

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA



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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS AND DISCLAIMERS .....	4
SUMMARY .....	5
INTRODUCTION .....	7
TECHNICAL NOTES .....	8
SECTION I: SITE-SPECIFIC TRENDS IN CANCER INCIDENCE AND MORTALITY BY SEX AND RACE/ETHNICITY	
BRAIN AND NERVOUS SYSTEM CANCER .....	14
BREAST CANCER (FEMALE) .....	17
CERVIX UTERI CANCER .....	20
COLON AND RECTUM CANCER .....	22
ESOPHAGUS CANCER .....	30
HODGKIN LYMPHOMA .....	35
KIDNEY AND RENAL PELVIS CANCER .....	38
LARYNX CANCER .....	41
LEUKEMIA .....	44
LIVER AND INTRAHEPATIC BILE DUCT CANCER .....	55
LUNG AND BRONCHUS CANCER .....	58
MELANOMA OF THE SKIN .....	61
MULTIPLE MYELOMA .....	66
NON-HODGKIN LYMPHOMA .....	68
ORAL CAVIT AND PHARYNX CANCER .....	71
OVARY CANCER .....	74
PANCREAS CANCER .....	76
PROSTATE GLAND CANCER .....	79
STOMACH CANCER .....	82

TABLE OF CONTENTS

TESTIS CANCER .....85

THYROID CANCER .....87

URINARY BLADDER CANCER .....90

UTERUS AND CORPUS CANCER .....93

SECTION II: TRENDS IN SPECIFIC CANCER RISK FACTORS AND HEALTH BEHAVIORS BY SEX AND RACE/ETHNICITY

BINGE DRINKING .....96

DIABETES .....97

FRUITS AND VEGETABLES CONSUMPTION .....98

HYSTERECTOMY .....99

OBESITY .....100

ORAL CONTRACEPTIVE USE .....101

PHYSICAL ACTIVITY .....102

SCREENING BREAST CANCER .....105

SCREENING CERVICAL CANCER .....107

SCREENING COLORECTAL CANCER .....108

SCREENING PROSTATE CANCER .....109

SMOKING .....111

SUNBURN .....113

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## SUMMARY

- This report presents trends in cancer incidence (new cases) and mortality (deaths) by sex and race/ethnicity for Non-Latino white, African American, Latino, and Asian/Pacific Islander (Asian/PI) California residents. Annual percent change (APC) in cancer rates were calculated for the period between 1988, when the CCR was implemented, through 2005. Rather than showing trends as single straight lines, the statistical method used in this report detects whether trends change direction at any given year. Whenever such changes in direction were detected, trends for the most recent period are described.
- Trends for invasive female breast cancer incidence in California varied markedly by racial/ethnicity during the period between 1988 and 2005. Among white females, rates declined sharply from 2001 forward; rates among Latinas declined as well, although not as sharply. In contrast, incidence rates among African-American women increased by about 0.3 percent per year, and by about 1.2 percent per year among Asian/Pacific Islander (Asian/PI) women. The latter were also the only major racial/ethnic group in California for whom breast cancer mortality did not decline since 1988.
- Trends for prostate cancer followed a complex pattern that is consistent with the introduction and widespread use of the prostate-specific antigen (PSA) test. In the early 1990s, after the rapid increase in the incidence of the disease, rates dropped fairly quickly and stabilized until around 2002, when rates again began to decline. This pattern was evident in all four major racial/ethnic groups in California. On the other hand, prostate cancer mortality declined steadily in California, from 1.3 and 1.7 percent per year among Latinos and African Americans, to 3.6 percent per year among white and Asian/Pacific Islanders.
- The incidence of lung cancer declined among males of all racial/ethnic groups. Among white and Latino women, rates also declined after the mid to late 1990s. These trends reflect the decline in cigarette smoking in Californians since the 1980s. Rates for Asian/Pacific Islander and African-American women remained stable between 1988 and 2005. Trends in lung cancer mortality were similar to those for lung cancer incidence.
- Incidence and mortality rates for colorectal cancer decreased significantly among males of all groups, except Latinos. Among females, incidence and mortality rates for the disease also declined in all racial/ethnic groups, although the decrease in incidence in Asian/Pacific Islanders was not significant. The incidence of *in situ* colon and rectum cancer also decreased significantly, by nearly five percent per year. Despite downward trends, there are marked differences in colorectal cancer rates by sex and race/ethnicity, with highest rates occurring among African-American men.
- For the majority of cancers, incidence rates declined in California, although there was substantial variation in trends by sex and race/ethnicity. Incidence rates for the following cancers/cancer sites declined among all or most population groups: cervix, squamous cell carcinoma of the esophagus, Hodgkin lymphoma (except Asian females), larynx, non-Hodgkin lymphoma (whites and Latino men only), oral cavity and pharynx (except African-American women), pancreas (African-American and Asian/Pacific Islander males only), ovary (except Latinas), stomach, urinary bladder (whites only), and uterus (whites only).
- The incidence of leukemia from 1988 through 2005 did not increase in any racial/ethnic group in California, and appears to have declined in some groups. Incidence rates of chronic lymphocytic leukemia declined among white and African-American persons; rates of both acute and chronic myeloid leukemia also seem to be decreasing.
- Incidence rates for the following cancers/cancer sites increased among some or most population groups in California: adenocarcinoma of the esophagus, kidney, liver, melanoma of the skin (whites and Latinos), thyroid, testicular (white and Latino males only), and uterine cancer (non-white women).
- Mortality rates declined for most cancers in California during the period between 1988 and 2005, due to a decrease in incidence, improved treatments, and early detection. Among some cancers, such as liver (all groups except Asian/Pacific Islander males) and esophagus (white males), for which incidence rates increased during the period, mortality rates increased as well. On the other hand, mortality rates for cancers such as melanoma, thyroid, testicular, and uterine cancer (in minority females) did not increase during the period, even though their incidence increased. Heightened awareness and screening may explain why incidence for these cancers increased but mortality did not.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

- Other significant trends during the period were decreases in the incidence of multiple myeloma (white females plus Asian/Pacific Islander and African-American males) and pancreatic cancer (African-American and Asian/Pacific Islander males). In contrast, a significant increase in cancer of the brain and nervous system was detected among Latinas.
- The California Behavioral Risk Factor Survey (CBRFS), the California Women’s Health Survey (CWHS), and the California Adult Tobacco Survey (CATS) conduct telephone interviews with randomly selected adults in California. Information collected from these surveys include a variety of health behaviors, utilization of cancer screening procedures, tobacco related behaviors, and other preventive measures that are used to monitor improvements and challenges in the protection of public health in California.
- Obesity, which increases the risk of many cancers, almost tripled in California during the period from 1989 to 2007. During the same period, the percent of California adults ever diagnosed with diabetes (which may increase the risk of pancreatic cancer) also increased significantly. On the other hand, the percent of Californians reporting healthy behaviors such as eating fruits and vegetables, exercising, and engaging in leisure time activities also increased, although not in all racial/ethnic groups.
- Due to vigorous public health efforts in California, smoking prevalence declined from 21.1 percent in 1989 to 14 percent in 2007 (although smoking is still highest among African Americans). During the 2004/2005 fiscal year, per capita cigarette consumption in California was the lowest in the country.
- Sunburns are a factor that inspires concern due to their established link with melanoma of the skin. Among white females, the percent reporting being sunburned in the previous year increased significantly in California.
- Screening can detect cancers at earlier stages, when prognosis is better. The percent of California women that reported having a mammogram and a clinical breast exam increased for both whites and non-whites, although screening was consistently higher among white women. The Pap test can help prevent cervical cancer by detecting lesions before they become malignant. Recent survey results show that the percent of women receiving a Pap test in California increased significantly among Latinas, but not among white or African-American women. On the other hand, screening for colorectal cancer increased sharply in California, particularly among women. PSA testing to detect prostate cancer has been consistently higher among white than among non-white California men. The percent of men receiving a PSA test peaked in 1999, but has since declined.

## INTRODUCTION

By law, the Cancer Surveillance Section of the CDPH collects, analyzes, and disseminates information on the occurrence of cancer in California. Reporting of newly diagnosed cancers in California has been mandated by law since 1985 (Health & Safety Code Section 103885). The statutes called for regional population-based cancer registries to become operational and to begin reporting to a central statewide registry by no later than July 1, 1988. Statewide implementation was effective as of January 1, 1988, when ten regions covering the entire state began reporting cancer incidence data to the CCR.

### *CCR and cancer surveillance in California*

California's statewide, population-based cancer surveillance system monitors the incidence and mortality of specific cancers over time and analyzes differential risks of cancer by geographic region, age, race/ethnicity, sex, and other characteristics of the population. Cancer incidence data are gathered through the CCR, which conducts and collaborates with other researchers on special cancer research projects concerning the etiology, treatment, risk factors, and prevention of specific cancers. In addition, the system is designed to monitor patient survival with respect to the type of cancer, extent of disease, therapy, demographics, and other prognostic factors. These analyses provide the foundation for studies evaluating the efficacy of clinical therapies, changes in diagnostic procedures, public awareness campaigns, and other cancer control initiatives.

The Survey Research Group (SRG) is a section in the CDPH, and also a PHI program, specialized in conducting scientific health-related surveys. SRG began as a small computer assisted telephone interviewing unit in 1987 to conduct the then nascent California Behavioral Risk Factor Surveillance System for the CDC in collaboration with the CDPH. Today, SRG continues to conduct the Behavioral Risk Factor Survey for California, completing five times as many interviews. In addition, SRG conducts several thousand high quality health-related interviews per month in multiple languages, as part of surveys contracted by state and federal governments, academic institutions, and private non-profit organizations.

### *Importance of cancer trends*

Monitoring cancer trends is one of the most important functions of a cancer surveillance system. Changes in the occurrence of cancer in a population often instigate research on potential reasons for the observed increase or decrease in cancer rates. For example, if changes in cancer incidence are accompanied by changes in exposure to some risk factor, it may be possible to establish a link between cancer and that particular risk factor. Monitoring cancer trends is also important to evaluate the efficacy of cancer screening or detection methods, as well as to determine priorities in cancer control programs. Government officials and policy makers also use information on cancer trends to allocate resources for cancer research and prevention.

The current report presents trends in cancer incidence and mortality for the period between 1988 and 2005, as reported to the CCR as of January 2008. Trends are presented for the four largest racial/ethnic groups in California: non-Latino whites, Latinos, African Americans, and Asian/Pacific Islanders. A special section on trends in cancer-related health behaviors, risk factors, and cancer screening is also included in this report. These trends are based on information collected through telephone interviews of randomly selected Californians. Even though such information does not necessarily correspond to the experience of cancer patients themselves, it reflects how the distribution of risk factors and health choices among Californians can impact the cancer burden in our State.

## TECHNICAL NOTES

### SECTION I: TRENDS IN CANCER INCIDENCE AND MORTALITY

#### 1. Incidence

This report includes cases diagnosed between January 1, 1988 and December 31, 2005, and reported to CCR as of January 2008. A “case” is defined as a primary cancer; tumors that result from the spread, or metastasis, of cancer to another to another organ are not counted as new cases. Except where noted, only invasive cancers are included in this report. Regional registries covering the entire state report cancer incidence data to the CCR, Chronic Disease Surveillance and Research Branch of the CDPH. Standards for data abstracting, collection, and reporting are specified by the CCR. Only cases diagnosed in California residents are included in this report: persons who were treated for cancer in California, but were residents of another state or country, are not included.

#### Cancer behavior

Cancers are distinguished by whether they are invasive, that is, have infiltrated the tissue of the organ of origin, or whether they are *in situ*, that is, have not yet penetrated the basement membrane or extended beyond the epithelial tissue. Data are presented separately for *in situ* cancers of the breast, of the colon and rectum combined, and for melanomas of the skin.

#### Classification of anatomic site

Primary anatomic site and histologic type of cases were coded according to the International Classification of Diseases for Oncology. Cases diagnosed from 1988-1991 were coded using the Field Trial Edition, cases diagnosed from 1992-2000 were coded using the Second Edition (ICD-O-2), and those diagnosed from 2001- 2005 were coded using the Third Edition (ICD-O-3). Cancers were grouped according to conventions of the Surveillance, Epidemiology and End Results (SEER) program. Conversions from original coding schemes to the current ICD-O-3 edition were accomplished through computerized programs developed by SEER.

