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This Data Summary is one of a series of Infant Mortality Reports.

Highlights

- The 2003 infant mortality rate in California decreased 3.7 percent from the 2002 rate.
• California's infant mortality rate of 5.2 was below the U.S. provisional rate of 6.7.
• The non-Hispanic Black infant mortality rate remained more than twice as high as the non-Hispanic White and Hispanic rates.

CALIFORNIA'S INFANT MORTALITY RATE, 2003

By Sandy Ficenec

Introduction

The infant mortality rate (deaths among infants under one year old per 1,000 live births) continues to be one of the most widely used indicators of overall health status of a community.

California's Infant Mortality Rate

In 2003, there were a total of 2,819 infant deaths and 540,827 live births among California residents for an infant mortality rate of 5.2. The 2003 infant mortality rate decreased (3.7 percent) from the 2002 rate of 5.4.

California's Infant Mortality Rates By Race/Ethnicity

Table 2 and Figure 1 show the infant mortality rates by race/ethnicity for Hispanic, non-Hispanic Black, and non-Hispanic White. Although there have been several increases during the 10 year period, the rates for the three race/ethnic groups have generally declined between 1994 and 2003.

1 U.S. Department of Health and Human Services, Healthy People 2010 Objectives, Volume II, January 2001.
2 Kleinman, J., Infant Mortality. Statistical Notes for Health Planners. No. 2, National Center for Health Statistics, July 1976.
3 National Vital Statistics Reports, Births, Marriages, Divorces, and Deaths: Provisional Data for 2003, DHHS Pub No. (PHS) 2004-1120, June 10, 2004; Vol. 52, No. 22.
4 In 2000, new race collection methods cause a slight discontinuity between White and Black infant mortality rates. See Vital Statistics of California 2000, Chapter 6 for details.

Reports from prior periods are available on this subject.

unchanged from 2002 but was down 17.5 percent from the 6.3 rate in 1994. The infant mortality rate for the non-Hispanic White group had the largest decrease between 2002 and 2003, decreasing from 5.1 in 2002 to 4.5 in 2003 (11.8 percent). This rate was down 33.8 percent from the 6.8 rate in 1994.

The changes from 2002 to 2003 among the three race/ethnic groups were not statistically significant ($p < .05$) except among the White race/ethnic group.² Comparing the three race/ethnic groups, non-Hispanic Whites and Hispanics continued to have mortality rates that were relatively similar and significantly below the rate for non-Hispanic Blacks. However, the greatest number of infant deaths occurred among Hispanics (1,411 deaths, 50.1 percent) and non-Hispanic Whites (733 deaths, 26.0 percent).

County Infant Mortality Rates

Infant mortality rates for 36 of California's 58 counties are shown on **Table 3**. Infant mortality rates were not presented for other counties because they have fewer than the 1,000 live births and/or fewer than five infant deaths needed to calculate reliable mortality rates. Even in some of the medium and large counties, the infant mortality rate can vary substantially from year to year. These 36 counties accounted for 98.1 percent of California's live births and 98.4 percent of the infant deaths in 2003.

For more Vital Statistics data, see the Department of Health Services Center for Health Statistics Home Page at:

www.dhs.ca.gov/OHIR

In 2003, the county infant mortality rates varied from a high of 11.1 in Humboldt County to a low of 2.7 in Placer County. Twenty-one counties had a lower rate in 2003 compared with 2002, and fourteen had a higher rate. For one county the rate was unchanged from 2002 to 2003. Statistical tests applied to the 2003 vs. 2002 infant mortality rates in each county revealed Solano County had a statistically significant decrease ($p < .05$);² all other changes were not statistically significant.

Table 3 also shows infant mortality rates for two of the three city health departments. In 2003, these rates were 7.0 and 5.4 in Long Beach and Pasadena respectively. The rate for Berkeley was not calculated because of the small number births and infant deaths in 2003.

