VI. APPENDIX

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Health & Human Services Department Resource Directory*

Berkeley High School Health Center
High school students in the Berkeley Unified School District are provided free medical, mental health, and health education services. Phone: 644-6965. Hours: M-F: 8-30a-12:15p and 1:15-4:30p

Berkeley Public Health Clinic
Provides family planning, immunizations, TB skin test, and Sexually-Transmitted Infection/HIV prevention and testing services. Phone: (510) 981-5350.

Community Engagement in the Public Health Division
The Community Health Action & Assessment Section (CHAAS) and the School-Linked Health Services Program (SLHSP) organize community engagement efforts involving community residents, community-based organizations, policy stakeholders, other City agencies, parent groups, and the school district. Phone: 981-5337 (CHAAS) and 981-7677 (SLHSP):

El Centro
Provides health insurance information, assistance with Healthy Families and Medi-Cal Applications, and health information. Phone: 981-5370. Hours: Tues 1-4p walk-in.

Nurse of the Day Program
This service provides free counseling, health education, physical assessments, referrals, resource information, and assistance with accessing needed health services for residents of Berkeley and the surrounding area. To speak to a nurse, call (510) 981-5300. Hours: M-F: 8a-12p and 1-5p. In-person, visit 1947 Center Street, 2nd Floor. Hours: M-F 8a-12p and 1-5p.

Senior Centers

North Berkeley	South Berkeley	West Berkeley
1901 Hearst Avenue	2939 Ellis Street	1900 Sixth Street
(510) 981-5190	(510) 981-5170	(510) 981-5180

Vital Records Office
Birth and death certificates are available. Certificate request forms to print and mail in are available online at: http://www.cityofberkeley.info/publichealth/vitalstatistics/default.html. See website for more information. Phone: 981-5300. Office hours are Mon-Fri, 9am-4pm except holidays. Location: 1947 Center Street, 1st Floor.

Women, Infants and Children Program
Provides nutrition education, free food vouchers and breastfeeding support. Phone: 981-5360. Hours: M-Th 9a-12p and 1-5p.

* This is a select listing of programs and services. For a full listing of Health & Human Services Department programs and services, please visit: http://www.ci.berkeley.ca.us/hhs/

DATA SOURCES AND TECHNICAL NOTES

I. Social Determinants of Health & Health Inequities

Population and Demographics

The United States Bureau of Census conducted a complete count of the Berkeley population in 1990 and 2000 as part of the decennial census. Self-reported age, sex, race, and ethnicity of residents were collected in standardized questionnaires. Housing and household characteristics including types of families, income, and mode of transportation to work were also collected. Additional information on such topics as educational attainment, language spoken at home, disability status, and other information used in this report was collected on a sample of Berkeley residents.

Data used in this report for 1990 and 2000 census were obtained from publicly available data files[167] that aggregate individuals' responses at the level of the entire city, census tracts, and U.S. Postal Service zip codes. Census tracts are made up of contiguous blocks of residential housing in which approximately 4,000 persons live.

Poverty

Poverty was defined in Census data using federal guidelines,[168] which create income thresholds ("poverty line") that are compared to a family's pre-tax income. The thresholds vary by the number of adults and children in the family. In 1999, the threshold was $16,995 for a two-parent family with 2 children, and $13,423 for a single parent household with two children. The methodology was created in the 1960's and reflects the assumption that the cost of food for a minimum but adequate diet accounted for one-third of family income. Drawbacks of the methodology and alternatives have been reviewed.[169]

In analyses of poverty and mortality from 1999-2001, Census data on the percent of residents living below the poverty line in 1999 was compiled for each Berkeley census tract (4211-4240). The poverty status of each person who died as based on the census tract in which he/she lived.[170] Residential addresses in vital statistics data files were used to code census tract. For some analyses in this report, census tracts were grouped as Hills (east of Sacramento Ave.) and Flats (west of Sacramento Ave.).