#### 2. Mortality

Computerized files containing information on cancer-related deaths were obtained from the CDPH, Center for Health Statistics. Beginning in 1999 and thereafter, cause of death was coded by the International Classification of Diseases, Tenth Edition (ICD-10). All mortality analyses presented in this report are the responsibility of the authors, and were not reviewed or endorsed by the Center for Health Statistics prior to publication. Only deaths among California residents were included in these analyses.

#### 3. Population Estimates

Annual, mid-year population estimates by age, race/ethnicity, and gender were obtained from the following sources:

- National Center for Health Statistics. Estimates of the July 1, 2000 - July 1, 2006, United States resident population from the Vintage 2006 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau (<http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>).
- National Center for Health Statistics. Bridged-race intercensal estimates of the July 1, 1990 - July 1, 1999, United States resident population by county, single-year of age, sex, race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute (<http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>).
- State of California, Department of Finance (DOF), Race/Ethnic Population with Age and Sex Detail, 1970-1989. Sacramento, CA, December 1998. Miller T. On Benchmarking DOF's 1988 and 1989 Estimates to the Census Bureau Estimates. Fremont, CA: Northern California Cancer Center, June 6, 2006.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### 4. Definition of Race/Ethnicity

Race/ethnicity is grouped into the mutually exclusive categories of non-Latino white (white), non-Latino African American (African American), Latino, and non-Latino Asian/Pacific Islander (Asian/PI). Race and ethnicity were reported as separate data items during data collection for both cases and deaths. Persons with race reported as white, African American, or unknown, but with a last name on the 1980 U.S. Census list of 12,497 Hispanic surnames, were categorized as Latino for analyses in this report. Maiden name, when present, was used instead of last name to identify Latino women by surname. Similarly, persons with race coded as white, African American, or unknown, but with a Vietnamese or Hmong surname were categorized as Asian.

The use of surname to identify persons of Latino ethnicity was adopted by CCR because of the recognized under-reporting of Latino ethnicity on the medical record and death certificate. A study conducted by the Northern California Cancer Center documented that the use of Hispanic surnames, in addition to information from the medical record, results in increased sensitivity and accuracy of cancer rates. Overall statewide cancer incidence and mortality rates for Latinos, based on this definition, are approximately 14 percent higher than those based on medical record and death certificate alone, and rates for non-Latino whites are approximately 1.4 percent lower.

### 5. Statistical Methods

#### Calculation of Age-Adjusted Rates

Rates were calculated as the number of new cases (incidence) or deaths (mortality) in specific age groups per 100,000 persons each year, and were age-adjusted to the 2000 United States standard population. Age-adjusted rates are weighted averages of age-specific rates, where the weights represent the age distribution of a standard population. Such adjustment eliminates differences in rates due to changes in the age of a population over time, or due to differences in age distribution between population groups. Rates in this report were calculated using the Surveillance Research Program, National Cancer Institute SEER\*Stat software version 6.2.3. (<http://srab.cancer.gov/seerstat>). Rates based on less than 15 cases (or deaths in any given year) were not calculated.

#### Annual Percent Change (APC)

The estimated annual percent change (APC) represents the average percent increase or decrease in cancer rates per year over a specified period of time. It is calculated by first fitting a linear regression to the natural logarithm of the annual age-adjusted rates ( $r$ ), using calendar year as the predictor variable:  $\ln(r) = m(\text{year}) + b$ . From the slope of the regression line, the APC is calculated as  $\text{APC} = 100 * (e^m - 1)$ . Testing the hypothesis that the APC is equal to zero is equivalent to testing the hypothesis that the slope of the line in the regression is equal to zero. Statistical significance was set at  $\alpha = 0.05$ . That is, the trend in cancer rates was considered statistically significant if there was less than a one percent chance that the difference was the result of random variation.

#### Joinpoint Analysis of Trends

Joinpoint linear regression was used to determine trends in cancer incidence and mortality. In this analysis, a statistical algorithm detects joinpoints, or points in time where the slope of the regression line significantly changes. Thus, the model describes trends during different time segments. At each segment, trends in rates are measured using the estimated APC, which assumes that rates change by a constant percentage each year. The SEER JoinPoint regression software version 3.0 (<http://srab.cancer.gov/joinpoint>) was used for all trend analyses in this report.

### 6. Cancer Risk Factors

Information on cancer risk factors was obtained from the National Cancer Institute's Comprehensive Cancer Information (<http://www.cancer.gov/>) and from the American Society of Clinical Oncology Cancer.Net guides (<http://www.cancer.net/patient/Cancer+Types>). A risk factor is anything that increases a person's chance of developing cancer. Some risk factors can be avoided, such as smoking, and some cannot, such as age and family history. Although risk factors can influence the development of cancer, most do not directly cause cancer. People with several risk factors not always develop the disease, while many cancer patients have no known risk factors. Knowledge about risk factors for different types of cancers is important to allow people to make wise lifestyle and health-care choices.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### 7. *Cautions on Interpretation*

The validity of rates depends on the completeness of cancer reporting and on the accuracy of population estimates. Incidence data in this report are based on cases of primary cancer which were first diagnosed among California residents between January 1, 1988 and December 31, 2005, and which were reported to CCR as of January 2008. Case reporting for 2005 was estimated to be over 99.0 percent complete as of January 2005. However, cancer surveillance is a dynamic process and cases diagnosed at earlier years may be reported long after incidence data are considered “complete”. The delay in reporting of cancer cases may affect trends in cancer incidence, particularly for the most recent years of diagnosis. An internal review conducted within the CCR suggested that rates for 2005 may still increase by an average of 1.5 percent in the next year.

Veteran’s Health Administration (VHA) hospitals in California did not report cancer cases to the CCR in 2005. Although there is no way to know how many unreported cancer cases were diagnosed in these facilities in 2005, historically VHA-reported cases have accounted for approximately four percent of all new male cancers reported to the CCR. Therefore, rates of new cancer diagnoses (incidence rates) for 2005 in this publication are based upon case counts that the CCR believes to be underestimates of the true counts. It is not possible to determine to what extent any downward trends in 2005 reflect this underreporting of cases versus true progress in the fight against cancer. Because of the population served by VHA facilities, the CCR believes their lack of reporting has little or no impact on the accuracy of female cancer rates for 2005. Because information on cancer mortality is obtained through a different source, this reporting issue does not have any impact on cancer mortality trends

The reliability of race-specific cancer rates depends on the accuracy of race classification in both cases and deaths, and in population estimates. Some variation in race-specific rates may reflect misclassification bias, rather than a true difference in cancer risk. Population estimates are based in part on self identification at the time of the 2000 Census. Race/ethnicity information for cancer cases is based primarily on information contained in the patient’s medical record. This information may be based on self-identification by the patients, on assumptions made by an admissions clerk or other medical personnel, or on an inference using race/ethnicity of parents, birthplace, maiden name, or last name. Race/ethnicity for cancer deaths, on the other hand, is based on information on the death certificate, which is often completed by the funeral director or coroner, and may not always be based on information provided by next-of-kin. The reporting of race/ethnicity in either system may be influenced by the racial/ethnic distribution of the local population, by local interpretation of data collection guidelines, and other factors. While the use of surname lists partially compensates for misclassification of some racial/ethnic groups, it is likely that some differences in race-specific rates reflect biases of classification rather than true differences in risk.

Finally, statistically significant variation in rates can occur by chance alone, and additional assessment is required to separate chance occurrences from true public health concerns. Statistical significance does not necessarily determine the relevance of the results.

## SECTION II: TRENDS IN HEALTH BEHAVIORS AND RISK FACTORS

### 1. *Sources of Data*

Three data sources were used to collect the information presented in this report:

#### **a. Behavioral Risk Factor Survey**

The Behavioral Risk Factor Survey is an ongoing effort by the CDPH in conjunction with the United States CDC to assess the prevalence of and trends in health-related behaviors in the California population aged 18 years and older. Data are collected monthly from a random sample of non-institutionalized California adults living in households with landline telephones. The Behavioral Risk Factor Survey database includes data regarding the health behaviors of California residents from 1984 through the present.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

The Behavioral Risk Factor Survey questionnaire is developed each year by the CDC in collaboration with participating state programs. Wherever possible, questions have been selected from previously conducted national surveys for comparability. Participants in the California Behavioral Risk Factor Survey are asked about a variety of behaviors such as seat belt use, exercise, weight control, diet, tobacco, and alcohol consumption, utilization of cancer screening procedures, and other preventive measures. They are also asked for basic demographic information such as age, race/ethnicity, marital and employment status, household income and education.

Participation in the Behavioral Risk Factor Survey is completely voluntary and anonymous. Interviews are conducted by trained interviewers following standardized procedures developed by CDC. From 1984 through 1993, Behavioral Risk Factor Survey participants were selected using the Waksberg method, a multi-stage cluster sampling technique designed to generate a random sample of all California households with telephones. Starting in 1994, a screened random digit dialing (RDD) sample purchased from a commercial sampling firm has been used instead. All other data collection procedures remained the same.

### **b. California Women's Health Survey**

The California Women's Health Survey is the first California survey focusing on women's health. It began in 1997 in response to the lack of California-specific data on women's health status, behaviors and attitudes. The survey is the result of a unique collaborative effort between the CDPH, the California Department of Mental Health, the California Department of Alcohol and Drug Programs, the California Department of Social Services, California Medical Review, Inc., and the PHI. Contributing programs collaboratively design the survey and use the information derived from the survey to improve the health of California women through program planning, implementation, and evaluation.

California Women's Health Survey asks participants about a wide variety of behaviors related to past and present involvement in health care systems, participation in the government nutrition program, WIC, prenatal care, vitamin use, alcohol use, breastfeeding, sexually transmitted diseases, utilization of cancer screening procedures and other preventive measures. They are also asked for basic demographic information such as age, race/ethnicity, marital and employment status, household income and education. Participation is completely voluntary and anonymous.

The California Women's Health Survey is an annual household-based telephone survey that collects information from a sample of randomly selected women, 18 years of age and older. The survey, which is conducted in English and Spanish, includes core demographic questions and specific program questions. Programs participating in the California Women's Health Survey Workgroup are responsible for individual program questions and for the analysis of their respective data.

### **c. California Adult Tobacco Survey**

The California Adult Tobacco Survey is an ongoing effort by the CDPH and the PHI to access the prevalence of and trends in tobacco related behaviors in the California population aged 18 years and older. Data are collected monthly from a random sample of California adults living in households with telephones.

The questionnaire for the California Adult Tobacco Survey was developed by the Tobacco Control Section and Survey Research Group staff. Participants are asked about a wide variety of behaviors related to past and present cigarette smoking and attitudes and beliefs about tobacco use. They are also asked for basic demographic information such as age, race/ethnicity, marital and employment status, household income and education.

As with other surveys, participation in the California Adult Tobacco Survey is voluntary and anonymous. Interviews are conducted by trained interviewers following standardized procedures developed by CDC. In 1993, California Adult Tobacco Survey participants were selected using the Waksberg method. Starting in 1994, a screened RDD sample purchased from a commercial sampling firm has been used instead. All other data collection procedures remained the same.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## 2. Statistical Methods

### Weighting

The age, race, and sex distribution of the Behavioral Risk Factor Survey sample does not completely match that of the California population. In order to obtain meaningful population estimates, Behavioral Risk Factor Survey data are weighted using the 2000 California population. Weighting is used to correct for the probability of being drawn into the sample and to adjust the sample to reflect the age, race, and sex distribution of the 2000 California population.

### Statistical Tests for Trends

The Rao-Scott chi-square test was used to determine whether there was a significant trend in the percentage from year-to-year. The Rao-Scott chi-square tests the hypothesis that there is no relationship between year of data collection and the proportion of people who have responded in a certain way. It does not test whether there was a linear trend. Trends that had a Chi square test with a p value  $<.05$  were defined as significant.

## 3. Cautions on Interpretation

There are several limitations to using the Behavioral Risk Factor Survey and the California Women's Health Survey data. Both the Behavioral Risk Factor Survey and the California Women's Health Survey are based on self reports and thus are subject to reporting errors. Both do not include persons who do not have landline telephones or who are institutionalized. To the extent that these groups have different reporting patterns, the estimate of prevalence might be biased. Another limitation may be due to the response rates. Low response rates may produce results that are not representative of California. Response rates are calculated using the American Association of Public Opinion Research (AAPOR) guidelines and are referred to as upper bound response rates. They indicate the proportion of eligible households contacted which result in a completed interview:

### Behavioral Risk Factor Survey Response Rates (Upper Bound)

Year	Upper Bound	Year	Upper Bound	Year	Upper Bound
1987	77%	1994	76%	2001	72%
1988	80%	1995	70%	2002	71%
1989	83%	1996	66%	2003	69%
1990	82%	1997	65%	2004	70%
1991	81%	1998	75%	2005	66%
1992	84%	1999	82%	2006	65%
1993	79%	2000	66%	2007	59%

### California Women's Health Survey Response Rates (Upper Bound)

Year	Upper Bound	Year	Upper Bound
1997	67%	2003	72%
1998	70%	2004	74%
1999	81%	2005	73%
2000	74%	2006	72%
2001	74%	2007	72%
2002	72%		

Small sample sizes can decrease the reliability of estimates. Estimates were not calculated for characteristics with less than 30 observations. Because of this, for some factors and behaviors, race categories were collapsed into white and non-white only.