Methodological Approach

Beginning with the 2000 birth and death data, race reporting changed to allow for the reporting of up to three races. In 2003, 1.9 percent of California's resident births (10,044) were to mothers of multiple race (two or more races), and 4.2 percent of infant deaths (117) were to infants of multiple race. Because race groups are not strictly comparable to those of prior years, trends by race/ethnicity should be viewed with caution. Rates were not calculated for additional race/ethnic groups due to the unsatisfactory reporting of some races on death certificates, and the unstable rates that result from small numbers of events.

Birth cohort files are the preferred source of race-specific infant mortality rates. Linking a cohort of births with the death certificates of those infants who died within one year of birth creates a data file that permits use of mother's race for both the numerator and denominator of the rates. In addition, other factors such as birthweight, multiple births (twins, etc.), and other health factors can be used to examine factors relevant to infant mortality. County Health Profiles reports, prepared annually, include three-year average

rates of total and race-specific infant mortality by county prepared from the birth cohort files. Annual Vital Statistics of California reports also provide data tables based on the cohort files.

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TABLE 1
NUMBER AND RATE OF INFANT DEATHS
CALIFORNIA, 1950,1960,1970,1980 - 2003
(By Place of Residence)

YEAR	NUMBER OF INFANT DEATHS	INFANT MORTALITY RATE ¹
2003	2,819	5.2
2002	2,875	5.4
2001	2,815	5.3
2000	2,884	5.4
1999	2,787	5.4
1998	2,994	5.7
1997	3,091	5.9
1996	3,186	5.9
1995	3,478	6.3
1994	3,948	7.0
1993	3,970	6.8
1992	4,174	6.9
1991	4,596	7.5
1990	4,828	7.9
1989	4,853	8.5
1988	4,559	8.6
1987	4,530	9.0
1986	4,298	8.9
1985	4,475	9.5
1984	4,212	9.4
1983	4,226	9.7
1982	4,218	9.8
1981	4,276	10.2
1980	4,451	11.1
1970	6,243	17.2
1960	8,663	23.3
1950	6,095	24.9

¹ Deaths under one year of age per 1,000 live births.

Source: State of California, Department of Health Services, Birth and Death Records.

TABLE 2
INFANT MORTALITY RATES BY RACE/ETHNICITY¹
CALIFORNIA, 1994-2003
(By Place of Residence)

RACE/ ETHNICITY	INFANT MORTALITY RATES BY RACE/ETHNICITY ¹										INFANT DEATHS 2003 ^a
	1994	1995	1996	1997	1998	1999	2000 ^a	2001 ^a	2002 ^a	2003 ^a	
TOTAL ²	7.0	6.3	5.9	5.9	5.7	5.4	5.4	5.3	5.4	5.2	2,819
HISPANIC	6.3	5.8	5.4	5.6	5.5	5.2	5.3	5.0	5.2	5.2	1,411
NON-HISPANIC BLACK	15.2	14.1	14.0	13.2	13.7	12.9	12.8	12.6	12.7	12.3	359
NON-HISPANIC WHITE	6.8	6.0	5.6	5.5	5.1	4.8	4.8	5.0	5.1	4.5	733

¹ Denominator of rates are by race/ethnicity of mother. All infants and births to mothers of Spanish/Hispanic origin regardless of race are included in the "Hispanic" group.

² Total Includes all race groups (White, Black, Hispanic, Asian, Pacific Islander, American Indian, Other, Two or more races, and Unknown race).

^a Beginning with the 2000 birth and death data, race groups changed to allow for the reporting of up to three races. Mothers in the "White" and "Black" groups are non-Hispanic and reported the single race "White" or "Black" only. This change caused a slight discontinuity with data prior to 2000 for Black and White infants.

Note: Rates are per 1,000 live births.

Source: State of California, Department of Health Services, Birth and Death Records.