Race/Ethnicity

Race/Ethnicity in census data is classified using federal system based on five categories of race (White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander) and 1 category of ethnicity (Hispanic).[171] In the 2000 Census respondents were also allowed to select a category of one or more races. Race and ethnicity were combined to create mutually exclusive categories based on Hispanic (Latino) of any race and White, African American, Asian, Other, and Multi-racial individuals who are not of Hispanic ethnicity. Major changes in race/ethnicity classification occurred between the 1990 and 2000 census. For analyses using 1990 to 1999 population projections, Non-Hispanic Whites were tabulated as the difference of Whites and Hispanics of any race. A small number of Latinos were included in the totals of African Americans and Asians for this time period.

Linguistic Isolation

We used the term, “English Difficulty” to represent the U.S. Census term, “Linguistic Isolation.” The Census Bureau defines a linguistically isolated household as one in which no one 14 years old and over speaks only English or speaks a non-English language and speaks English "very well." In other words, all members of the household 14 years old and over have at least some difficulty with English.

Intercensus Population Estimates for Rate Calculations

Rates of illness, injury, and death are comprised of a numerator that is the count of health events and a denominator that counts population for a given time period (e.g., 50 deaths per 100,000 population in 2003).

$$\text{Rate} = \frac{\text{Number of Health Events}}{\text{Population}} \times \text{Time Period}$$

Data collection systems for vital statistics, hospitalizations, and traffic injuries reported to the Berkeley Police Department were compiled annually for this report. However, actual population counts by age, sex, and race/ethnicity for Berkeley were only available for 1990 and 2000 as part of the decennial census. In order to follow time trends in health outcomes for each year from 1991 to 2006, we calculated the linear change in the 1990 and 2000 census for the Berkeley population in each of 110 subgroups based on 11 age groups (in roughly 10-year bands), two sexes, and five race/ethnicity groups (non-Hispanic White, non-Hispanic African America, Latino, Asian, and Other/Multi-racial). These annual changes were extended through 2006.

For the annual population in mortality and traffic injury analyses, we multiplied each cell by a constant to make the total Berkeley population consistent with the estimate for Berkeley made by the California Department of Finance[172] each year between 1991 and 2006. (The California Department of Finance estimates county populations by age, sex, and race subgroups but only estimates city populations in aggregate).

Geographic information for hospitalizations was available only at the level of zip code. Population estimates between 1991 and 2006 were based on linear change between the 1990 and 2000 census for subgroups based on 9 zip codes (94702-94710), 6-age groups in roughly 15-year bands), 2 sexes, and 5 race/ethnicity groups. [167] The choice of age-bands was based on groupings used by the California Department of Health Services[173] and the Office of Statewide Health Planning and Development (OSHPD)[174] so that comparisons would be standardized. Because zip codes extend beyond city borders, approximately 15% of the population were non-Berkeley residents from adjoining cities.

K-12 Students in the Berkeley Unified School District (BUSD)

Demographic information on K-12 students enrolled in the Berkeley Unified School District in 2005-2006 was reported by the BUSD to the California Department of Education.[175, 176] Documents published by the California Department of Education were also used to describe physical fitness, standardized testing and reporting (STAR) of proficiency in English Language Arts, high school non-graduation rates (“drop out”), and high school students with California State University/University of California (CSU/UC) eligibility in the Berkeley Unified School District.[177] The number of children with special education needs by ethnicity was provided by the Berkeley Alliance.[175]

Special Programs are defined as follows. *English Learners* are students who are not yet proficient in English. *Free /Reduced Price Meals* is a program to students from low-income families for free or reduced price meals. *Compensatory Education* are students participating in the federal Title I or the state Economic Impact Aid/State Compensatory Education (EIA/SCE) program. Title I is a federal program that provides supplementary services to low-achieving students from low-income families. The EIA/SCE is a state program that provides funds to low-achieving schools with high proportions of transient, low-income or English learner students. The goal of both is to improve student achievement in reading and mathematics.