## SECTION I

### SITE-SPECIFIC TRENDS IN CANCER INCIDENCE AND MORTALITY BY SEX AND RACE/ETHNICITY

Section I presents trends in incidence and mortality in California from 1988 through 2005 for cancers occurring at major anatomic sites. For each cancer site, a brief description of its risk factors is presented, followed by the main findings from the trend analysis.

For each cancer site, where applicable, two sets of graphs are provided - incidence and mortality among males and females. Within each graph, lines and dots display trends for each of the four major racial/ethnic groups in California: non-Latino white (white), African American, Latino, and Asian/Pacific Islander (Asian/PI). Solid lines represent the trends estimated by statistical analysis, while dots represent the observed annual rates of cancer incidence or mortality.

Incidence rates represent invasive cancers diagnosed in California residents. For three types of cancer (female breast, colorectal, and melanoma of the skin), trends are also presented for *in situ* tumors. These tumors are early stage cancers that are typically found through screening.

A table is included for each cancer site, presenting estimates of the annual percent change (APC) and overall percent change by sex, race/ethnicity, and time-period. Trends for some cancer sites were well described by a single straight line, with a single APC for the entire period between 1988 and 2005. For other cancers, trends were best described when the trend line was broken into different time periods, each with its corresponding APC and overall percent change during the period.

### **BRAIN AND NERVOUS SYSTEM CANCER**

Approximately 2,050 Californians are diagnosed each year with brain cancer, and 1,400 die from the disease. Incidence of the different types of brain tumors vary by gender and race/ethnicity. Brain tumors occur more often among white people than among people of other races. They are also more commonly diagnosed in males than females (although meningiomas are more common in females). Even though most brain tumors are detected in older adults, brain cancer is the second most common cancer in children.

The cause of brain cancer is still not known, and there are no known means of preventing a brain tumor. Research on the link between brain tumors and infections, head injuries, or electromagnetic fields (such as energy from power lines or from cell phone use) has been largely inconclusive. The following risk factors are associated with an increased chance of developing brain cancer:

- Occupational exposures to chemicals such as formaldehyde, vinyl chloride, and acrylonitrile
- Exposure to high doses of radiation, such as workers in the nuclear industry
- Family history of the disease

#### *Trends in Incidence and Mortality in California*

During the period between 1988 and 2005, incidence and mortality rates for brain cancer among white Californians remained unchanged. Likewise, trends for African Americans were not statistically significant, although incidence rates and, among females, mortality rates were slightly downwards. Among Latinas, significant increases of about 1.5 – 1.8 percent per year in both incidence and mortality rates were detected, although incidence seems to have declined after 2002. Rates for Latinos remained unchanged during the period.

Mortality rates for brain cancer in Asian/Pacific Islander males increased by about 1.6 percent per year during the period, although incidence rates were stable. On the other hand, while incidence rates among Asian/Pacific Islander females seemed to decline between 1988 and 2005 (although not statistically significant), trends in mortality were more complex - increasing from 1988 through 1993, decreasing afterwards until 2001, and appear to be rising again since then. Despite these trends, brain cancer rates among persons of Asian/Pacific Islander descent remain low, between 2 and 4 cases per 100,000 people.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

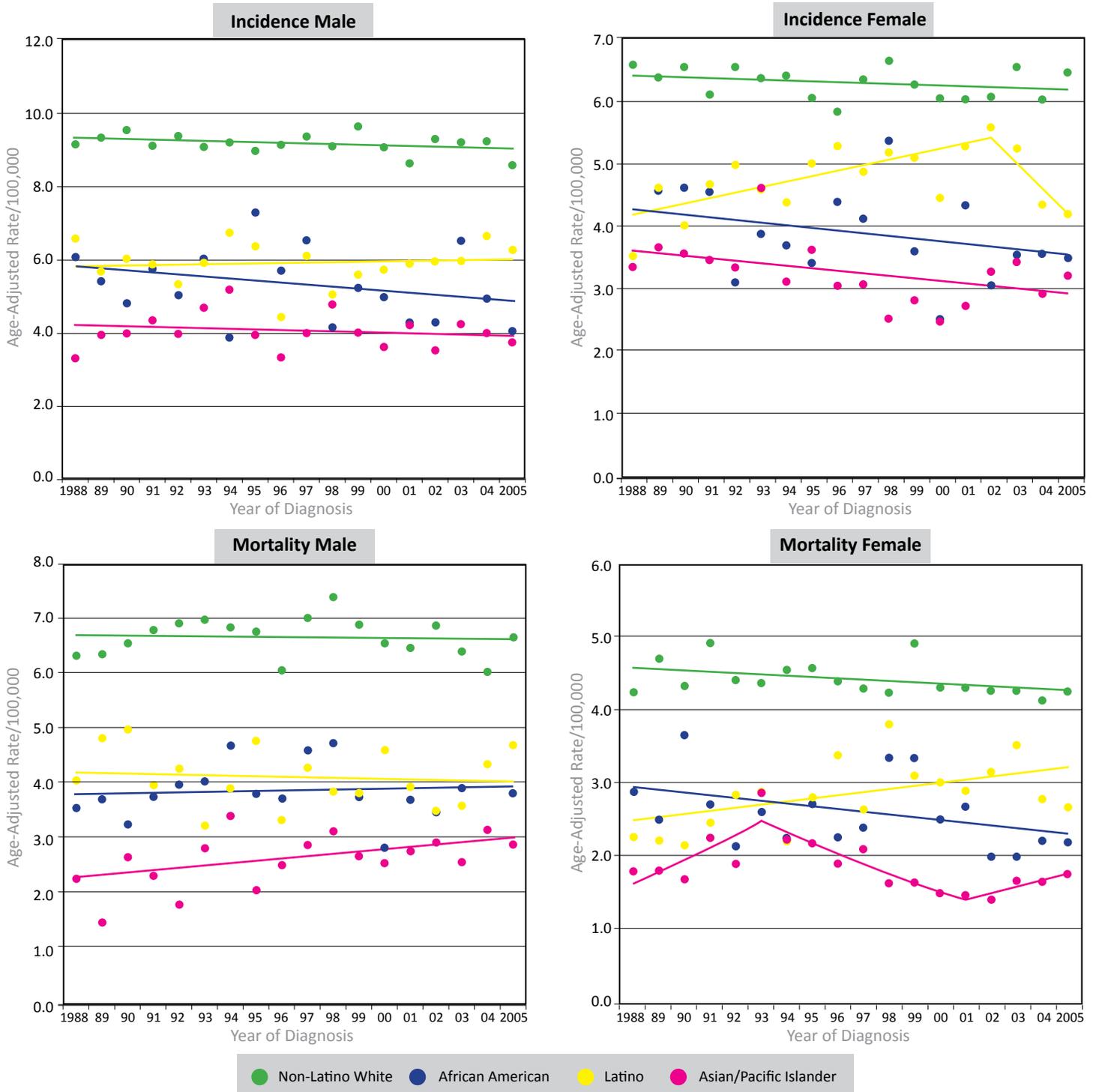
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Brain and Central Nervous System

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2005	-3.4	-0.20	(-0.47, 0.07)	0.142	
	African American	1988-2005	-18.8	-1.02	(-2.71, 0.70)	0.226	
	Latino	1988-2005	3.4	0.19	(-0.73, 1.13)	0.663	
	Asian/Pacific Islander	1988-2005	-7.1	-0.40	(-1.52, 0.73)	0.463	
Females	Non-Latino White	1988-2005	-3.6	-0.21	(-0.58, 0.16)	0.249	
	African American	1988-2005	-18.8	-1.02	(-2.76, 0.75)	0.237	
	Latino	1988-2002	29.0	↑	1.83	(0.60, 3.08)	0.007
		2002-2005	-27.4		-8.40	(-17.2, 1.35)	0.084
	Asian/Pacific Islander	1988-2005	-22.9		-1.22	(-2.54, 0.12)	0.071
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-1.5	-0.09	(-0.62, 0.45)	0.737	
	African American	1988-2005	3.0	0.17	(-1.10, 1.46)	0.779	
	Latino	1988-2005	-3.6	-0.21	(-1.45, 1.05)	0.727	
	Asian/Pacific Islander	1988-2005	31.2	↑	1.61	(0.07, 3.17)	0.042
Females	Non-Latino White	1988-2005	-7.1	-0.41	(-0.88, 0.06)	0.086	
	African American	1988-2005	-27.1	-1.42	(-3.10, 0.29)	0.097	
	Latino	1988-2005	29.8	↑	1.55	(0.10, 3.01)	0.037
	Asian/Pacific Islander	1988-1993	53.5	↑	8.96	(2.00, 16.4)	0.016
		1993-2001	-70.1	↓	-6.86	(-9.78, -3.85)	0.001
		2001-2005	24.9		5.72	(-1.07, 13.0)	0.091

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Brain and Nervous System Cancer



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

### BREAST CANCER (FEMALE)

Breast cancer is the most common female cancer in California and in the U.S. An average of 26,300 women in California are diagnosed each year with breast cancer (21,700 with invasive and 4,600 with *in situ* tumors) and 4,175 die annually from the disease. The risk of developing breast cancer increases with age, with most cases developing in women after menopause. Breast cancer rates vary by race/ethnicity: white women are more likely to develop breast cancer, but African-American women are more likely to die from it. The cause of breast cancer is still unknown and it is likely that multiple risk factors influence the development of the disease (although many cases of breast cancer occur in women with no obvious risk factors). The following factors can raise a woman's risk of developing breast cancer:

- Personal history of breast cancer or a diagnosis of atypical hyperplasia of the breast
- History of breast cancer in a first-degree relative (mother, sister, daughter)
- Genetic mutations to BRCA1, BRCA2, and other breast cancer genes
- Long time exposure to estrogen: menstruation starting before age 12, menopause after age 55, first pregnancy after age 30 or never having had a full-term pregnancy
- Use of hormone replacement therapy
- Lifestyle factors such as [obesity](#), [lack of exercise](#), and [alcohol use](#)
- High doses of radiation, particularly from puberty through child bearing years

#### *Trends in Incidence and Mortality in California*

Trends for female breast cancer varied markedly by race/ethnicity between 1988 and 2005. Among white women, for whom breast cancer incidence had slightly increased since 1988, trends declined sharply and significantly from 2001 through 2005. This marked decline has been attributed to a lower use of post-menopause hormone replacement therapy. The percent of California women engaging in regular exercise has also increased significantly, particularly among white women. Incidence rates for *in situ* cancers, which are detected mostly through [screening](#), increased sharply until 2000, when rates began to stabilize. On the other hand, mortality rates declined steadily since 1988; rates in 2005 were almost 45 percent lower than in 1988.

Among African Americans, the incidence of invasive breast cancer increased slightly but significantly during the period. Breast cancer mortality also declined among African Americans, but not as markedly as among white women. Unlike white women, the incidence of *in situ* tumors did not yet reach a plateau in this racial/ethnic group, although rates increased at a slower pace since 1995.

Among Latinas, incidence rates of invasive breast cancer increased by about one percent per year until 1999, when trends reversed significantly. Rates of *in situ* tumors increased during the period in a somewhat uneven pattern, but seem to have slowed down since 1998. Similar to other racial/ethnic groups, mortality rates from 1988 through 2005 among Latinas decreased by about 1.4 percent per year.