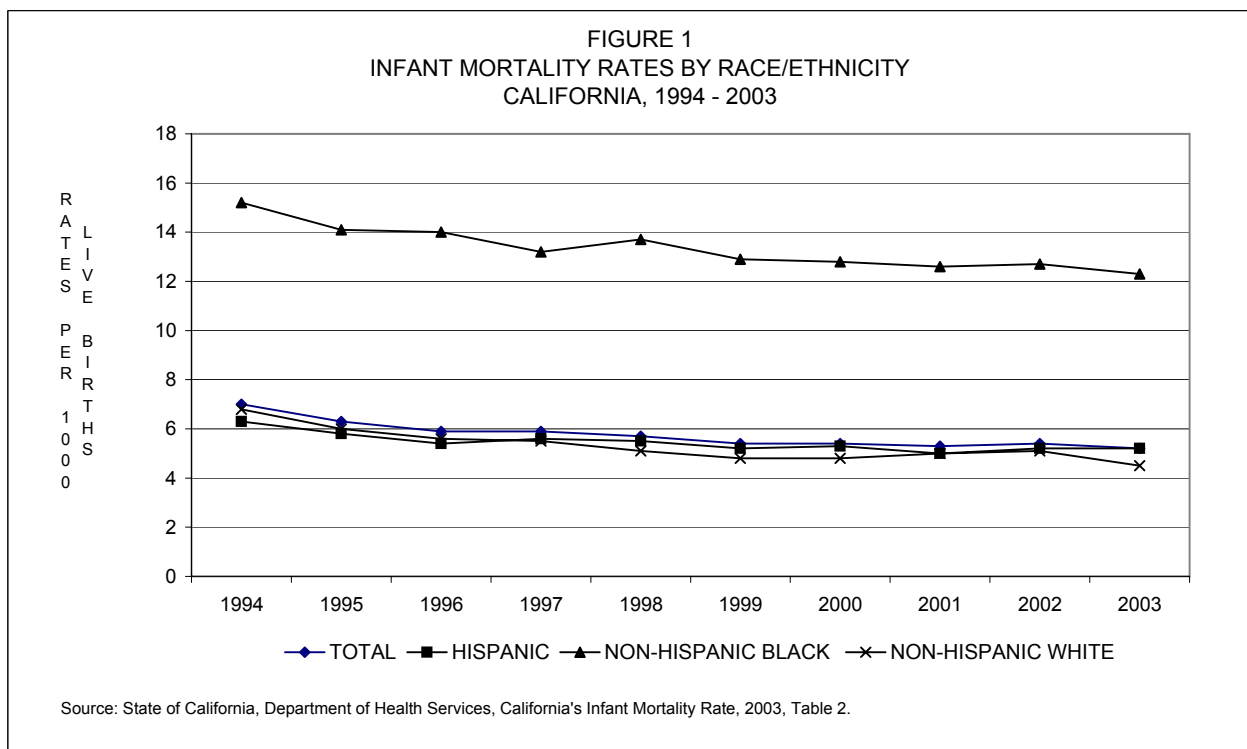


TABLE 3
INFANT MORTALITY RATES BY COUNTY OF RESIDENCE¹
CALIFORNIA, 1994 - 2003

COUNTY	INFANT MORTALITY RATES PER 1,000 LIVE BIRTHS										INFANT DEATHS 2003
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
CALIFORNIA	7.0	6.3	5.9	5.9	5.7	5.4	5.4	5.3	5.4	5.2	2,819
ALAMEDA	6.4	5.4	6.0	6.0	5.1	5.3	4.6	6.0	4.2	4.5	97
BUTTE	6.4	10.3	6.9	6.7	7.9	3.1	6.4	4.3	7.9	6.3	15
CONTRA COSTA	5.7	6.0	5.5	5.1	5.9	5.2	4.8	4.0	4.1	3.6	48
FRESNO	9.3	8.3	7.9	8.4	6.5	6.1	7.2	5.2	6.9	6.6	101
HUMBOLDT	12.5	8.9	4.7	4.1	8.9	4.1	7.3	4.0	6.3	11.1	16
IMPERIAL	6.2	4.9	4.4	2.5	7.2	4.9	4.7	5.4	3.8	4.1	12
KERN	11.2	10.9	9.8	6.7	6.7	6.9	7.4	6.6	6.2	5.6	72
KINGS	9.0	6.1	11.5	5.8	7.9	7.4	6.0	4.2	6.5	8.9	21
LOS ANGELES	6.9	6.7	5.9	5.9	5.9	5.4	4.9	5.4	5.5	5.4	822
LONG BEACH ²	9.3	8.1	4.9	4.4	7.1	6.1	6.7	4.6	4.3	7.0	56
PASADENA ²	7.5	7.3	8.5	5.3	6.4	7.1	7.3	4.7	4.1	5.4	12
MADERA	8.2	7.0	6.5	4.0	6.3	5.1	5.7	5.9	6.1	6.1	14
MARIN	5.1	2.7	3.4	4.5	2.3	2.6	3.5	2.8	3.6	4.6	13
MENDOCINO	6.1	8.0	9.8	4.9	5.5	a	8.3	9.4	7.4	6.4	7
MERCED	7.2	8.2	7.2	6.9	6.2	6.6	4.9	5.3	6.9	7.9	34
MONTEREY	5.8	5.7	5.3	5.8	6.2	4.8	5.7	5.4	6.3	5.4	40
NAPA	6.0	5.5	4.6	3.3	3.4	a	4.0	a	3.8	3.0	5
ORANGE	6.0	5.6	4.4	4.4	4.4	4.4	4.9	4.5	4.8	4.4	200
PLACER	4.1	6.3	6.2	1.9	4.1	6.1	7.2	4.8	5.5	2.7	10
RIVERSIDE	8.4	7.1	6.4	6.0	7.5	6.8	6.7	4.5	6.4	6.5	181
