Tuberculosis

Epidemiology Report

March 2007

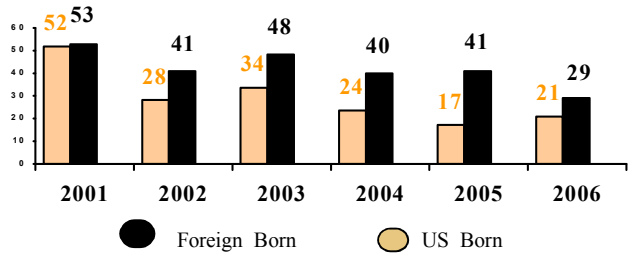
CONTRA COSTA HEALTH SERVICES

TB DECLINES IN CONTRA COSTA IN 2006 FOR THIRD STRAIGHT YEAR

OPTIMISM GUARDED DUE TO RISK OF NEW, DEADLY TB STRAIN

50 residents of Contra Costa County (CCC) were diagnosed with active TB in 2006, a reduction of 14% since 2005 (58 cases), and 39% since 2003 (82 cases). Cases have now declined steadily for the third year in a row to the lowest number since 1987 (also 50 cases) (See Figure). Our TB rate in 2006 was 4.8 per 100,000[1], 35% less than for California as a whole (7.4 per 100,000[2]).

TB Cases - Contra Costa County 2001-2006



The decline was especially prominent among foreign-born (FB) persons (see Table 2). In 2006, there were only 29 cases in this group (58% of our cases), the lowest number since 1993 and a 29% decline from 2005. The decline of TB in FB persons is especially important because they are at increased risk for multidrug-resistant (MDR) TB[3] and extensively drug-resistant (XDR) TB[4], which was defined and reported by CDC[5] for the first time in 2006. XDR TB, which is particularly difficult to treat, has been identified in all regions of the world, including the US, where the number of cases has been rising. In an outbreak of this deadly strain of TB in South Africa, 52 of 53 patients died. Although there were no new cases of MDR or XDR TB in Contra Costa in 2006, our staff continued to monitor the treatment of 4 such patients diagnosed in previous years. The treatment of MDR TB, which takes a minimum of 18 months, requires a huge investment of resources. The cost of treating a person with MDR TB is estimated to be about 10 times the cost of treating someone with drug susceptible TB. Successful treatment of MDR TB is critical to prevent the development of XDR TB.

In Contra Costa County, the decline of TB in foreign-born persons was most notable among those from the Philippines, in whom there were only 7 cases, a decline of 56% in one year. This trend is encouraging since TB is particularly difficult to control in FB persons. Most TB in FB persons develops from the reactivation of latent TB infection (LTBI) acquired in the country of origin. Persons applying for immigration to the US are required to have a chest radiograph (CXR). If abnormal, they are instructed to report to the local TB Program, where the chart and chest x-ray is reviewed. A few such patients have active TB disease. Many others have old, healed TB, and are at high risk for reactivation of TB. A PHN is assigned to provide medical case management services for such patients. Last year, our staff provided services to 73 such immigrants.

About 90% of people who come to the US from high incidence countries are not immigrants and are not required to have a CXR. Either they are here with a visa or they are undocumented. In such persons, TB can be prevented only with targeted TB testing and treatment of LTBI in this high-risk group. Such testing and treatment is done by health care providers who treat them, usually not by the TB Program. We have been working in partnership with our community TB providers for many years to promote targeted TB testing and treatment. The reduction in FB TB may to some extent reflect such efforts.

In 2006 there were only 16 cases in all of West CCC, a decline of 43% in one year. The number of cases in the 3 zip code region in West CCC where there was a large cluster of cases from 1995-2001, declined by 24% to 13 in 2006. At least four cases in 2006 had a genotype (DNA fingerprint) matching the one characteristic of that cluster, compared to 3 cases in 2005. These cases probably resulted from transmission in 2001-04. The CDC is now funding the genotyping of all TB cases in the US, and we have been closely monitoring those genotyping results to detect and prevent cases resulting from recent transmission.

Cases declined in 2006 in other high-risk groups as well. There were declines of 38% among drug users; 43% among homeless persons; 47% among Latinos; and there were no cases in persons with HIV infection.

Despite these successes, TB cases increased 20% in Central CCC and 7% in East CCC. TB increased by 44% among persons aged 15-44 years, compared with a decrease of 40% in all other age groups combined. There was only one case of pediatric TB (age < 15 years).

We acknowledge the tireless effort of, and extend our gratitude to, the entire staff of our TB Program (see page 2). Such gains in TB control cannot be sustained without their persistent vigilance and hard work. In addition to the 50 new TB cases and the 4 cases of MDR TB from prior years, they took care of some additional 500 other patients at high-risk of TB (see Table 1).