The incidence of invasive breast cancer among Asian/Pacific Islanders has increased steadily since 1988 by about 1.2 percent per year, and has not yet declined. Similar to trends for white women, incidence of *in situ* tumors increased sharply in this group of women, but appears to have declined since 2002. The only racial/ethnic group of women for whom mortality rates did not decline during the period between 1988 and 2005 was Asian/Pacific Islanders.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

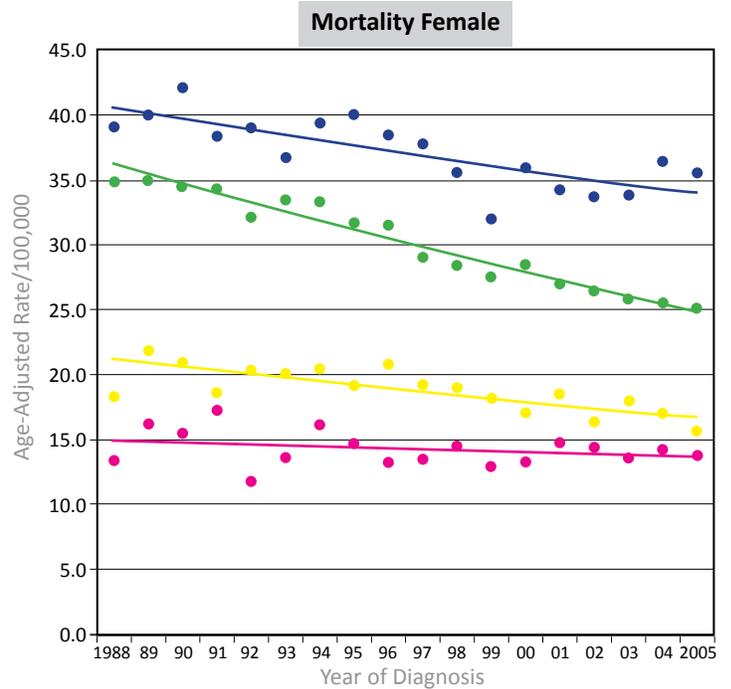
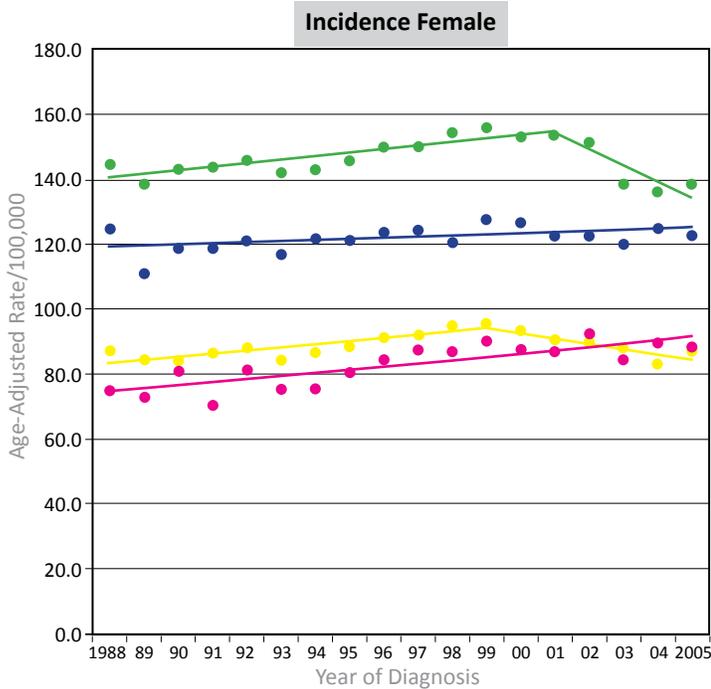
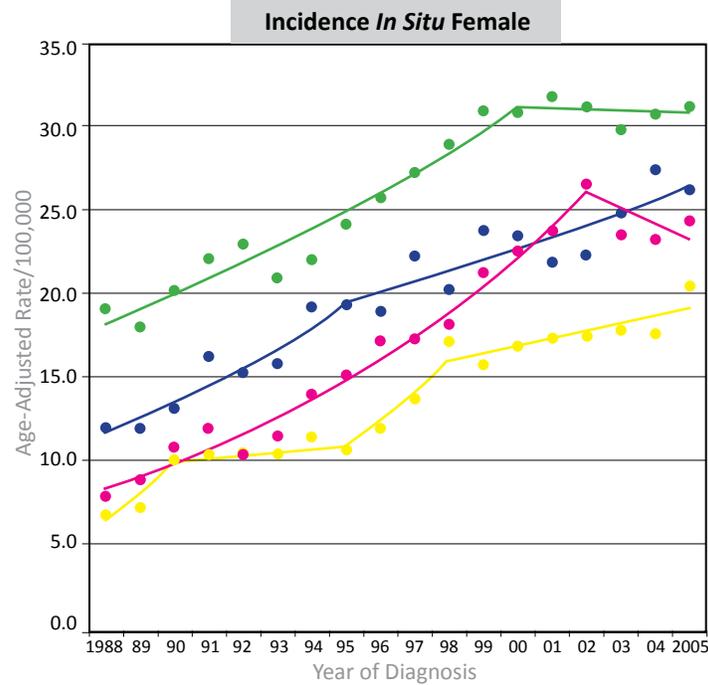
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Breast (Female)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Females ( <i>In Situ</i> )	Non-Latino White	1988-2000	70.4	↑	4.54	(3.65, 5.44)	<0.001
		2000-2005	-0.8		-0.17	(-3.35, 3.13)	0.913
	African American	1988-1995	66.7	↑	7.58	(4.72, 10.5)	<0.001
		1995-2005	35.3	↑	3.07	(1.47, 4.70)	0.001
	Latino	1988-1990	54.9	↑	24.45	(9.20, 41.8)	0.005
		1990-1995	9.6		1.85	(-2.28, 6.15)	0.329
		1995-1998	46.1		13.47	(-0.44, 29.3)	0.056
	Asian/Pacific Islander	1988-2005	19.8	↑	2.61	(0.84, 4.42)	0.010
		1988-2002	210.7	↑	8.43	(7.44, 9.44)	<0.001
			2002-2005	-11.7		-3.74	(-12.8, 6.22)
Females ( <i>Invasive</i> )	Non-Latino White	1988-2001	10.1	↑	0.74	(0.38, 1.11)	0.001
		2001-2005	-14.6	↓	-3.46	(-5.52, -1.37)	0.004
	African American	1988-2005	4.9	↑	0.28	(0.02, 0.55)	0.039
	Latino	1988-1999	13.3	↑	1.14	(0.59, 1.70)	0.001
		1999-2005	-10.8	↓	-1.73	(-2.79, -0.66)	0.004
	Asian/Pacific Islander	1988-2005	22.1	↑	1.18	(0.71, 1.65)	<0.001
<b>MORTALITY TRENDS</b>							
Females	Non-Latino White	1988-2005	-43.3	↓	-2.14	(-2.39, -1.89)	<0.001
	African American	1988-2005	-18.6	↓	-1.01	(-1.47, -0.55)	<0.001
	Latino	1988-2005	-26.1	↓	-1.38	(-1.93, -0.82)	<0.001
	Asian/Pacific Islander	1988-2005	-8.4	↓	-0.48	(-1.27, 0.32)	0.221

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Breast Cancer, Female



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## CERVIX UTERI CANCER

Each year, about 1,500 California women are diagnosed with invasive cervical cancer, and 430 women die from the disease. Incidence rates of cervical cancer in California are highest among Latinas and lowest among white females. The most important risk factor for cervical cancer is infection with the Human Papillomavirus (HPV), which is transmitted through sexual intercourse. A vaccine to prevent infection with the two types of HPV implicated in 70 percent of cervical cancers, and the two types of HPV that cause 90 percent of genital warts, has been approved by the U.S. Food and Drug Administration, and other vaccines are under study. Women who smoke, or whose mothers were given diethylstilbestrol during pregnancy, are also at increased risk for cervical cancer. [Screening](#) via regular gynecologic examinations and Pap smear followed by treatment of precancerous abnormalities decreases the incidence and mortality of cervical cancer.

### *Trends in Incidence and Mortality in California*

Incidence and mortality rates for cervical cancer declined among all racial/ethnic groups in California during the period between 1988 and 2005. Among African-American women, declines in both incidence (115 percent) and mortality rates (97 percent) were particularly steep and about twice faster than the declines observed in white women. The decline in incidence was also steep among Latinas, but mortality rates declined at a slower pace. Among Asian/Pacific Islander women, the very sharp decline detected between 1994 and 2000 seems to have slowed down in recent years, while mortality rates continued to decrease by almost four percent per year. Despite these declining trends in cervical cancer, survey data show that California has not yet reached the Healthy People 2010 goal of having at least 90 percent of women reporting a recent [Pap smear](#). Latina women were the only racial/ethnic group for which the percent having a Pap test increased over time.

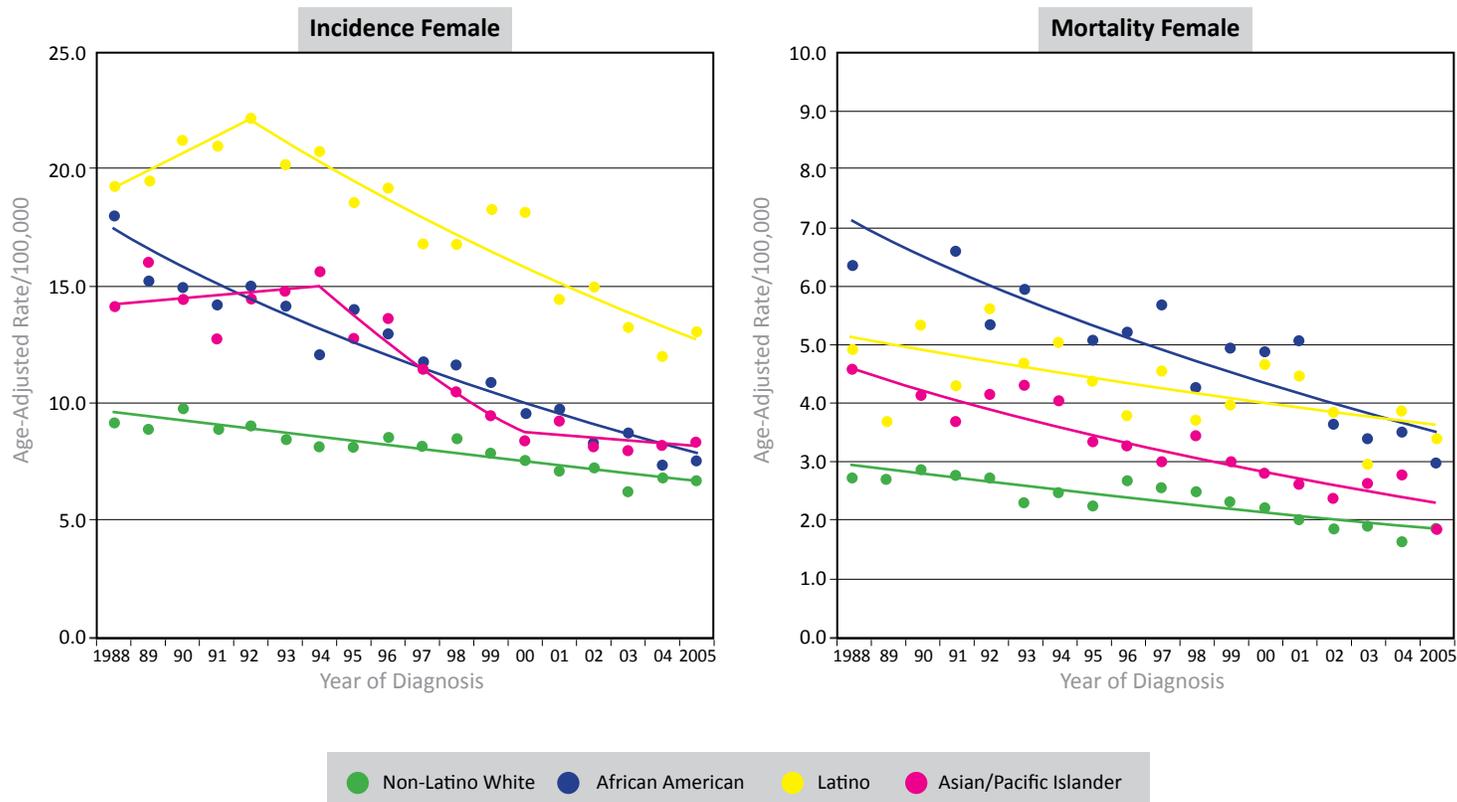
### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Cervix Uteri (Females)**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Females	Non-Latino White	1988-2005	-41.5	↓	-2.06	(-2.54, -1.58)	<0.001
	African American	1988-2005	-114.6	↓	-4.60	(-5.23, -3.95)	<0.001
	Latino	1988-1992	15.2		3.59	(-3.83, 11.6)	0.324
		1992-2005	-69.1	↓	-4.12	(-5.18, -3.05)	<0.001
	Asian/Pacific Islander	1988-1994	5.1		0.83	(-2.90, 4.70)	0.636
		1994-2000	-64.1	↓	-8.61	(-12.8, -4.22)	0.002
		2000-2005	-7.3		-1.43	(-5.82, 3.17)	0.498
<b>MORTALITY TRENDS</b>							
Females	Non-Latino White	1988-2005	-56.3	↓	-2.66	(-3.44, -1.88)	<0.001
	African American	1988-2005	-96.7	↓	-4.06	(-5.46, -2.64)	<0.001
	Latino	1988-2005	-39.4	↓	-1.97	(-3.22, -0.71)	0.005
	Asian/Pacific Islander	1988-2005	-91.8	↓	-3.90	(-4.96, -2.84)	<0.001