Homeless Population

Estimates of Berkeley homeless were based on a survey conducted under the auspices of the Alameda County-wide Homeless Continuum of Care Council. The survey was a stratified cluster sample of 1,461 persons throughout Alameda County at homeless shelters and service sites in 2003.[178]

II. Pregnancy and Birth

Birth Certificates

Birth certificates are issued by the Public Health Division Vital Statistics Office for all births occurring in Berkeley, including home and hospital births (Alta Bates Summit Medical Center). For births of Berkeley residents occurring outside of Berkeley, the Automatic Vital Statistics System (AVSS) returns those records back to the place of residence, irrespective of the place of birth.

Birth certificates record characteristics of the parents (e.g., maternal age), pregnancy (e.g. duration of pregnancy and physician visits for prenatal care), and birth outcomes (weight of the newborn). The race of the baby is assigned as the race/ethnicity of the mother. These data are used to calculate the rate of adolescent (teen) births, prematurity and low birth weight.

Adolescent Birth Rate is the number of live births among adolescents, 15 to 19 years old, divided by the estimated female population in the same age group per 1,000 population.

Low Birth-Weight baby is a live birth in which the newborn weighs less than 2,500 grams or 5.5 pounds. The low birth weight rate (or percentage) is number of babies weighing less than 2500 grams divided by the total number of live births in a specified time period.

Premature birth is a live birth with a gestation of less than 36 weeks.

Timely Initiation of Prenatal Care is defined as one or more prenatal visits to a doctor occurring in the first trimester of the pregnancy.

Maternal Depression was measured in new mothers enrolled in an Alameda County-based program, "Every Child Counts" that coordinates services for children less than 5 years of age and their families. Hospital-based outreach coordinators enroll new Berkeley mothers (of any income level) for post-partum home visits and identify mothers who have a history of, or appear to be at risk for depression. Public health nurses receive referrals to visit these at-risk women and administer the Edinburgh Depression Screening tool.[179]

Breastfeeding

Data on in-hospital breastfeeding are from the California Newborn Screening Program database of the Genetic Disease Branch of the California Department of Health Services.[180] All nonmilitary hospitals are required to complete the Newborn Screening Test Form (DHS 4409) prior to an infant's discharge. Based on responses on the form, breastfeeding is categorized as breast only, formula only, breast and formula, and other. WIC administrative data were used to track breast feeding during the first 11 months post partum.

III. Child & Adolescent Health

Service utilization of Berkeley children was compiled from published data and internal databases of state and county agencies including Medi-Cal,[181] Healthy Families,[182] California Children Services,[183] Alameda County Behavioral Health Services,[184] and the Berkeley Unified School District. [175, 176]

California Healthy Kids Survey

Youth Behaviors: Alcohol, Tobacco, Drugs, and Violence

The California Healthy Kids Survey is the source of data for youth behaviors measured in students enrolled 5th, 7th, 9th, and 11th grades in the Berkeley Unified School District. The survey was developed under a contract from the California Department of Education by WestEd and Duerr Evaluation resources.[185]

The survey is comprised of over 50 questions regarding student demographics (8 items), alcohol and other drug use (20 items), tobacco use (8 items), physical harassment and violence (11 items), food and nutrition (5 items), exercise and physical activity (2) items, and single items for depression, asthma, and overweight. Many questions occur as couplets asking the lifetime frequency or past 30 day's use of alcohol, tobacco, and drugs or the exposure to violence.

The sample is made up of random classrooms within grades 5, 7, 9, and 11, and non-traditional schools or classes (continuation, alternative, court, and community day school settings). The survey is voluntary, confidential, and anonymous, although consent was required to be given by parents for 5th grade students. Response rates in the 2005-6 survey years were 57% for grade 5 (target N = 591), 67% for grade 7 (target N = 629), 47% for grade 9 (target N = 862), 53% for grade 11 (target N = 781), and 35% for non-traditional (target N = 112). Comparison data is available for California (California Student Survey) [186] and the United States (Youth Behavioral Risk Survey). [187]

Obesity and Asthma

Based on student self-report of height and weight in the CHKS survey, Body Mass Index (BMI) was calculated [Weight in kilograms/(Height in meters^2)] and compared to U.S. population data of BMI-for-age. BUSD students with a BMI greater than the 95% percentile for age were considered obese.[188]

Asthma prevalence was the proportion of BUSD students responding affirmatively to: "Has a doctor ever told you or your parent/guardian that you have asthma?"