We also acknowledge the continued vigilance against TB in our communities and among their health care providers, without whom we could not control TB as effectively.

Funding Challenges

Continued success in our fight against TB requires that we be able to maintain our programs and services. Yet our continued funding is threatened.

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[1] Rate based on estimated population of 1,034,874 for Contra Costa County as of July 1, 2006, CA Department of Finance

[2] CDHS, CA TB Rate: 7.4 per 100,000; TB Control Branch, preliminary data

[3] MDR TB: resistant to at least INH and rifampin

[4] XDR TB: MDR TB that is also resistant to one fluoroquinolone and one second line injectable agent, such as kanamycin (revised definition)

[5] CDC. Emergence of *Mycobacterium tuberculosis* with Extensive Resistance to Second-Line Drugs - Worldwide, 2000-2004. MMWR, 2006; 55 (11): 301.

Ken Castro, MD, Director of the Division of TB Elimination at the CDC, recently announced the prospect of a reduction of federal funding for state and local TB control programs of 25% in the next 5 years. Both the state and local budgets are under persistent pressure to cut funding for public health programs. Such reductions would be short sighted, and would inevitably lead to increasing cases and increasing levels of drug resistance. XDR TB, which is nearly untreatable, has already gained a foothold in California. If allowed to prosper and spread, the scale of the problem could reach proportions never previously imaginable. We are now facing the prospect of a return to the pre-antibiotic era. As the majority of our cases (and virtually all our MDR/XDR cases) are foreign-born, it is also critical that we increase support for TB control internationally.

The ongoing vigilance, early detection and prompt treatment of all TB cases by our experienced and successful TB program staff is essential to protect the people of Contra Costa County from these new deadly strains of TB.

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Table 1
Year 2006 Patient Categories

Category	*Patients*
New TB cases	50
MDR cases from previous years	4
TB Suspects	88
Contacts (*)	260
Immigrants at risk	73
Reactors under age 5	72
Converters	41
Other high risk converters	9
Total	**597**

(*) Estimate based on 2005 data

www.cchealth.org/groups/epidemiology/tb

Table 2
Demographic Characteristics of TB Cases

	TB in 2005 (n=58)	**TB in 2006 (n=50)**
Gender		
Male	***33 (57%)***	***32 (64%)***
Female	***25 (43%)***	***18 (36%)***
Age		
0-14 years	***2 (4%)***	***1 (2%)***
15-24 years	***6 (10%)***	***10 (20%)***
25-44 years	***12 (21%)***	***16 (32%)***
45-64 years	***27 (47%)***	***12 (24%)***
65 + years	***11 (19%)***	***11 (22%)***
Race/Ethnicity		
White	***5 (9%)***	***4 (8%)***
African American	***9 (16%)***	***13 (26%)***
Latinos	***19 (33%)***	***10 (20%)***
Asian/PI	***25 (43%)***	***22 (44%)***
Country of Origin		
US Born	***17 (29%)***	***21 (42%)***
Foreign Born	***41 (71%)***	***29 (58%)***
-Philippines	*16*	*7*
-Asia (Other)	*9*	*11*
-Latin America	*14*	*9*
-Europe	*1*	*1*
-Africa	*1*	*1*
Region		
West	***28 (48%)***	***16 (32%)***
3 zip codes in Richmond-North Richmond /San Pablo	***17 (29%)***	***13 (26%)***
Other	***11 (19%)***	***3 (6%)***
Central	***15 (26%)***	***18 (36%)***
East	***15 (26%)***	***16 (32%)***
Risk Factor		
Any Substance Abuse	***13 (22%)***	***8 (16%)***
Homeless	***7 (12%)***	***4 (8%)***
HIV/AIDS	***2 (4%)***	***0 (0%)***

Percentages have been rounded up

Drug Resistance	**2005**	**2006**
Specimen Available for Drug Susceptibility	45	33
Resistance Pattern		
INH	4	6
RIF	2	0
PZA (M.bovis)	2	1
SM	5	4
Polydrug resistance (2 or more drugs)	2	3
Multidrug resistance (INH and RIF)	2	0

Services for Latent TB Infection (LTBI)

The TB Program provides treatment and PHN case management services for patients with LTBI in the following categories:

1. Contact to infectious TB case (identified by TB Program)
2. Documented TST converter within 2 years
3. Children < 5 years of age
4. HIV infection
5. Abnormal chest radiograph consistent with old (healed) TB

Providers are requested to report patients in categories 2-5 above by completion of a CMR form or by phone. Patients being treated for LTBI who are not in the above categories should be followed by their provider. At a minimum, the patient should be contacted monthly to assess for adverse drug reactions with a symptom screen. When such patients are treated at CCRMC and Clinics, they should be referred to the INH Nurse for follow-up.