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

**Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Cervix Uteri, Females**



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

### COLON AND RECTUM CANCER

Cancer of the colon and rectum is the third most common cancer diagnosed in California, and the third most common cause of cancer death. An average of 15,250 Californians are diagnosed annually with colorectal cancer (14,460 invasive and 790 *in situ* tumors), and 5,200 die each year from the disease. Rates of invasive colorectal cancer are highest among African Americans, followed by white persons. Tumors often begin in adenomas, noncancerous growths or polyps that may develop on the inner wall of the colon and rectum, as people get older. Colorectal cancer can often be prevented through regular [screening](#), which can identify and remove precancerous polyps. Regular [screening](#) is also important because it allows colorectal cancers to be detected early, when prognosis is better. The cause of colorectal cancer is not known, but the following factors may increase the risk of developing the disease:

- Age: more than 90 percent of colorectal cancers occur in people over 50
- Presence of adenomas in the colon and rectum (if not removed)
- Family history of colorectal cancer in a first-degree relative (parents, siblings, or children)
- [Smoking](#) and, possibly, a diet high in animal fat
- Inherited conditions: hereditary nonpolyposis colon cancer and familial adenomatous polyposis.
- Ulcerative colitis or Crohn's disease

#### *Trends in Incidence and Mortality in California*

##### **Colon and Rectum Cancer**

During the period from 1988 to 2005, significant and pronounced declines in incidence and mortality rates of cancers of the colon and rectum were detected, although trends followed slightly different patterns. For males, decreases in incidence were more pronounced among whites (particularly after 1998) than among African Americans and Asian/Pacific Islanders. Incidence rates among Latino males remained unchanged during the entire period. Decreases in incidence for white and African-American females were slightly smaller than among their male counterparts, but still highly significant. In contrast with Latino males, Latinas experienced a marked decrease in incidence after 1999, while incidence among Asian/Pacific Islander females decreased only slightly. Regardless of statistical significance, rates of *in situ* colorectal cancer declined sharply among males and females of all major racial/ethnic groups, suggesting that Californians have increasingly followed screening recommendations for the disease. In fact, survey data show that the percent of California adults who ever had a [colorectal screening](#), and who had a screening in the past five years increased significantly since 1996. As a result, mortality rates due to colon and rectum cancer declined in all groups, with the exception of Latino males, for whom mortality rates remained stable from 1988 through 2005.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Colon and Rectum

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-134.1	↓	-5.13 (-5.79, -4.46)	<0.001
( <i>In Situ</i> )	African American	1988-2005	-47.0	↓	-2.29 (-3.70, -0.86)	0.004
	Latino	1988-2005	-27.5	↓	-1.44 (-2.77, -0.09)	0.038
	Asian/Pacific Islander	1988-2005	-32.2	↓	-1.66 (-3.19, -0.10)	0.039
Males	Non-Latino White	1988-1995	-16.7	↓	-2.23 (-2.94, -1.53)	<0.001
(Invasive)		1995-1998	1.4		0.45 (-4.79, 5.99)	0.855
		1998-2005	-22.7	↓	-2.97 (-3.67, -2.26)	<0.001
	African American	1988-2005	-20.1	↓	-1.08 (-1.63, -0.53)	0.001
	Latino	1988-2005	-0.2		-0.01 (-0.60, 0.57)	0.961
	Asian/Pacific Islander	1988-2005	-23.6	↓	-1.25 (-1.87, -0.63)	0.001
Females	Non-Latino White	1988-2005	-107.5	↓	-4.39 (-4.95, -3.82)	<0.001
( <i>In Situ</i> )	African American	1988-2005	-52.2		-2.50 (-5.20, 0.27)	0.074
	Latino	1988-2005	-47.7	↓	-2.32 (-4.16, -0.45)	0.018
	Asian/Pacific Islander	1988-2005	-29.4		-1.53 (-3.69, 0.68)	0.160
Females	Non-Latino White	1988-1995	-16.4	↓	-2.19 (-2.85, -1.54)	<0.001
(Invasive)		1995-1998	4.4		1.43 (-3.54, 6.66)	0.542
		1998-2005	-17.2	↓	-2.30 (-2.97, -1.62)	<0.001
	African American	1988-2005	-16.3	↓	-0.89 (-1.29, -0.50)	<0.001
	Latino	1988-1999	9.3		0.81 (-0.17, 1.80)	0.097
		1999-2005	-14.6	↓	-2.30 (-4.19, -0.37)	0.023
	Asian/Pacific Islander	1988-2005	-7.3		-0.42 (-0.91, 0.08)	0.094

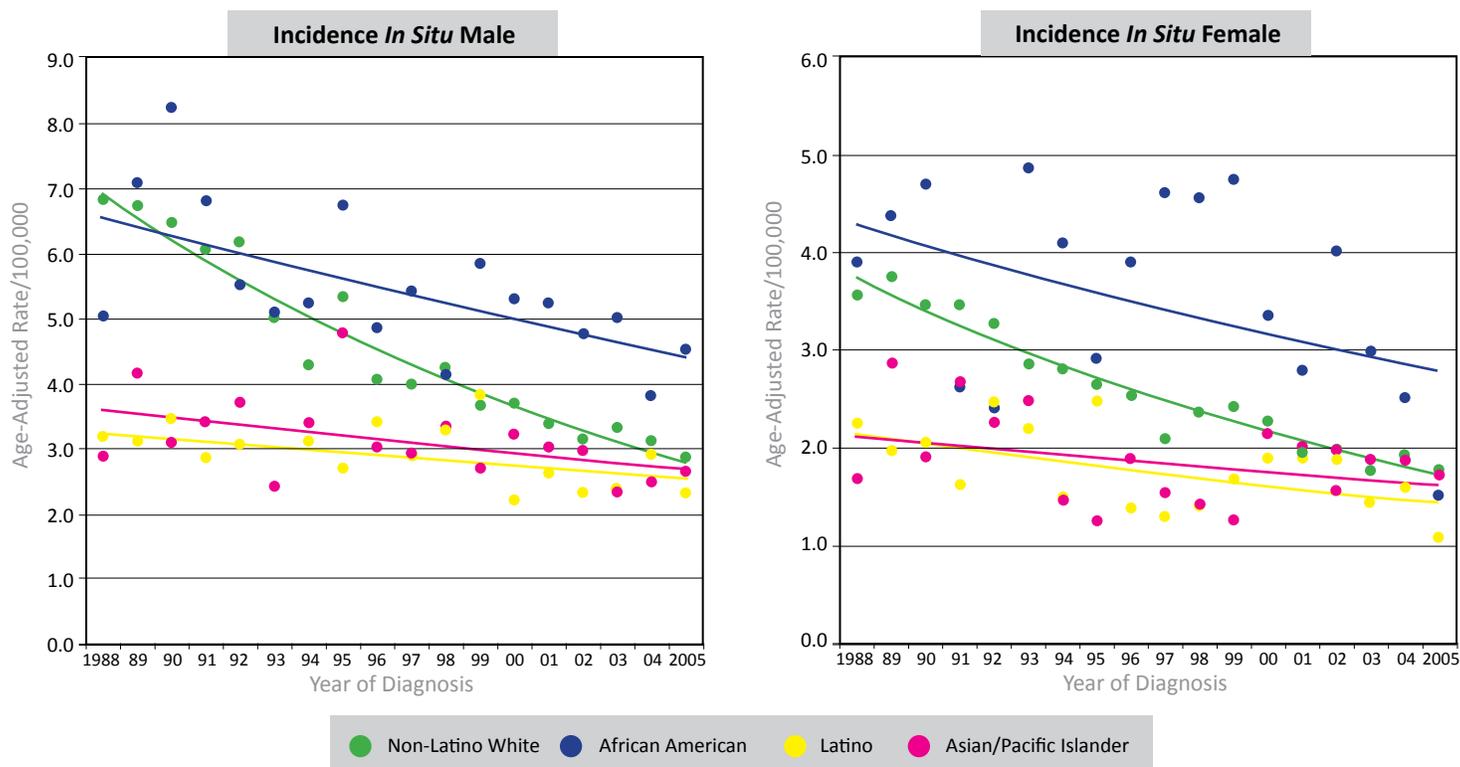
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Colon and Rectum (Continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-50.4	↓	-2.43 (-2.63, -2.23)	<0.001
	African American	1988-2005	-17.1	↓	-0.93 (-1.59, -0.27)	0.009
	Latino	1988-2005	-5.9		-0.34 (-1.07, 0.40)	0.341
	Asian/Pacific Islander	1988-2005	-35.9	↓	-1.82 (-2.39, -1.25)	<0.001
Females	Non-Latino White	1988-2005	-45.0	↓	-2.21 (-2.46, -1.96)	<0.001
	African American	1988-2005	-24.8	↓	-1.31 (-1.90, -0.72)	<0.001
	Latino	1988-2005	-13.7	↓	-0.76 (-1.37, -0.15)	0.019
	Asian/Pacific Islander	1988-2005	-31.4	↓	-1.62 (-2.35, -0.87)	<0.001

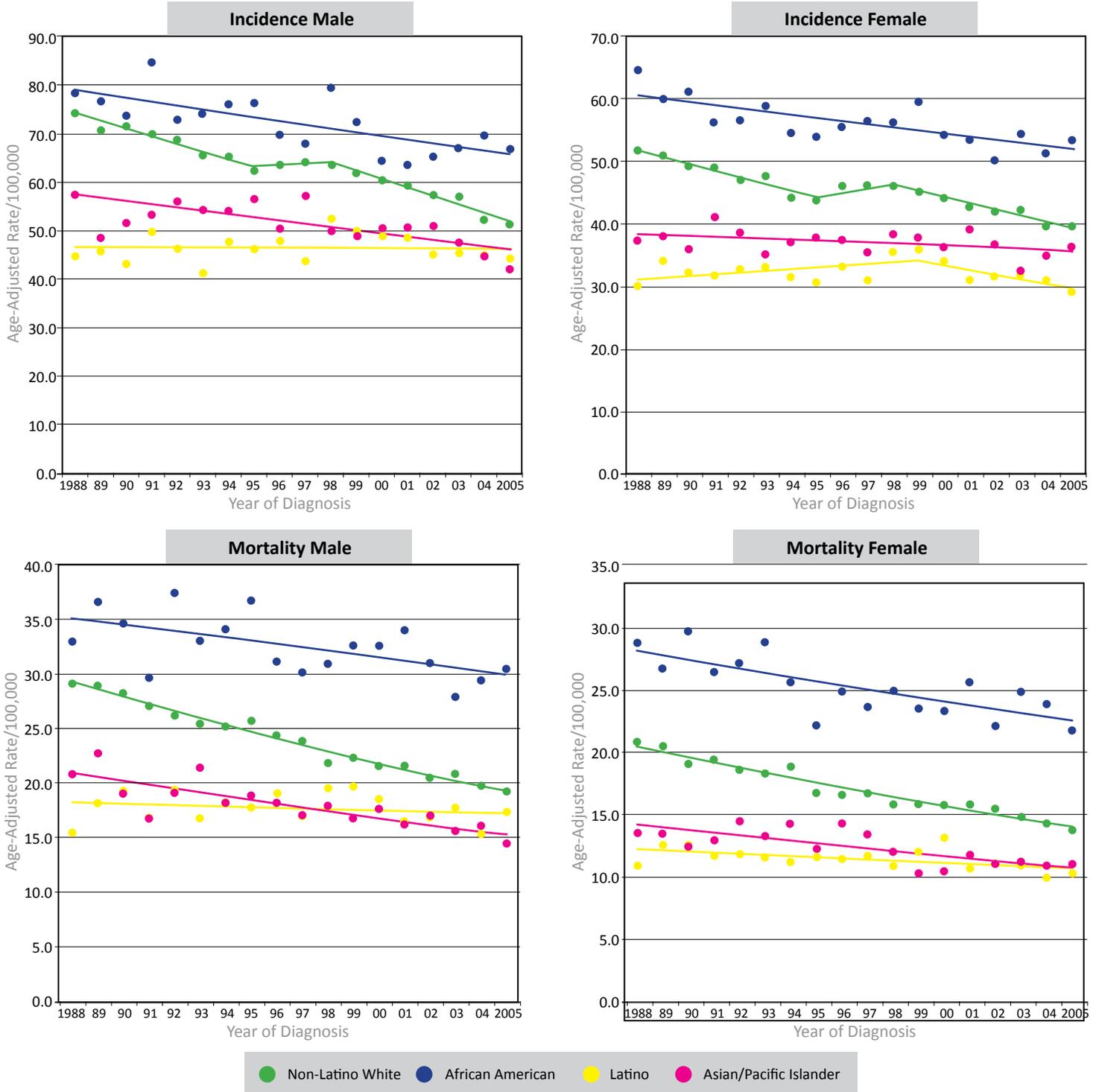
↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

**Trends in Age-Adjusted Incidence by Race/Ethnicity in California, 1988-2005:  
*In Situ* Tumors, Colon and Rectum Cancer**



TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Colon and Rectum Cancer



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Colon Cancer (Invasive)

The incidence of invasive colon cancer followed a pattern similar to what was described for colorectal cancer. For males, incidence rates decreased significantly among whites, African Americans, and Asian/Pacific Islanders, but remained stable among Latinos. For females, trends decreased significantly among whites, Latinas, and to a lesser extent, among African Americans. On the other hand, incidence rates among Asian/Pacific Islander females remained unchanged during the period. Mortality rates tended to parallel incidence rates, with significant declines observed in males and females of all racial/ethnic groups except among Latinos, for whom declines in mortality rates were non-significant.