California Child Health & Disability Prevention Program

The Child Health and Disability Prevention Program (CHDP) provides health care and periodic preventive health assessments to California children in low-income families. Eligible children include all Medi-Cal recipients under the age of 21 and other eligible low-income children up to the age of 19 years. As part of routine assessments, physicians monitor childhood physical development and indicators of anemia. To receive reimbursement for services, physicians submit encounter forms (PM 160s).

Obesity

Obesity in Berkeley children enrolled in the CHDP Program was calculated from a sample of 495 children who had an encounter in April, August, and December 2005. Height, weight, sex, and age in months were abstracted from encounter forms. Each child's percentile was calculated based on Centers for Disease Control and Prevention growth curves using BMI-for-age for children 24 months and older and weight-for-length for children aged less than 24 months.[188] Children exceeding the 95% percentile were classified as obese. Comparison data was available for Alameda County and California.[189]

Anemia

In the sample of CHDP children (above), anemia was defined as children with hemoglobin levels below national guidelines based on age and sex.[190]

Confidential Morbidity Reports

Communicable Diseases

California law (Title 17, §2500) requires physicians, other types of health care providers, and health facilities to report over 80 communicable diseases to the local health officer by phone, fax, or mail within specified time limits.[191] These confidential morbidity reports are received and compiled by the Berkeley Public Health Division Vital Statistics Office.

For the sexually transmitted diseases of Chlamydia, Gonorrhea, and syphilis, laboratory data are included in the confidential morbidity report to confirm cases. Likewise, data on viral hepatitis (A, B, C, D) includes results of antigen testing. For tuberculosis reporting, results of skin tests, chest x-ray, and bacteriological analysis are included to confirm cases.

Cases and rates are presented by the *count year*, which is the date when the TB case is verified and reported to the California Department of Health Services.

Childhood Immunization

As part of the California Department of Health Services Expanded Kindergarten Retrospective Survey, the Berkeley Public Health Division visited local schools with kindergartens and collected copies of student immunization record (blue card).[192] Demographic information and immunization history were extracted from each record. Data were analyzed using birth dates and immunization dates to retrospectively estimate immunization coverage at various age checkpoints. For example, a survey conducted in children (3-8 years olds) attending kindergarten in 2004 reviewed data on children with birthdates from 1995 to 2001. Since the 1990s, immunizations have included 4 doses

of vaccine for diphtheria, tetanus and pertussis, 3 doses for polio, and 1 dose of vaccine for measles mumps, and rubella (4:3:1). As new vaccines became available in the late 1990s, additional immunizations were included for assessment. These included Haemophilus influenza (3 doses) and hepatitis B (3 doses), and varicella (chicken pox) (4:3:1:3:3:1). The summary statistic is the percent of all children with vaccinations up to date at 24 months of age. Even though the survey provides the best available information on immunization coverage, the results have a built-in lag of several years, during which immunization practices may have changed.

Hospital Discharge (OSHPD)

Short-stay hospitals in California are required to report data on in-patients to the Office of Statewide Health Planning and Development (OSHPD),[174] which compiles data on each hospitalization. The data in this report was based on hospitalizations and not unduplicated patients. For each hospitalization, patient age, sex, race/ethnicity, zip code of the patient's residence, date of hospitalization, and causes of the hospitalization were available for patients residing in Berkeley zip codes 94702 to 94710. Residents of Kensington, Albany, and adjoining cities who share zip codes with Berkeley could not be excluded. The diseases and injuries that caused hospitalization were coded by OSHPD using the 9th revision of the International Classification of Diseases (ICD-9).[193] [See table below].

