



Epidemiology
of

Tuberculosis

in Sonoma County

2005 Annual Report

prepared by

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Executive Summary

The rate of tuberculosis (TB) in California is regularly above the national average of 4.9 cases per 100,000 persons and, in 2004, had the 2nd highest rate of TB in the nation at 8.9 cases per 100,000 persons.¹ Sonoma County was ranked 24 among counties in California with a rate of 4.4 new cases per 100,000 persons in 2004.²

People at higher risk for tuberculosis include immigrants from parts of the world where TB is still widespread, people with HIV infections, the homeless, the elderly and close contacts of people with infectious TB.

Of particular note in Sonoma County:

Overall

- An decrease in the number and rate of TB cases, falling from 4.4 in 2003 to 2.3 cases per 100,000 persons in 2005.^{3,4}
- Of the 11 cases diagnosed in 2005, 82% (N=9) were pulmonary and 91% (N=10) were culture confirmed.

Race/Ethnicity

- Consistently high rates of TB among Asians and Hispanics.
- Foreign-born persons account for a high proportion of new TB cases.

Drug Resistance

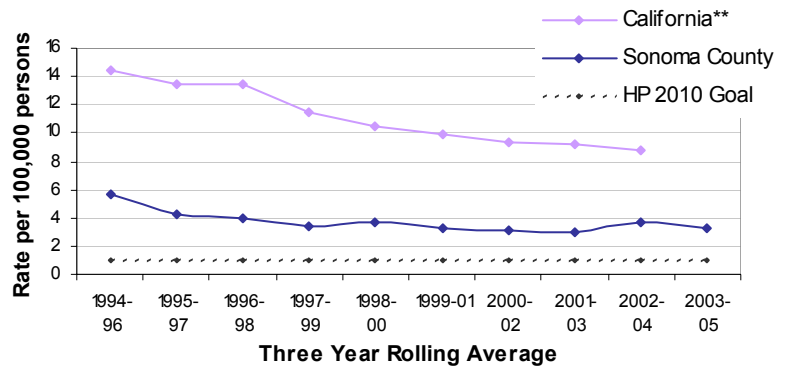
- Continuing increases over time in the proportion of TB isolates that are drug resistant.

RATES AND DEMOGRAPHICS

In 2005, the rate of new cases decreased to 2.3 cases per 100,000 persons (N=11). This represents a 50% decrease from 2004 and is the lowest rate reported since 2001, when 10 cases were reported at a rate of 2.1 cases per 100,000 persons. When evaluated over time, it appears that the rate of TB disease in Sonoma County remains at approximately 3 cases per 100,000 persons (Figure 1).

With the 2005 rate of 2.3 cases per 100,000 persons, Sonoma County meets the national definition for a low-incidence jurisdiction (<3.5 cases per 100,000 persons).⁶ In addition, the rate of TB infection in Sonoma County is consistently higher than Healthy People 2010 goal of 1.0 case per 100,000 population.⁷

Figure 1 – Rate* of TB Infection, Three-year Rolling Average, California and Sonoma County 1994-2005⁵



*Rates per 100,000 population
 **California data only available through 2004
 Sources: State of California, Department of Health Services, Tuberculosis Control Branch. State of California, Department of Health Services, County Health Status Profiles 1994-2005.

Age

Because the absolute number of cases is small, it is difficult to evaluate changing trends in age groups. In 2005, the two groups most affected by TB infection were persons aged 25-44 and persons aged 65 and older (Table 1).

Table 1 – Age-specific Rates* of Tuberculosis, Sonoma County 2001-2005

	2001			2002			2003			2004			2005		
	N	%	Rate	N	%	Rate	N	%	Rate	N	%	Rate	N	%	Rate
Total	10		2.1	17		3.6	15		3.2	21		4.4	11		2.3
Age Grp															
0-4	0	(0.0)	0.0	1	(5.9)	3.6	0	(0.0)	0.0	2	(9.5)	7.2	0	(0.0)	0.0
5-14	0	(0.0)	0.0	0	(0.0)	0.0	1	(6.7)	1.6	0	(0.0)	0.0	0	(0.0)	0.0
15-24	1	(10.0)	1.6	7	(41.1)	10.9	3	(20.0)	4.5	1	(4.7)	1.4	2	(18.2)	2.9
25-44	4	(40.0)	3.0	5	(29.4)	3.9	7	(46.6)	4.5	11	(52.3)	8.7	4	(36.3)	3.2
45-64	3	(30.0)	2.5	2	(11.8)	1.6	3	(20.0)	2.3	4	(19.1)	3.0	1	(9.1)	0.7
65+	2	(20.0)	3.3	2	(11.8)	3.3	1	(6.7)	1.7	3	(14.3)	4.8	4	(36.3)	6.2

*Rates per 100,000 population
 Source: State of California, Department of Health Services, Tuberculosis Control Branch

Race/Ethnicity

Persons who are Asian or report Hispanic ethnicity have a much higher rate of disease (34 and 4 cases per 100,000 persons, respectively, Table 2) and account for a higher proportion of TB cases than expected. In 2005, 36% of TB cases reported Hispanic ethnicity and 55% reported Asian race. All of these persons reported a non-US birth country (N=10; 4 Mexico, 6 Southeast Asia). Compared to the 2005 Sonoma County population, where 19% are Hispanic and 4% are Asian, these two groups are clearly more affected by TB.