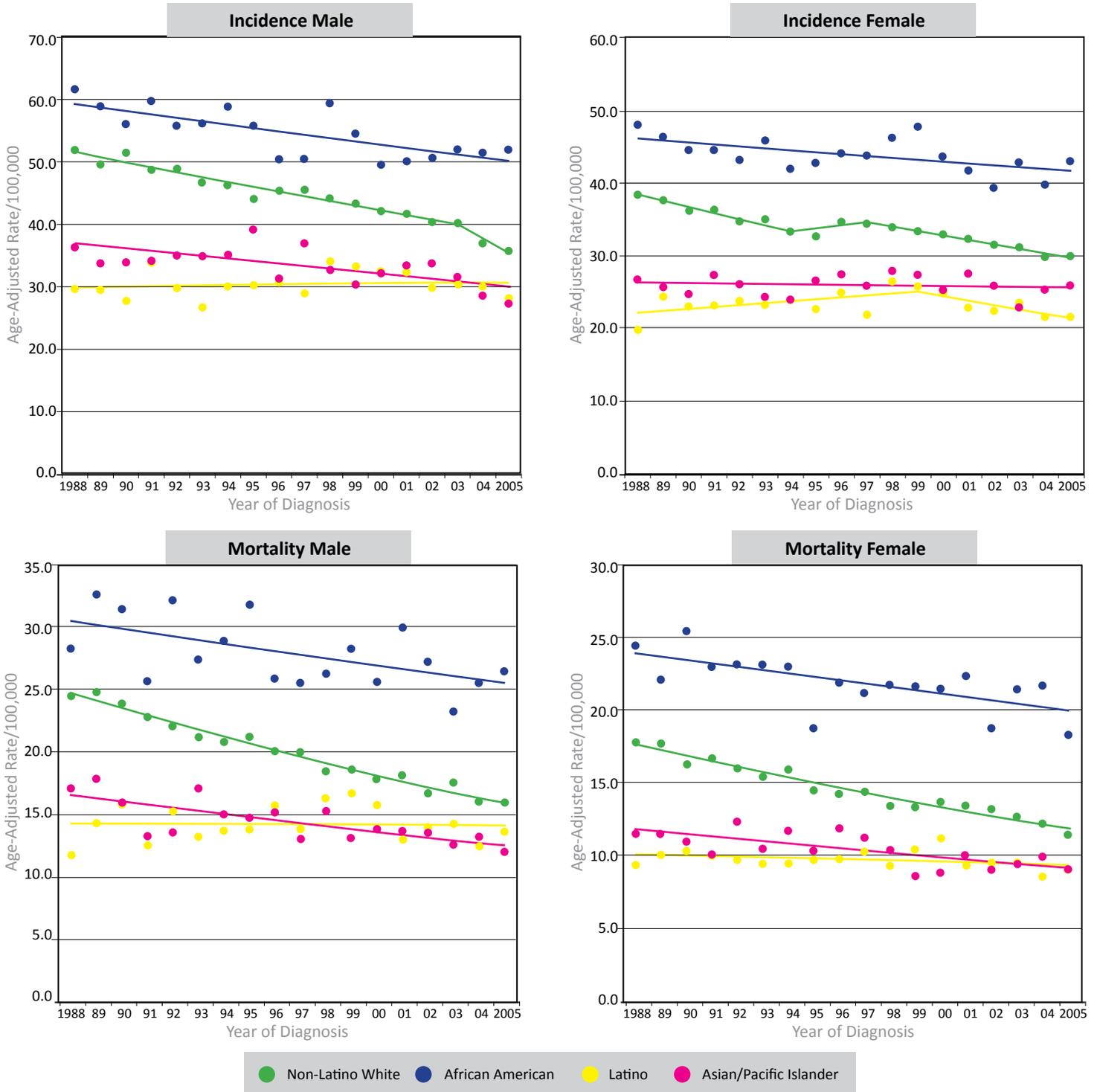
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Colon

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2003	-28.1	↓	-1.67	(-1.92, -1.42)	<0.001
		2003-2005	-12.7	↓	-6.16	(-11.9, -0.09)	0.047
	African American	1988-2005	-18.1	↓	-0.98	(-1.45, -0.52)	<0.001
	Latino	1988-2005	1.6		0.09	(-0.57, 0.75)	0.772
	Asian/Pacific Islander	1988-2005	-22.7	↓	-1.21	(-1.93, -0.48)	0.003
Females	Non-Latino White	1988-1994	-14.7	↓	-2.31	(-2.90, -1.72)	<0.001
		1994-1997	3.6		1.17	(-2.46, 4.94)	0.493
		1997-2005	-15.8	↓	-1.85	(-2.24, -1.45)	<0.001
	African American	1988-2005	-10.5	↓	-0.59	(-1.04, -0.13)	0.014
	Latino	1988-1999	13.5		1.16	(-0.12, 2.46)	0.073
		1988-2005	-16.4	↓	-2.56	(-4.98, -0.08)	0.044
	Asian/Pacific Islander	1988-2005	-2.6		-0.15	(-0.72, 0.42)	0.583
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-53.6	↓	-2.56	(-2.77, -2.34)	<0.001
	African American	1988-2005	-19.1	↓	-1.03	(-1.81, -0.25)	0.013
	Latino	1988-2005	-1.4		-0.08	(-1.04, 0.88)	0.861
	Asian/Pacific Islander	1988-2005	-31.3	↓	-1.61	(-2.28, -0.94)	<0.001
Females	Non-Latino White	1988-2005	-47.3	↓	-2.30	(-2.58, -2.03)	<0.001
	African American	1988-2005	-19.2	↓	-1.04	(-1.67, -0.41)	0.003
	Latino	1988-2005	-7.8		-0.44	(-1.07, 0.19)	0.156
	Asian/Pacific Islander	1988-2005	-28.5	↓	-1.49	(-2.28, -0.69)	0.001

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Colon and Cancer (Invasive)



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Rectum and Rectosigmoid Cancer (Invasive)

Incidence rates of invasive rectal cancer significantly declined among males and females of all racial/ethnic groups, except among Latinos, for whom incidence did not change significantly during the period. Mortality rates for rectal cancer declined steadily and significantly in all Californians as well, except among African-American males, who did not experience a significant decrease in mortality due to the disease.

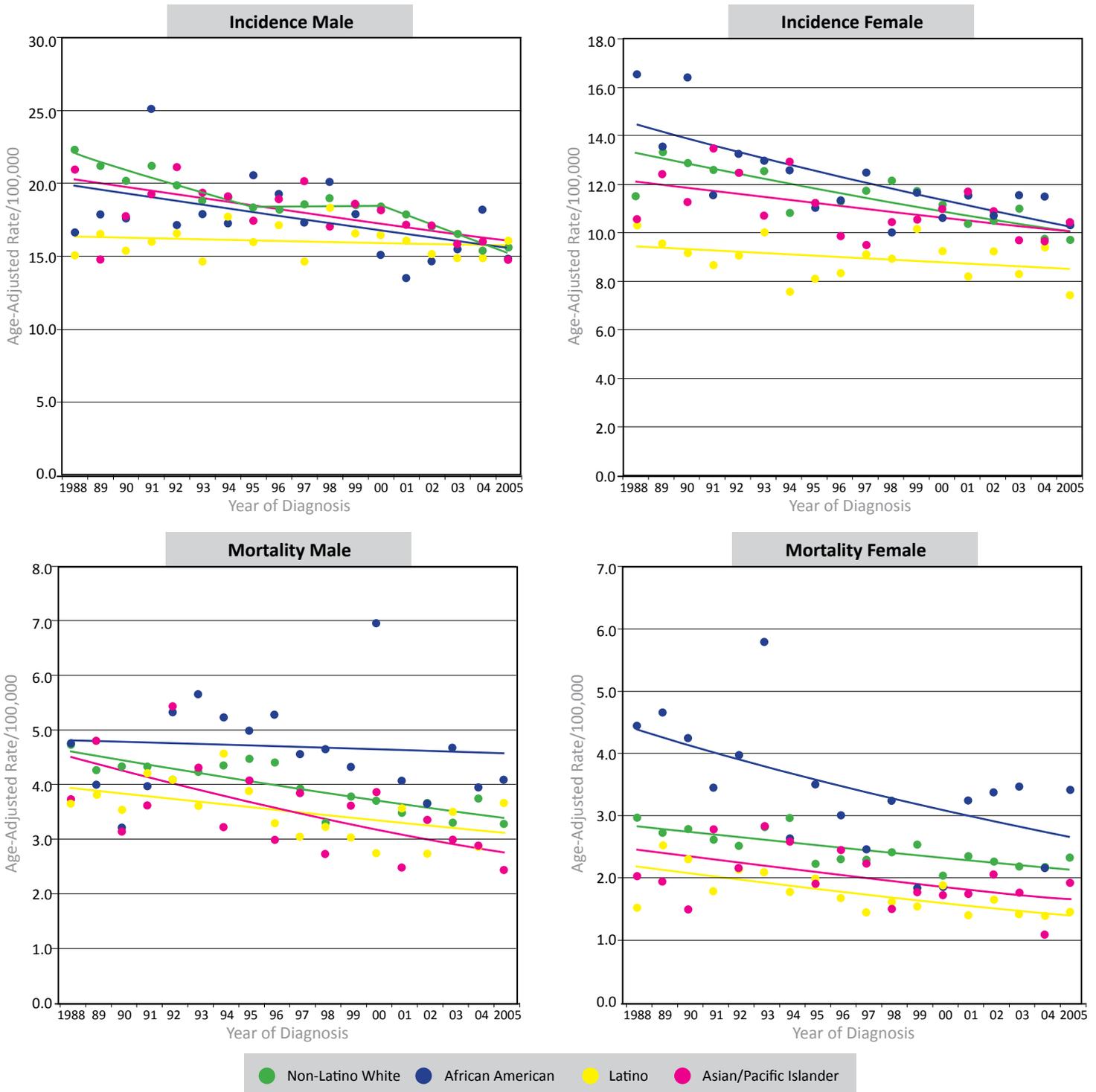
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Rectum