Classification of Hospitalizations for Injury and Illness, Office of Statewide Health Planning and Development

Illness/Disease/Injury	ICD-9 Codes*
Coronary Heart Disease	402, 410-414, 429.2
Cerebro-vascular Disease (Stroke)	430-438
Hypertensive Heart Disease	401-405
Diabetes Mellitus	250
Psychosis	290-299
Asthma	493
Motor Vehicle Accidents	E810-E825
Accidental Poisoning By Drugs, Medicinals, And Biologicals	E850-E858
Accidental Falls	E880-E888
Adverse Effects Of Drug, Medicinal And Biological Therapy (including prescription drugs)	E930-E949
Suicide And Self-Inflicted Injury	E950-E959
Homicide And Injury Purposely Inflicted By Other Persons	E960-E969

* All non-injury diseases were based on the primary diagnosis field

Hospitalizations due to injuries were coded in two ways: 1) type of injury (fracture, amputation, laceration) and 2) external cause (fall, motor vehicle crash, adverse prescription drug reaction, etc.). For external causes of injury, only the first hospitalization was E-coded, even if there were subsequent hospitalizations for the same injury.

The hospitalization rate is:

$$\text{Hospitalization Rate} = \frac{\text{Hospitalizations}}{\text{Population}} \times \text{Time Period}$$

IV. Adult Health

California Health Interview Survey, 2001

The California Health Interview Survey, conducted in each county at 2-3 year intervals has been the largest ongoing health-related survey of Californians since 2001. CHIS is a collaborative project of the UCLA Center for Health Policy Research, the California Department of Health Services, and the Public Health Institute.[194]

In 2001, cities with local health departments, including Berkeley, were included in the sample. The 90-page questionnaire covered self-perceived health status, disability, chronic health conditions, cancer screening, health insurance, alcohol and tobacco use, mental health, diet, and physical activity. One adult per household was selected by random digit dialing. Berkeley's sample included 809 adults representing 82,505 individuals 18 years of age and older. Participants were interviewed by telephone in English, Spanish, Vietnamese, Cantonese, Mandarin, Korean, and Khmer. The average adult interview took approximately 32 minutes to complete.

The response rate for Berkeley was 62%, slightly better than the statewide average of 59.2% and Alameda County (57.6%). To ensure the sample was as representative of Berkeley's adult population, the sample was weighted for non-response to reflect Berkeley's demographics in the 2000 U.S. Census and the availability of telephone lines. Individuals living in group quarters (e.g., university dormitories, nursing homes) may have been underrepresented.

A data file with sample weights was used to calculate weighted population estimates and weighted percents with their 95% confidence intervals. The methods used to generate these estimates are the same as those in published data for Alameda County and California.[195]

The definition of individual behaviors is as follows:

Current smokers were defined as adults who indicated they smoke cigarettes every day or some days.

Binge drinkers were defined as adults who consumed 5 or more alcohol drinks of any type on a single occasion during the past month.

Lack of moderate physical activity was based on a negative response to the question "Over the past 30 days, did you do any moderate activities in your free time for at least 10 minutes that caused only light sweating or slight to moderate increase in breathing or heart rate?"

Obesity was defined as a Body Mass Index (BMI) of 25 or greater. BMI was calculated from self-reported height and weight.[2]

Daily servings of fruits and vegetables was calculated from self-reported daily consumption of specific food groups (juices, salads, beans, fruit, vegetables, fried potatoes, and tomatoes) and estimated serving sizes based on respondent's age and sex.[196]

Health insurance questions polled respondents about their current participation in Medicare, Med-Cal, Healthy Families, employer sponsored health insurance, privately purchased health insurance, and other public insurance programs.

Lifetime prevalence of asthma, hypertension, heart disease, and diabetes were based on affirmative responses to the question: "Has a doctor ever told you that you have . . . (specified condition)?