SACRAMENTO	7.3	7.0	6.9	7.0	6.1	6.2	5.8	6.2	6.1	5.0	103
SAN BERNARDINO	7.9	7.7	7.1	8.3	7.5	7.6	7.0	7.7	7.6	7.0	215
SAN DIEGO	6.6	4.9	5.4	5.5	5.2	5.2	5.9	5.6	4.5	4.6	210
SAN FRANCISCO	8.2	4.3	4.8	4.5	5.0	3.8	4.0	3.8	4.5	3.1	27
SAN JOAQUIN	7.6	6.4	7.6	7.2	6.0	4.6	6.9	7.2	7.3	6.7	70
SAN LUIS OBISPO	7.1	3.8	4.4	6.0	5.9	3.0	4.5	6.2	3.0	3.4	9
SAN MATEO	3.2	5.1	4.0	5.1	4.3	3.6	5.3	3.8	4.0	3.8	39
SANTA BARBARA	5.0	6.7	3.7	4.5	5.7	4.7	5.6	4.6	4.6	3.4	20
SANTA CLARA	5.8	5.2	5.1	5.6	3.8	4.8	4.5	4.0	3.6	4.1	110
SANTA CRUZ	7.6	3.7	6.1	4.8	5.8	4.9	4.6	3.7	3.9	4.3	15
SHASTA	8.0	6.9	5.9	8.5	4.6	6.0	6.0	6.2	7.6	6.3	13
SOLANO	8.8	5.1	7.1	6.4	6.5	5.6	4.6	4.3	7.9	4.3	25
SONOMA	5.3	4.4	4.2	4.1	5.5	5.9	4.8	3.7	5.1	4.1	24
STANISLAUS	8.4	5.9	6.8	7.1	6.8	7.0	7.0	7.4	7.8	6.6	53
TULARE	7.1	5.7	6.1	6.1	6.8	5.0	6.6	6.6	5.7	5.8	44
VENTURA	4.8	5.4	5.0	7.5	5.6	5.0	4.1	5.3	5.0	5.8	70
YOLO	9.7	5.0	9.7	6.2	3.3	3.7	6.2	5.6	4.2	4.9	12
YUBA	8.9	8.4	4.6	8.6	b	7.0	9.5	6.7	8.0	5.9	7

¹ Counties with 1,000 or more births and five or more infant deaths in 2003.

² Long Beach and Pasadena are city health departments. City events are included in their respective county totals.

^a Rates are not calculated for fewer than five events.

^b Rates not calculated for counties reporting fewer than 1,000 live births.

Source: State of California, Department of Health Services, Birth and Death Records.