

How to Read This Report

To provide a broad range of health information about Sonoma County, much of this report includes data from secondary sources, which were compiled by the Sonoma County Department of Health Services. These data sources differ in their methodologies which have not been documented fully in this report. Questions about specific research methods should be directed to the original source of information (listed in the chapter references or table/figure sources). Data are provided based on the most currently available information as of Spring 2005, including birth data through 2003 and death data through 2002.

Data Limitations

Unless otherwise stated, data provided for Sonoma County applies to residents only. Sonoma County-specific estimates do not include the following:

1. People who live in other counties but experience health events while in Sonoma County (e.g., motor vehicle collision or hospitalization for a diabetes-related condition).
2. People who migrate to Sonoma County after they are diagnosed with a disease (e.g., previously diagnosed AIDS patients who move to Sonoma County for treatment).

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Data Definitions

Cause of death in this report is a term defined using the International Classification of Diseases-Tenth Revision (ICD-10) (Table A). Under ICD-10, this coding system has increased from under 4,000 codes to approximately 8,000 codes, changing groupings of causes and some titles, as well as coding rules. Therefore the comparability of causes of death between ICD-9 and ICD-10 must be considered when attempting analysis of trends for specific causes of death.

Previous editions of the Sonoma County Health Profiles used the ninth revision of the International Classification of Diseases (ICD-9). Readers and users of these data are cautioned that mortality tables including data prior to 1999 (such as those in Health Profiles 2000) are not necessarily comparable to those including data from 1999 and forward.

Race/Ethnicity Terminology

In 1997 new standards were announced for classification of individuals by race within the federal government's data systems. The 1997 standards have five racial groups:

- ◆ American Indian or Alaska Native,
- ◆ Asian,
- ◆ Black or African American,

Table A
International Classification of Diseases, Tenth Revision

Cause	ICD Code - Tenth Revision
Heart disease	I01 - I09, I11, I13, I20 - I51
Cancer	C00 - C97
Cerebrovascular disease (stroke)	I82 - I86
Pneumonia/influenza	J10 - J18
COPD (chronic lung disease) emphysema, asthma	J40 - J47
Unintentional injury	V01 - X59, Y85 - Y86
Diabetes	E10 - E14
Chronic liver disease and cirrhosis	K70, K73 - K74
Suicide	X60 - X84, Y87.0,
Homicide	X85 - Y09, Y87.1
AIDS/HIV	B20 - B24
Congenital anomalies	Q00 - Q99
Perinatal conditions	P00 - P96
Kidney infections	N00 - N08
Hip fractures	S72
Mental disorders	F00 - F99, G30,
Digestive disorders	K00 - K93, R10 - R19
Appendicitis	K35 - K38
Upper respiratory illness	J00 - J06, J30 - J39
Ill-defined conditions, signs and symptoms	R00 - R99
Intervertebral disc disorders	M40 - M54
Musculoskeletal system	M00 - M99

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- ◆ Native Hawaiian or other Pacific Islander, and

- ◆ White

During the transition to full implementation of the 1997 standards, vital statistics data will continue to be presented for the four major race groups; White, black or African American, American Indian or Alaska Native, and Asian or Pacific Islander, in accordance with 1977 federal standards. The 1997 standards also offer an opportunity for respondents to select more than one of the five groups, leading to many

possible multiple race categories.

Adopting the 1997 standards provides opportunity for more in depth analysis by race, but it also results in small numbers of vital events on a county level, and consequently unstable rates. For this reason data in this report is categorized by the four major race groups in accordance with the 1977 federal standards: white, black or African American, American Indian, and Asian or Pacific Islander.