Pap screening (women 18 Years and Older) *and mammograms* (women aged 40 years and older) were based on a sequence of responses of ever having had a Pap test or mammogram, and querying about the time interval since the last test (within 3 years for Pap and 24 months for mammogram).

Disability status was defined as an affirmative response to "Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?"

Depressive symptoms were based on responses to "Did you feel downhearted and sad in the past month?" as all of the time, most of the time, or some of the time.

Limitations in Daily Activities was based on affirmative responses to "During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities like visiting with friends, relatives, etc.?"

Mental health insurance coverage was defined as a positive response to "Does your insurance cover treatment for mental health problems, such as visits to a psychologist or psychiatrist?"

Self-perceived mental health needs was defined as a positive response to "During the past 12 months, did you think you needed help for emotional or mental health problems, such as feeling sad, blue, anxious or nervous?"

Mental health service utilization was defined as an affirmative response to "Not counting overnight stays, emergency room visits, or visits for drug or alcohol problems, in the past 12 months, have you seen a psychiatrist, psychologist, social worker, or counselor for emotional or mental health problems?"

Adult Communicable Diseases: AIDS\HIV Registry

The statistics presented in the AIDS and HIV section were obtained using the AIDS cases reported to the Berkeley Public Health Division as part of the confidential AIDS Surveillance System. HIV databases were obtained from the anonymous and confidential HIV testing sites of the Public Health Clinic and the HIV seroprevalence surveys at the sexually transmitted disease clinic.

Traffic Injuries (Statewide Integrated Traffic Records System, SWITRS)

The California Highway Patrol, CalTrans, and the California Department of Motor Vehicles collaborate in collecting information from traffic collisions throughout California to improve roadway conditions and monitor the effectiveness of enforcement efforts.[197] Standard data collection methods, including report forms (Traffic Collision Report, CHP 555) and data element definitions are used to describe collisions involving motor vehicle drivers, passengers, pedestrians, and bicyclists. Demographics of the injured and many other aspects of the collision are recorded. Since 1997, data are compiled annually in a database (Statewide Integrated Traffic Records System, SWITRS).

A data extract of the SWITRS database was made available to the City of Berkeley for collisions occurring in Berkeley's streets and highways between 1997 and 2005.[198] The unit of analysis in this report was injury (unique party-collision-date triplet) rather than collisions. Race/ethnicity of injured persons was available from 2002-2005.

Domestic Violence

The Berkeley Police Department collects data on domestic violence cases or domestic incidents reported to the police. For incidents reported in 2000, a data extract was provided by the Domestic Violence Prevention Unit. The data collected from police reports includes both victim and aggressor demographics and their relationship (spouse, ex-spouse/boyfriend/girlfriend, cohabitation). The unit of analysis was an incident, and multiple incidents may have occurred in the same victim and aggressor. It is recognized that most domestic violence incidents are underreported in crime statistics.[199]

Cancer Incidence

Cancer incidence rates and their 95% confidence intervals were provided by the Greater Bay Area Cancer Registry (GBACR).[200] Since 1987, California state law requires hospitals, physicians, and cancer treatment facilities to report newly diagnosed cases of cancer to regional cancer registries. The Greater Bay Area Cancer Registry collects and manages this information on cases reported in 9 Bay Area counties. Cancers are histologically confirmed and classified by site using the ICD-O-3 (oncology) system.

Cancer incidence rates in this report were calculated as 5-year averages using the number of cases in Berkeley zip codes from 1998 to 2002 as the numerator and multiplying the 2000 U.S. Census population count for Berkeley zip codes by 5 as the denominator. Cancer incidence rates and their 95% confidence intervals[201] were age-adjusted (see Technical Notes below) to the U.S. population standard.

To ensure confidentiality and statistical reliability, the GBACR reports rates for a particular population group if the group includes at least 15 cases of a specific cancer and if the total population for the designated time period exceeds 10,000. Race/ethnicity groupings were based on mutually exclusive federal classifications (Latino and non-Hispanic: White, African American, Asian, Other, and Multi-racial).