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-1995	-19.4	↓	-2.56	(-3.62, -1.48)	<0.001
		1995-2000	0.9		0.18	(-2.37, 2.81)	0.877
		2000-2005	-20.6	↓	-3.82	(-5.59, -2.02)	0.001
	African American	1988-2005	-26.8	↓	-1.41	(-2.68, -0.11)	0.035
	Latino	1988-2005	-3.7		-0.21	(-0.85, 0.43)	0.489
	Asian/Pacific Islander	1988-2005	-25.8	↓	-1.36	(-2.16, -0.55)	0.003
Females	Non-Latino White	1988-2005	-31.0	↓	-1.60	(-2.05, -1.16)	<0.001
	African American	1988-2005	-40.0	↓	-2.00	(-2.88, -1.11)	<0.001
	Latino	1988-2005	-10.8		-0.61	(-1.48, 0.28)	0.164
	Asian/Pacific Islander	1988-2005	-19.8	↓	-1.07	(-1.90, -0.23)	0.016
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-35.1	↓	-1.78	(-2.38, -1.18)	<0.001
	African American	1988-2005	-5.0		-0.29	(-2.18, 1.64)	0.754
	Latino	1988-2005	-25.7	↓	-1.35	(-2.55, -0.14)	0.032
	Asian/Pacific Islander	1988-2005	-59.9	↓	-2.80	(-4.44, -1.13)	0.003
Females	Non-Latino White	1988-2005	-31.4	↓	-1.62	(-2.32, -0.92)	<0.001
	African American	1988-2005	-62.5	↓	-2.90	(-5.20, -0.54)	0.019
	Latino	1988-2005	-53.0	↓	-2.53	(-3.70, -1.35)	<0.001
	Asian/Pacific Islander	1988-2005	-46.4	↓	-2.27	(-4.24, -0.26)	0.030

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Rectum and Rectosigmoid Cancer (Invasive)



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

### ESOPHAGUS CANCER

Each year, an average of 1,260 Californians are diagnosed with, and 1,160 die from cancer of the esophagus. There are two main types of esophageal cancer, squamous cell carcinomas, which occur in the upper part of the esophagus, and adenocarcinomas, which occur in the lower part of the esophagus near the stomach. These two types of esophageal cancer have different risk factors, and their incidence vary by gender and race/ethnicity. The following factors may increase the risk of developing esophageal cancer:

#### *Squamous Cell Carcinomas*

- **Tobacco use:** smoking cigarettes, cigars, or pipes, and tobacco dipping or chewing
- **Alcohol use,** especially when combined with tobacco use
- Gastric atrophy, a condition caused by chronic infection with *Helicobacter pylori* bacteria

#### *Adenocarcinomas*

- Barrett's esophagus, a condition caused by chronic gastroesophageal reflux disease
- **Obesity** or severe overweight

#### *Trends in Incidence and Mortality in California*

From 1988 through 2005, the incidence of esophageal cancer increased significantly by 32 percent among white males, but remained stable among white females. Incidence rates among other racial/ethnic groups decreased significantly for African-American males and females, for male Asian/Pacific Islanders, and in recent years, for Latino women. However, the interpretation of these trends is unclear given that the two main types of esophageal cancer have very distinct patterns and risk factors. Therefore, trends for the two types of esophageal cancer are presented separately.

On the other hand, because death certificates do not distinguish between the two histological types of esophageal cancer, trends in mortality rates are presented for all esophageal cancers combined. Among males, mortality rates for both Asian/Pacific Islander and African Americans declined sharply during the period. On the other hand, rates for white males increased slowly but significantly, while rates for Latinos remained stable. Among females, African Americans were the only group who experienced a marked and significant decline in mortality rates. For all other racial/ethnic groups, rates fluctuated without a discernible pattern.

#### **Incidence of Squamous Cell Carcinomas**

Rates of squamous cell carcinoma declined sharply and significantly among males of all racial/ethnic backgrounds. The decline was particularly dramatic among African Americans, who have the highest incidence of squamous cell carcinoma in California. Among females, the decline was statistically significant for white and African-American women only. These findings are similar to those registered for stomach cancer, and are consistent with the steady decline of tobacco use in California.

#### **Incidence of Adenocarcinomas**

Unlike squamous cell carcinomas, the incidence of adenocarcinomas of the esophagus did not decline but actually increased significantly in certain population groups. For white males, rates of adenocarcinoma of the esophagus increased by five percent per year until 2000, but have ever since leveled off. Among Latinos, rates also steadily increased during the period, while among African-American and Asian/Pacific Islander males, rates have fluctuated in a less clear pattern. White and African-American females experienced sharp increases in rates. However, similar to white males, rates for white females have leveled off since 1999. Increases in the incidence of esophageal adenocarcinomas have been described in other countries as well. It has been suggested that such increases may be partly explained by the increasing prevalence of obesity. Likewise, the percent of Californians who are obese has almost tripled since 1984.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Esophagus

Sex	Race/Ethnicity	Time Period	Overall % Change		APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2005	32.1	↑	1.65	(1.08, 2.23)	<0.001
	African American	1988-2005	-104.2	↓	-4.29	(-5.31, -3.26)	<0.001
	Latino	1988-2005	-8.7	↓	-0.49	(-1.45, 0.48)	0.298
	Asian/Pacific Islander	1988-2005	-80.2		-3.52	(-5.17, -1.85)	<0.001
Females	Non-Latino White	1988-2005	-6.6		-0.38	(-1.06, 0.31)	0.261
	African American	1988-2005	-86.3	↓	-3.73	(-5.16, -2.28)	<0.001
	Latino	1988-1999	70.8	↑	4.99	(1.21, 8.91)	0.013
		1999-2005	-55.1	↓	-7.59	(-13.9, -0.82)	0.031
	Asian/Pacific Islander	1988-2005	-7.4		-0.42	(-2.55, 1.75)	0.684
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	19.1	↑	1.03	(0.47, 1.60)	0.001
	African American	1988-2005	-99.6	↓	-4.15	(-5.00, -3.29)	<0.001
	Latino	1988-2005	-12.3		-0.68	(-2.11, 0.76)	0.330
	Asian/Pacific Islander	1988-2005	-79.9	↓	-3.51	(-5.19, -1.81)	0.001
Females	Non-Latino White	1988-2005	3.8		0.22	(-0.57, 1.02)	0.564
	African American	1988-2005	-72.0	↓	-3.24	(-4.94, -1.52)	0.001
	Latino	1988-2005	-18.9		-1.02	(-2.68, 0.66)	0.214
	Asian/Pacific Islander	1988-2005	-8.8		-0.50	(-3.20, 2.28)	0.706

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

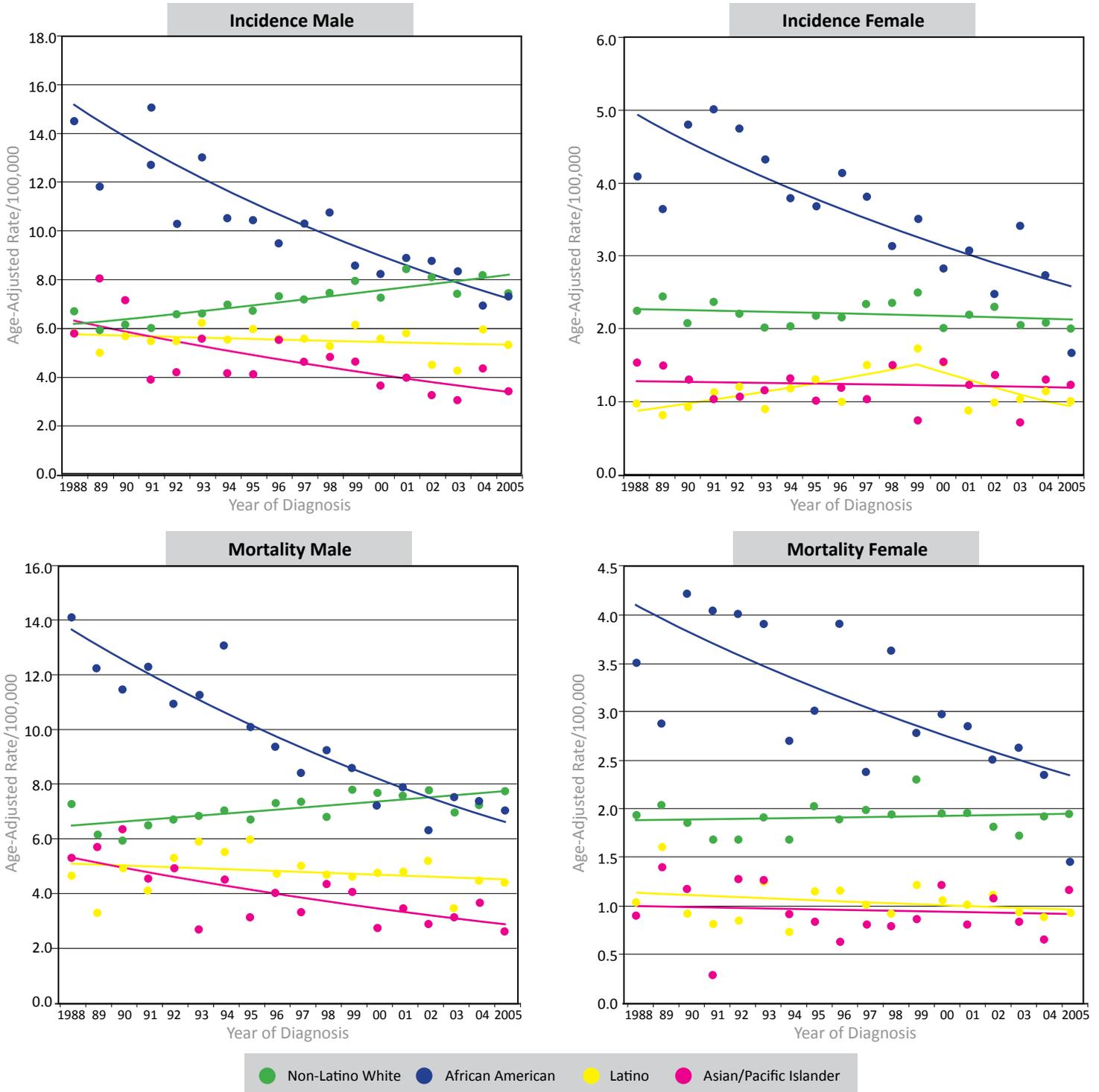
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Esophagus (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>Squamous Cell Carcinoma</b>							
Males	Non-Latino White	1988-2005	-51.4	↓	-2.47	(-3.11, -1.82)	<0.001
	African American	1988-2005	-134.5	↓	-5.14	(-6.27, -3.99)	<0.001
	Latino	1988-2005	-77.4	↓	-3.43	(-4.67, -2.17)	<0.001
	Asian/Pacific Islander	1988-2005	-115.5	↓	-4.62	(-6.39, -2.82)	<0.001
Females	Non-Latino White	1988-2005	-43.6	↓	-2.15	(-2.92, -1.37)	<0.001
	African American	1988-2005	-102.2	↓	-4.23	(-5.98, -2.44)	<0.001
	Latino	1988-2005	-52.9		-2.53	(-5.21, 0.23)	0.069
	Asian/Pacific Islander	1988-2005	-19.2		-1.04	(-3.77, 1.76)	0.440
<b>Adenocarcinoma</b>							
Males	Non-Latino White	1988-2001	88.8	↑	5.01	(3.92, 6.10)	<0.001
		2001-2005	-3.0		0.75	(-5.45, 4.19)	0.743
	African American	1988-2005	76.5		3.40	(-1.09, 8.08)	0.130
	Latino	1988-2005	52.2	↑	2.50	(1.09, 3.93)	0.002
	Asian/Pacific Islander	1988-2005	17.6		0.96	(-2.76, 4.81)	0.598
Females	Non-Latino White	1988-1999	114.9	↑	7.20	(5.00, 9.44)	<0.001
		1999-2005	-6.9		1.12	(-5.17, 3.10)	0.570
	African American	1988-2005	101.3	↑	4.20	(0.37, 8.18)	0.033