TB Skin Testing: Persons without a regular doctor or health insurance can call Contra Costa Public Health toll free number at **1-877-405-8573** to find out where to get a TB skin test.

QuantiFERON®-TB Gold

For Contra Costa Regional Medical Center and Clinics Only

The Contra Costa Public Health Lab is pleased to announce the availability of QuantiFERON®-TB Gold (QFT), a new blood test for LTBI and active TB, manufactured by Cellestis, Ltd. QFT is the second of a new generation of blood tests known as interferon-γ release assays (IGRAs). Blood is incubated with 2 antigens specific for *Mycobacterium tuberculosis (M.tb),* and the production of interferon-γ is assessed by an ELISA test. The QFT has many advantages over the tuberculin skin test (TST). Because it is a blood test, there is no need for the patient to return for a reading. More importantly, because the antigens are specific for *M.tb,* the result is not affected by previous vaccination with Bacille Calmette-Guérin (BCG). In addition, it has a higher sensitivity than the TST in patients with active TB. However, neither a negative TST nor a negative QFT exclude the diagnosis of active TB. QFT was approved by the FDA in June, 2005. In December, 2005 the CDC published guidelines for its use (CDC, Guidelines for Using QFT for Detecting *M.tb.* Infection, US. MMWR, 2005; 54 RR-15:49) stating that the QFT may be used instead of the TST in all patients for whom the TST is indicated. They note, however, that due to limitations of currently available data, QFT should be used and interpreted with caution in young children and in immunocompromised patients. At present, the test is limited to patients treated at CCRMC and Clinics. We recommend QFT for patients in one of the following categories:

1. Initial screening for LTBI in persons age 18 or older who were born in countries with a high incidence of TB, and who have had a BCG, within 5 years of their arrival to the US
2. Screening for LTBI in adults at increased risk for TB who are unlikely to return for TST reading, such as homeless persons or drug users
3. Evaluation of other adults at increased risk for TB in whom it may be difficult to interpret the TST reading
4. Evaluation of adult TB suspects on anti-TB therapy < 7 days
5. Other patients with the approval of a Chest Clinic physician

We expect other IGRA tests to be approved by the FDA later this year. We hope that such tests will be offered more widely to enable greater utilization.

TB Conferences and Training

Francis J. Curry National TB Center
TB Case Management and Contact Investigation
April 3-6, 2007 San Francisco, CA
CNTC also offers a variety of other training programs in the Northwest Region, both in person and web based. For more information, contact CNTC (http://www.nationaltbcenter.edu)

California TB Controllers Association Annual Conference
May 17-18, 2007 Cathedral Hill Hotel San Francisco, CA
The CTCA web site also has links to other training programs and conferences. For more information, contact CTCA (http://www.ctca.org)

American Thoracic Society International Conference
May 18-23, 2007 San Francisco, CA
For more information, contact ATS (http://www.thoracic.org)

International Union Against TB and Lung Disease (the UNION)
World Conference November 8-12, 2007 Cape Town, S. Africa
For more information, contact IUATLD (http://www.iuatld.org)

TB Resources and Web Sites

Contra Costa Health Services: www.cchealth.org
California TB Controllers Association: www.ctca.org
Francis J. Curry National TB Center: www.nationaltbcenter.edu
Division of TB Elimination, CDC: www.cdc.gov/tb
American Lung Association: www.lungusa.org
Int. Union Against TB and Lung Disease: www.iuatld.org
Stop TB Partnership: www.stoptb.org

TB Reporting

California law (1,2) requires that all health care providers and facilities must report patients with confirmed or suspected TB to the local health department within one working day of diagnosis. This applies to patients with any of the following (3):

. Positive AFB smear (unless a nucleic acid amplification test is negative)
. Positive AFB culture (including a preliminary positive culture result)
. Radiographic findings consistent with TB (*e.g. upper lobe or cavitary lesion)*
. Pathologic findings consistent with TB
. Clinical level of suspicion for active TB with initiation of therapy
. LTBI positive TST and normal CXR (*Selected patients only. See Services for LTBI above)*

A separate report is required for hospitalized patients. California law (4) also requires that a patient with confirmed or suspected TB may not be discharged or transferred from a health care facility (except for a higher level of care) without written approval from the local health department. Forms for hospital discharge and/or CMR forms may be obtained by calling the TB Program at (925) 313-6740.

References
1. CCR Title 17, Section 2500
2. California Health and Safety Code, Section 121361
3. CDHS/CTCA Joint Guidelines for Reporting TB in California (available at http://www.ctca.org/)
4. CA Health & Safety Code Section 121362

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Prevalence of MDR Tuberculosis among New Cases of Tuberculosis, 1994–2002, and Countries with at Least One Reported Case of XDR Tuberculosis as of January 2007. *World Health Organization.*