V. Death from All Causes

Death Certificates

Death certificates are issued by the Public Health Division Vital Statistics Office for all deaths occurring in Berkeley, including home and hospital deaths. Death certificates provide demographics of the decedent, the cause of death, and census tract of residence. Typically, funeral directors complete the non-medical portion of the death certificates (age, sex, race, residence, occupation of the decedent), and physicians complete the sections pertaining to progression of illnesses or injuries causing the death.

The medical information is classified into standard categories by trained personnel at the California Department of Health Services according to the International Classification of Disease[193], using the 9th Revision for deaths occurring from 1990-1998, and the 10th Revision for deaths occurring from

1999 to 2006. For deaths of Berkeley residents occurring outside of Berkeley, the California Department of Health Services annually complies and forwards birth certificate information to Berkeley's Public Health Division Vital Statistics Office, and also compiles a master file of deaths in Berkeley residents.

Mortality Rate

The mortality rate is the number of deaths divided by the population in a specified time period.

$$\text{Mortality Rate} = \frac{\text{Number of Deaths}}{\text{Population}} \times \text{Time Period}$$

The mortality rate can be further specified by age, sex, or race (e.g., deaths in 25-44 year olds in 2003 divided by the number of 25-44 year olds in the population in 2003). The numerator can likewise be specified for a given cause of death, such as coronary heart disease, cancer, stroke, etc.

We classified leading causes of death and hospitalization using the standard diagnostic categories of the International Classification of Diseases (See table below).

International Classification of Disease Classifications of Leading Causes of Death

Illness/Disease/Injury	ICD-9 Codes*	ICD-10 Codes†
All Cancers	140-208	C00–C97
Coronary Heart Disease	402, 410-414, 429.2	I11, I20–I25
Stroke	430-438	I60 – I69
Respiratory Disease	NA	J00-J98
Chronic Liver Disease	NA	K70-K76
Diseases of the Nervous System (Alzheimer's, Parkinson's Disease, etc.)	NA	G00-G98

* Berkeley deaths occurring 1991-1998
† Berkeley deaths occurring 1999-2005

Years of Potential Life Lost is the difference in years between the age of death and age 75 for those who die before age 75 (e.g., 75 – 45 age at death = 30 years of potential life lost).

Life Expectancy is the number of years that a newborn can expect to live based on current death rates. For this report, life expectancy was calculated using the abridged life table method[202] using mortality rates in 19 age bands (<1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+).

Statistical Methods

Age-Adjustment

Rates for hospitalization, traffic injuries, and mortality were age-adjusted. Age-adjustment is a statistical technique that makes it possible to compare health outcomes of populations that have different age profiles. Hospitalization and death rates increase rapidly after age 60, so population groups that have proportionately more older persons will appear to have high rates compared to groups that have a smaller proportion of older people.

The technique is applied in three steps. First, the rate is calculated in specific age groupings. Mortality rates in this report used 11 age groupings (<1 year, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+). An example of an age-specific death rate is deaths in persons 35-44 years old in 2005, divided by the number of 35-44 year olds in the population in 2005. Second, rather than taking a simple average these age-specific rates, each rate is multiplied (weighted) by the proportion of individuals in that age group that were estimated to be in the U.S. population in 2000.[203] Third, these weighted rates are summed. The sum reflects the weighted average, and is the age-adjusted rate.

Statistical Reliability of Rates

Rates of mortality and hospitalization based on large numbers of events are more reliable than those with only a few observations. Rates based on a small number of outcomes can fluctuate widely, making time trends difficult to discern or year-to-year changes seem spurious.