The federal government considers



Table A continued
International Classification of Diseases, Tenth Revision

Cause	ICD Code - Tenth Revision
Respiratory system	J00 - J99
Digestive system	K00 - K93, R10 - R19
Injury/poisoning	S00 - T98
Pregnancy/childbirth	O00 - O99, P00 -96
Circulatory systems	I00 - I99, R09
Drug-related deaths	F11 - F19, X40 - X44, X60 - X64, X85, Y10 - Y14
Back disorders	M40 - M54
Osteoporosis	M80 - M82
Septicemia	A40 - A41
Osteoarthritis	M15 - 19
Congestive heart failure	I50
Perforated bleeding ulcer	K25, K26, K27
Cellulitis	L03
Gastroenteritis	K52
Diabetic coma	E34
Pancreas disease	E15 - E16, K
Bronchitis	J20 - J21
Gallbladder disease	K80 - K87
Endocrine and nutritional diseases/ immunity disorders	E00 - E34, E65 - E88
Abnormal blood chemistry	D50 - D89, R70 - R 79
Reproductive/urinary system	N00 - N99, R30 - R39
Cancer/benign tumors	D00 - D48
Drug toxicity	T36 - T50

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race and Hispanic origin to be two separate and distinct concepts. Thus Hispanics may be of any race. Latino and Hispanic are used interchangeably in this document.

Birth File – Information about the race and Hispanic ethnicity of the mother and father are provided by the mother at the time of birth and recorded on the birth certificate or fetal death record. Since 1980, birth rates, birth characteristics, and fetal death rates for live-born infants and fetal deaths are presented according to race of the mother.

Mortality File – Information about the race and Hispanic ethnicity of the decedent is reported by the funeral director as provided by an informant, often the surviving next of kin, or, in the absence of an informant, on the basis of observation. Death rates by race and Hispanic origin are based on information from death certificates (numerators of the rates) and on population estimates from the California Department of Finance (denominators).

Rates

Crude Rates

A rate is a common estimate used to compare events or characteristics across different populations. An unadjusted rate (crude rate) is calculated by dividing the total number of events (e.g., deaths due to cancer) by the total population at risk (e.g., residents of Sonoma County). In this report, rates are frequently reported as the number of events per 100,000 population. Whenever possible, a rate (or a percentage) is reported to the nearest tenth (one decimal space).

Group-specific Rates

Rates can also estimated for a specific subgroup of the population (e.g., race-specific rates or age-specific rates). In that case, the rate is calculated by dividing the total number of events for the specific subgroup (e.g., deaths due to cancer in African Americans) by the total population at risk within the same subgroup (e.g., African American residents in Sonoma County).

Age-adjusted Rates

Age-adjusted death are hypothetical rates obtained by calculating age-specific rates for Sonoma County and multiplying these rates by proportions of the same age categories in a “standard population”, then summing the apportioned specific rates to a county total. The standard population used

in the age-adjusted death rates in this report is the 2000 United States (U.S.) “standard population”. Putting different populations on the same footing with respect to the effect of age is useful for direct comparisons. It should be noted that age-adjusted death rates should be viewed as constructs or index numbers rather than actual measures of the risk of mortality. Crude death rates, which include the effect of age, are rates that measure the actual risk of dying in a specific population.

In the previous Sonoma County Health Profile report (2000), the 1940 U.S. standard population was used for age-adjustment and cannot be compared to rates calculated using the 2000 standard population. Since the benefit from age-adjusting rates comes only from using the same population standard, comparison between different standards would produce misleading results. Future Health Profile, using the 2000 standard population, can be compared.

Small Numbers

Caution should be taken when interpreting rates calculated from small numbers. For instance, health outcomes for a specific subgroup (e.g., number of deaths from AIDS in Native Americans in Sonoma County) may fluctuate from year to year, leading to unstable rates that are difficult to compare. For example, the death rate for stroke among Hispanics in Sonoma County went

from 12.2/100,000 in 1995 to 21.8/100,000 in 1997 – a large increase. However, this increase corresponded to a difference of only 5 deaths (7 in 1995 and 12 in 1997). Several years of data are often combined into an average to help “stabilize” rates that would otherwise be based on very small numbers. These instances of average rates are noted in the body of this report.