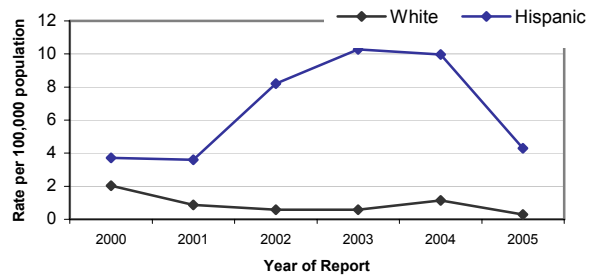
Table 2 – Race- and Ethnicity-specific Rates* of Tuberculosis, Sonoma County 2005

	Tuberculosis Cases			Population	
	Case	Percent	Rate	Number	Percent
County Total	11	100%	2.3	486,114	100%
White	1	9%	0.3	350,719	72%
Hispanic	4	36%	4.3	92,964	19%
Asian/Pacific Islander	6	55%	33.6	17,858	4%
African American	0	0%	0.0	7,300	2%
American Indian/Alaska Native	0	0%	0.0	5,306	1%

*Rates per 100,000 population
Source: State of California, Department of Health Services, TB Control Branch

The rate of TB among Asians has remained consistently high in the past five years (2001-2005 average, 29 cases per 100,000 persons). Similarly, the rate in persons reporting Hispanic ethnicity remains higher than Whites at 4.3 cases per 100,000 persons during the same time period (Figure 2).

Figure 2 – Rates* of TB by Ethnicity, Sonoma County 2000-2005



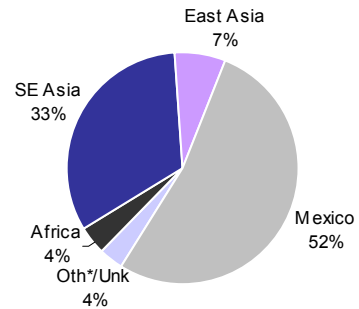
*Rates per 100,000 population
Source: State of California, Department of Health Services, TB Control Branch

Birth Country

Over the past ten years, an average of 68% of Sonoma County’s TB cases occurred in foreign-born individuals (range 58-90%). In 2005, 90% of cases reported a non-US birth country.

In California in 2004, 76% of all reported tuberculosis cases occurred in persons born outside of the United States, compared to 54% of cases nationally.^{8,9}In Sonoma County in 2004, 76% of persons with TB were foreign-born. Shown in Figure 3, between 2001 and 2005, the most common country of origin reported was Mexico, (N=28, 52%), followed by countries in South-east Asia (N=18, 33%) and East Asia (N=4, 7%).

Figure 3 – Country of Origin of Foreign-born TB cases, Sonoma County 2001-2005 (N=54)



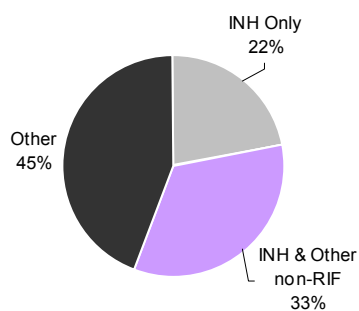
Oth/Unk includes one case from India and one not specified.
Source: State of California, Department of Health Services, TB Control Branch

DRUG RESISTANCE

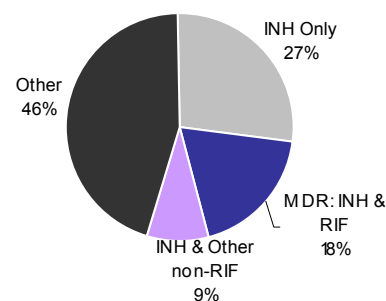
Single and multiple drug-resistant TB strains continue to be an emerging problem in Sonoma County. In recent years, the proportion of cases resistant to isoniazid alone has increased from 22% between 1996 and 2000 to 27% between 2001 and 2005 (Figure 4). There have been three multi-drug resistant cases (isolates resistant to isoniazid and rifampin) in Sonoma County, one each in 1994, 2002, and 2003.

Figure 4 – Distribution of Antibiotic Resistance among Resistant TB isolates, Sonoma County

1996-2000 (N=9)



2001-2005 (N=11)



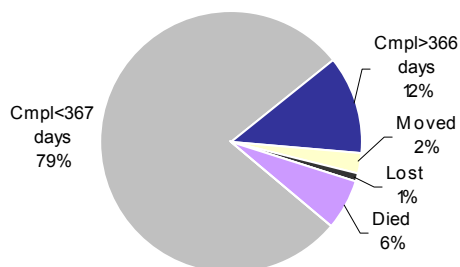
Source: State of California, Department of Health Services, TB Control Branch

TREATMENT OUTCOMES

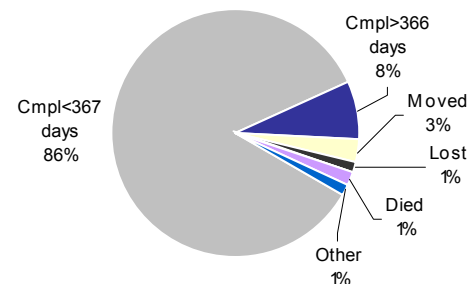
Sonoma County continues to improve the proportion of persons completing therapy in less than one year, increasing from 79% of persons between 1996 and 2000 to 86% of persons between 2000 and 2004 (Figure 5).

Figure 5 - Proportion of Cases by Outcome, Sonoma County, 1996-2005*

1996-2000 (N=83)



2001-2005 (N=68)**



*2 MDR cases (1 each in 2002 and 2003) were excluded from these figures.

**5 persons currently in treatment as of 3/3/2006.

Source: State of California, Department of Health Services, TB Control Branch

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