Analysts use several approaches to guide users in their interpretation of rates based on small numbers. Some agencies publish rates, but use symbols (e.g., asterisk) to warn readers that the rate does not meet a given reliability standard. Other agencies do not report results if the number of events do not meet a minimum number. There is no universally adopted minimum number, but many agencies' minimum number is in the range of 10 to 20.[173, 200, 204-206] This range reflects a statistical zone in which measures of the variability in the rate (standard error) are between one-quarter to one-third of the value of the rate itself (i.e. a Relative Standard Error between 23% and 33%). For this report, we adopted the lower limit of 10, which strikes a balance between the amount of data that can be presented, particularly for Asians and Latino health outcomes, and the statistical reliability of rate measurements. The choice of 10 observations also helps prevent the potential identification of individuals and maintains confidentiality. Graphs in this report omit population groups with less than 10 observations in the numerator of a rate or proportion. This is the reason why some groups (e.g. Latinos) are included in some graphs and excluded from others.

To enhance the reliability of rates in some analyses of time trend, we aggregated data in 2- to 6-year intervals, so that, for most time periods, at least the larger population subgroups (White, African American) had at least 10 observations per time interval. These rates are average annual rates.

Statistical Significance

Examining differences in rates between geographic areas of Berkeley, Alameda County, and California, and between race/ethnicities within Berkeley follow from the questions, "How is Berkeley doing compared to other communities?" and "How do race/ethnicities within Berkeley compare to each other?"

Given that some health outcomes are based on small numbers or a sample, differences between two (or more) rates may be the result of random variation rather than other explanations. In this report, statistical tools were applied to help assess whether differences in rates were a likely or unlikely consequence of random fluctuation. "Statistical significance" is a technical term that indicates that the difference between two rates or proportions is not likely to be due to chance, or random fluctuation. "Statistical significance" is not a pronouncement on whether the difference has or does not have practical importance. Statistical significance was assessed using widely accepted statistical methods taking into account the sample design and the frequency of the health outcome.

Health outcomes that occur in more than a few percent of a specific population are considered "common" in statistical terms. These include the percent of low birth weight (5%-15%, anemia (~6%) or obesity (~25%) in CHDP children of a given age group. Significance testing for "common" health outcomes from non-weighted samples used a two-tailed Chi square test and a confidence level of 95% ($p < 0.05$). In addition to these statistical tests, 95% confidence intervals were calculated using the binomial distribution.[207] The 95% confidence interval reflects the spread in results if outcomes (e.g., percent low birth weight) were repeatedly measured in the same population taking different random samples of the same size.

Although the prevalence measures in the CHIS are statistically "common," the data were weighted for non-response and other factors to make the sample representative of the Berkeley adult population. Sample weights were used to generate weighted percents and the weighted sample design was taken into account in calculating 95% confidence intervals.[208] Differences in weighted percents in CHIS between Berkeley, Alameda County, and California were assessed with 95% confidence intervals. Confidence intervals that did not overlap were considered statistically significant ($p < 0.05$). This is the methodology recommended and used by CHIS sponsors to assess statistical significance.[209] CHIS estimates at the Berkeley city level generally adhered to a reliability standard based on a relative standard error of < 30%. We also included some results with RSEs > 30% if there were at least 10 sample observations in the numerator of a proportion.

Mortality and hospitalization rates are considered to be "rare" health outcomes relative to the population. Rates and 95% confidence based on a Poisson distribution were calculated for Berkeley and compared to those in published reports.[173, 201] 95% confidence intervals of age-adjusted rates that did not overlap were considered statistically significant. Except for a few analyses, Berkeley residents were not excluded from statistical comparisons of Alameda County. This introduces a bias that tends to make Berkeley-Alameda County differences smaller than they actually are.

Assessing Time Trends

Specialized regression software[210] developed by the National Cancer Institute was used to assess the statistical significance of time trends in proportions and age-adjusted rates (low birth weight, hospitalizations, and mortality). The software fits line segments to trend data using the fewest number of line segments that the data allow. For low birth weight percent, a linear trend was modeled using standard errors (binomial) to weight each yearly observation. For hospitalization and mortality rates, standard errors based on the Poisson distribution were used to weight observations.

Maps and Figures

LIST OF FIGURES

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