In some cases, there is not enough data to provide a reliable rate estimate. This report indicates where rates are unreliable – typically corresponding to categories with fewer than 20 events, as in the example above. Rates are not calculated for categories with fewer than five events. In general, the guidelines in Table B were followed for reporting data in this report.

Confidence Intervals

A confidence interval includes a lower range and upper range that is compatible with the observed data. Whenever possible, 95% confidence intervals for data are provided to help readers better understand how much rates may vary. *In bar graphs, error lines are used to show the high and low value of the 95% confidence interval.* In the text, confidence intervals may be provided in parentheses after the rate to which they apply.

When comparing rates between two groups, if the confidence inter-

Table B
Data Reporting Guidelines

If the number of events is . . .	Then it is reported as . . .
100 or greater	Annual rate
20-99	Three year average rate
5-19	Three year average number
1-4	Five continuous years of number of events

Source: California Department of Health Services Center for Health Statistics, “Vital Statistics Made Easy” 1999.

vals for the two rates overlap, then the difference between the two rates is not “statistically significant” at that confidence level. This means that the difference may be due to random variation. For example, the 1997 age-adjusted death rate for African Americans in Sonoma County was 542.9, with a 95% confidence interval of 347.9 to 737.9. The comparable rate for Asian/Pacific Islanders was 359.9 with a confidence interval of 263.3 to 456.5. Since the confidence intervals overlap, we cannot say that they are significantly different from each other, even though the rate for African Americans is larger than the Asian/Pacific Islander rate. Two rates with confidence intervals that do not overlap suggest that random variation or chance is not likely to be the reason for the difference.

If confidence intervals for rates are not provided, they generally can be calculated using the following formula:



$$95\% \text{ Confidence Interval} = \text{Rate} \pm (1.96 \times \{\text{Rate} / \sqrt{\# \text{ of events}}\})$$

For example, if there were 1,000 deaths due to cancer in Sonoma County, with a corresponding cancer death rate of 227/100,000 population, then the 95% confidence interval for that rate would be:

$$227 \pm [1.96 \times (227 / \sqrt{1000})] =$$

$$227 + (1.96 \times 7.18) \text{ and } 227 - (1.96 \times 7.18) =$$

$$227 + 14.07 \text{ and } 227 - 14.07 =$$

$$212.93 \text{ to } 241.07$$

Note that the rate (227) falls within the high and low end of the confidence interval.

Years of Potential Life Lost (YPLL)

In several places throughout this report, death data are reported as years of potential life lost (YPLL), which are those years estimated to be lost when a person dies prematurely, such as from preventable diseases or unintentional injuries. YPLL is another way (in addition to death rates, hospitalization rates, etc.) to try to capture the impact that disease, illness, or injuries have on a community by measuring how many years of life were lost. It is a way of assessing premature death. Diseases that lead to disproportionate mortality in younger age groups and those that affect large numbers

of people will have higher YPLL values.

YPLL calculations in this report assume all people should be able to live up to age 75. The figure is calculated by subtracting the median age (in a specific age category) from age 75 and multiplying that number by the number of deaths in that category.

Data Sources

Much of the information in this report comes from five data sources, briefly described below.

California Department of Finance (DOF), Demographics Unit

Population figures appear in this report in Chapter 1, and are also used as denominators in calculating rates throughout the report. Previous editions of this report used population estimates taken from the DOF's *Race/Ethnic Population with Age and Sex Detail, 1990-2040*, based on the 1990 census. In May 2004, the DOF released new projections based on the 2000 census. Health Profile 2005 uses Sonoma County and California population estimates and projections taken from this new data release, DOF's *Race/Ethnic Population with Age and Sex Detail, 2000-2050*.

