County Region</i>							
West	16 (32%)	20 (39%)	39(49%)	21 (45%)	11 (33%)	29 (48%)	26 (47%)
Central	18 (36%)	15 (29%)	18 (23%)	17 (35%)	12 (36%)	15 (25%)	7 (13%)
East	16 (32%)	16 (31%)	22 (28%)	9 (19%)	10 (30%)	16 (27%)	22 (40%)
<i>Risk Factor</i>							
Substance Abuse	8 (16%)	9 (18%)	10 (13%)	4 (9%)	4 (12%)	7 (12%)	5 (9%)
Homelessness	4 (8%)	3 (6%)	5 (6%)	2 (4%)	0	4 (7%)	1 (2%)
HIV Infection	0 (0 %)	2 (4 %)	1 (1 %)	1(2%)	1 (3%)	3 (5 %)	3 (6%)

Drug resistance

Of the 55 cases 34 were pulmonary (62%) and 21 (38%) were non-pulmonary. A total of 48 (89%) specimens were tested for susceptibility to first line drugs⁵. Four (8.3%) had INH resistance (with or without resistance to other drugs) including one which was resistant to INH and streptomycin. Although there were no new cases of multidrug-resistant TB (MDR TB⁶) diagnosed in 2012, we continue to treat one MDR TB patient diagnosed in 2011. The treatment of MDR TB typically lasts at least 18 months.

The susceptibility tests were done on culture positive specimens, mostly sputum (n=29) but also culture positive specimens from other tissues including lymph nodes, bones, bronchial fluid, the colon, peritoneal fluid, synovial fluid, urine and other sources (n=19). Seven were not successfully tested for susceptibility to first line drugs.

⁵ Isoniazid, rifampin, ethambutol and pyrazinamide.

⁶ Defined as resistance to isoniazid (INH) and rifampin (RIF), with or without resistance to other drugs.

Summary and Recommendations

The recent leveling off of the number of TB cases in CCC is of concern to us all. Clearly a number of challenges remain if we are to achieve the goal of TB elimination⁷ locally and nationally, including barriers accessing medical care and budget cuts to TB control programs at all levels. TB transmission commonly results from delays in the diagnosis of active, infectious TB, which may result from patient behavior (delays in seeking care) or provider behavior (missed opportunities for earlier diagnosis and/or reporting). To impact these factors it is vital that TB control programs form and sustain effective partnerships with health care providers and facilities in both the public and private sectors. In addition, domestic support for TB control activities on a global level is critical for reducing the number of foreign born persons who develop TB in the US.

The number of patients with confirmed active TB represents only a fraction of the patients that we follow in the TB Program. In addition, there were 43 persons with suspected active TB (TB suspects) in whom active TB was not confirmed, over 200 contacts of TB cases and suspects, and 180 immigrants who were required to report to us due to abnormal findings on their immigration exams, but who also did not have active TB.

In CCC we had a significant decline in the past year in the number and proportion of TB patients with an unknown HIV status. It remains vital that all providers offer HIV testing to all patients with active TB or latent TB infection (LTBI). For example, timely initiation of anti-retroviral therapy for patients with TB/HIV co-infection improves patient outcomes⁸. Although 2011 was the first year in which CA assessed and reported the HIV status⁹ of all TB patients, CDC first recommended universal HIV testing of *all patients* in 2006¹⁰. Yet in CA, an estimated 50% of TB/HIV co-infected persons first learn of their HIV status at the time of their TB diagnosis¹¹.

It remains vital that persons with TB symptoms¹² seek prompt medical attention, and that providers have a high level of suspicion for active TB when seeing patients with TB symptoms, especially when they have socio-demographic¹³ or medical¹⁴ risk factors for TB. Even in the absence of TB symptoms, patients with TB risk factors should have a TB skin test (TST) or an interferon- γ release assay (IGRA)¹⁵. Patients with a positive test should have a thorough medical evaluation including a chest radiograph to exclude active TB. If diagnosed with LTBI, they should be treated unless contraindicated or prior treatment has been completed¹⁶.

For further information about TB or our services, please visit our web page at <http://cchealth.org/tb/providers.php>, or call us at 925-313-6740. Medical consultation from one of our Chest Clinic physicians is available during normal working hours.

⁷ Defined by the Centers for Disease Control and Prevention as a case rate of < 0.1/100,000.

⁸ Abdool-Karim SS et al. Timing of initiation of antiretroviral drugs during TB therapy. *New England Journal of Medicine*, 2010; 362:697.

⁹ Defined as one of the following: Negative, Positive, Indeterminate, Refused, Not offered, or Unknown

¹⁰ CDC. Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health Care Settings. *MMWR*, 2006; 55 (RR14)

¹¹ CDPH TBCB, unpublished data.

¹² Including a cough > 3 weeks duration, fever, night sweats, unintentional weight loss.

¹³ Recent immigration from a country with a high rate of TB, homelessness, recent incarceration, street drug use, excessive alcohol use.

¹⁴ HIV infection, diabetes, renal failure, lymphoma, leukemia, treatment with TNF- α blocking drugs, systemic corticosteroids, or post-transplant immunosuppression.

¹⁵ QuantiFERON®-TB or T-Spot®-TB, both commercially available. An IGRA is preferred over a TST for patients who have had a BCG vaccine.

¹⁶ CCHS. Targeted TB Testing and Treatment of LTBI, December, 2010 (available at <http://cchealth.org/tb/providers.php>)