The recent data release includes two important modifications, which significantly affect the comparability of the rates and population figures in this report to previous re-

ports. First, the new projections correct a previous overestimate of population growth. While the California population as a whole is increasing over time, it is now estimated to be increasing at a slower rate than once thought. Second, the new estimates are subdivided into seven race and ethnicity categories, compared to five categories in the old estimates. These changes mirror revisions to the national census data to more accurately describe persons who are multi-racial.

Because of these changes, it will only be appropriate to evaluate data trends from the year 2000 forward, incorporating the data from the new projections.

California Office of Statewide Health Planning and Development (OSHPD), Patient Discharge Data

OSHPD collects, edits and verifies data on all inpatients discharged from all hospitals within California (except federal facilities and some research hospitals). This report uses information from 2002 hospital inpatient discharge data. Because persons with multiple hospitalizations during the year can be counted more than once, these data produce estimates for discharges, not persons.

Changes in rates of hospitalizations may be attributed to changes in hospitalization practices or the diagnostic coding of illnesses, or reflective of true changes in the patterns of disease. Hospitalization

data capture those illnesses or injuries serious enough to get people admitted the hospital, but may not describe the presence of a given illness of the population since many who have the illness are not hospitalized.

To protect patient confidentiality, those records with unique combinations of a select set of demographic variables will have one or more of those variables masked to make sure the files are de-identified. Each unique record will have the minimum number of fields masked to ensure it is no longer unique. This masking results in a number of “missing” variables. For example, in the 2002 hospital inpatient discharge data, approximately 13% of the age category variables were not provided in the data set. Therefore, caution should be exercised when interpreting statistics calculated with these data.

Diagnoses recorded at the time of hospital discharge follow the ICD-9-CM coding structure. The International Classification of Diseases, Clinical Modification (ICD-9-CM) is used to code and classify morbidity data from the inpatient and outpatient records, physician offices, and most National Center for Health Statistics (NCHS) surveys. Only the primary diagnoses are used for this report.

Patient-level diagnoses data also include hospital discharge information from Kaiser Foundation hospitals. Kaiser Foundation hospitals

are exempt from reporting costs; therefore, any financial data presented in this report excludes Kaiser information.

California Health Interview Survey (CHIS)

The California Health Interview Survey (CHIS) is a telephone survey of adults, adolescents, and children from all parts of the state. The survey is conducted every two years beginning in 2001. CHIS is the largest state health survey and one of the largest health surveys in the nation. CHIS provides statewide information on the overall population including many racial and ethnic groups, and local level information on most counties for health planning purposes. The CHIS sample represents the geographic diversity of California, and the multi-language interview format accommodates the state’s rich ethnic diversity.

California Automated Vital Statistics System (AVSS)

AVSS is the standard collection of data on births, deaths and certain reportable diseases for all counties within California. Data come from events reported to local health department. In many cases with reportable diseases, these numbers may understate the true incidence of events. For example, a person with a mild case of giardiasis may not seek medical treatment, so the case is never reported to the local health department. Data on births

and deaths are more accurate. However, some death certificates, such as Sudden Infant Death Syndrome (SIDS) cases, are held by the county coroner or the California Vital Statistics office pending further investigation and are not reported in the same calendar year.

Healthy People 2010 Objectives

Healthy People 2010 is a set of national health objectives for the first decade of the new century. It builds on initiatives pursued over the past two decades. The 1979 surgeon general’s reports *Healthy People* and *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, both established national health objectives and served as the basis for the development of state and community plans. Like its predecessors, *Healthy People 2010* was developed through a broad consultation process, built on the best scientific knowledge and designed to measure progress over time.

California Healthy Kids Survey

The Healthy Kids Survey is a youth self-report data collection system that collects data on health risk assessment and resilience information from schools, districts, and communities. Targeting grades 5-12, the Healthy Kids Survey uses a “core” research-based module that provides valid indicators of drug use, crime, and physical and mental health. The survey is administered in all 5th, 7th, 9th and 11th grade



classrooms every two years. Data are then analyzed at the local level, and made available as a local report and a state report.