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Esophagus Cancer

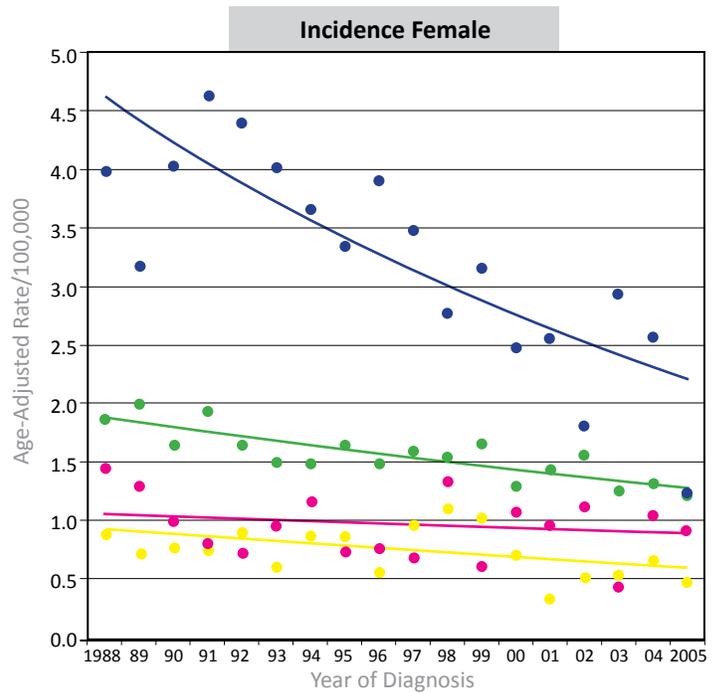
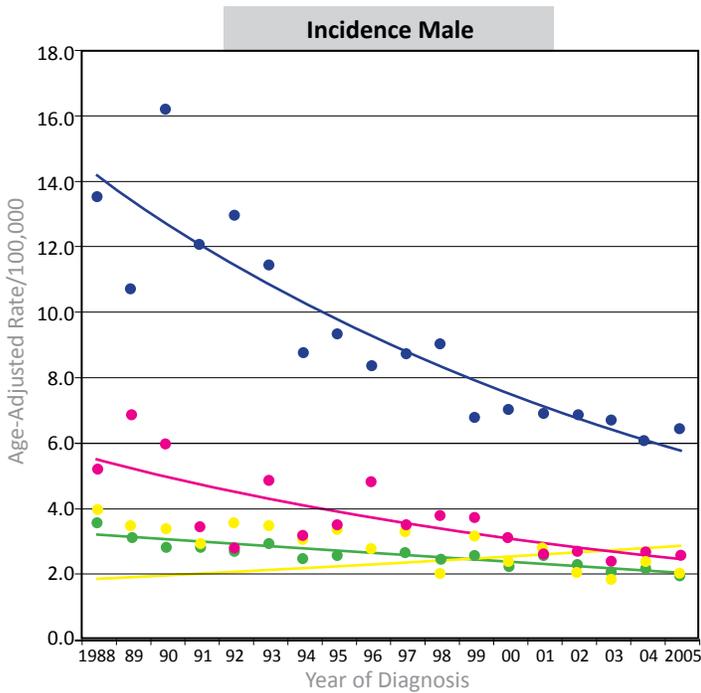


Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

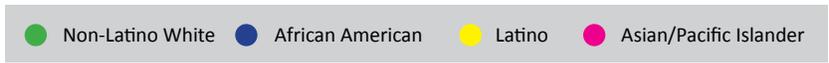
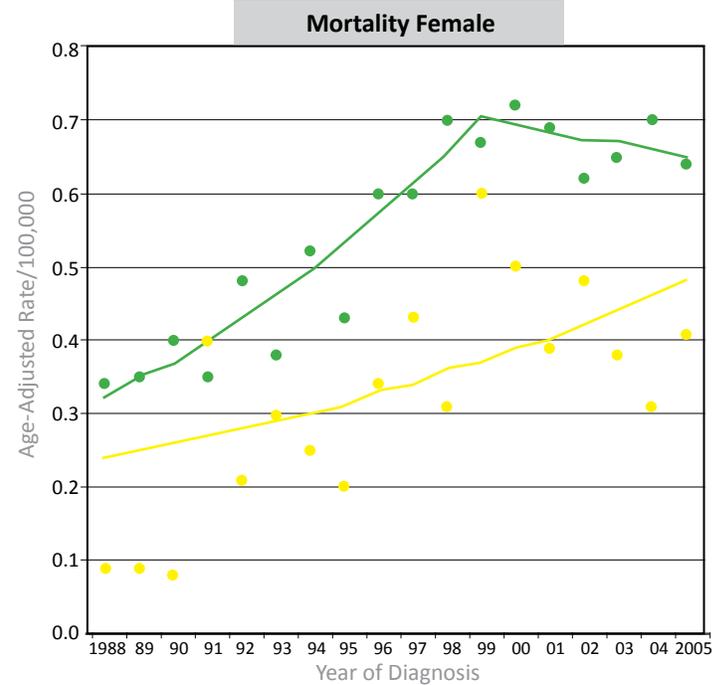
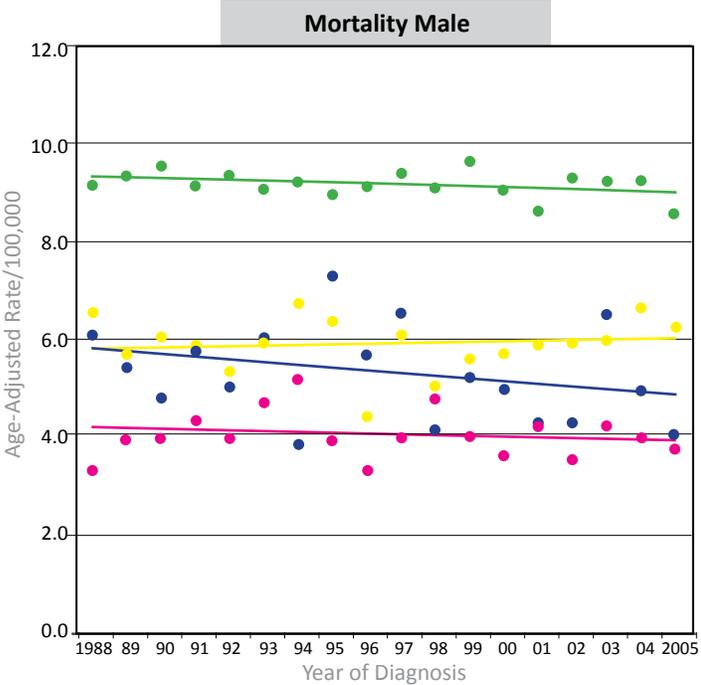
Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Esophagus Squamous Cell Carcinoma and Esophagus Adenocarcinoma



Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Esophagus Adenocarcinoma



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## HODGKIN LYMPHOMA

Hodgkin lymphoma is a cancer of the immune system that is characterized by the presence of an abnormal lymphocyte (white blood cell) called Reed-Sternberg cell. An average of 850 Californians are diagnosed each year with Hodgkin lymphoma, and 145 die each year from it. Hodgkin lymphoma occurs most often in people between the ages of 15 and 35 and in people over age 55. The exact cause of the disease is not known, but the following factors may increase a person’s risk of developing Hodgkin lymphoma:

- Infection with the Epstein-Barr virus (EBV) or the human immunodeficiency virus (HIV)
- Weakened immune system from treatment after an organ transplant, or from an inherited condition
- Family history of Hodgkin disease, particularly in brothers or sisters

### *Trends in Incidence and Mortality in California*

Overall, the incidence of Hodgkin lymphoma remained unchanged from 1988 through 2005, with only two exceptions: trends for Asian/Pacific Islander females increased by 92 percent during the period; trends for Latinos also seem to be increasing, albeit not significantly. Despite the mostly flat trends in incidence, Hodgkin lymphoma mortality rates decreased sharply for Asian/Pacific Islander (by 5.5 percent per year) and white males (by 2.5 percent per year), and also among African-American females (by 4.6 percent per year). Mortality rates for Latino males were best described in three periods, and may be rising again after the significant decline observed until 2002.

**Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Hodgkin Lymphoma**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-5.6	-0.32	(-0.76, 0.12)	0.145
	African American	1988-2005	-0.7	-0.04	(-2.08, 2.03)	0.966
	Latino	1988-2005	25.0	1.32	(-0.12, 2.79)	0.070
	Asian/Pacific Islander	1988-2005	-13.0	-0.72	(-2.77, 1.37)	0.471
Females	Non-Latino White	1988-2005	9.9	0.55	(-0.11, 1.22)	0.095
	African American	1988-2005	1.2	0.07	(-2.30, 2.50)	0.952
	Latino	1988-2005	6.6	0.38	(-1.26, 2.04)	0.633
	Asian/Pacific Islander	1988-2005	91.5	↑ 3.90	(1.56, 6.28)	0.003

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

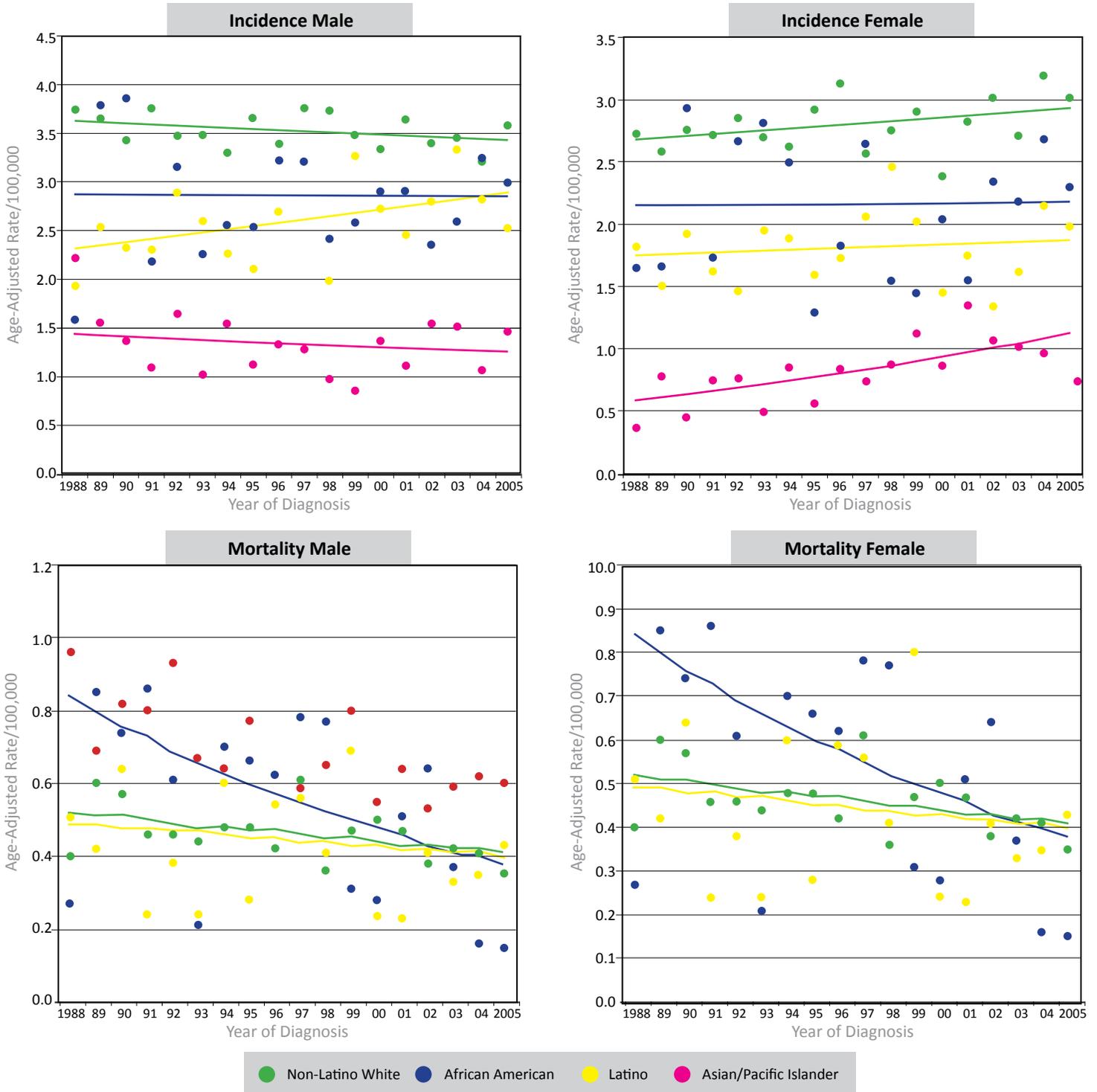
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Hodgkin Lymphoma (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-51.1	↓ -2.46	(-3.59, -1.31)	<0.001
	African American	1988-2005	-34.1	-1.74	(-4.86, 1.47)	0.264
	Latino	1988-1996	55.2	↑ 5.65	(0.90, 10.6)	0.024
		1996-2002	-65.2	↓ -8.72	(-15.5, -1.38)	0.025
	2002-2005	38.5	11.48	(-5.00, 30.8)	0.161	
	Asian/Pacific Islander	1988-2005	-150.5	↓ -5.55	(-10.6, -0.20)	0.043
Females	Non-Latino White	1988-2005	-26.1	-1.38	(-2.79, 0.06)	0.058
	African American	1988-2005	-114.1	↓ -4.58	(-8.63, -0.35)	0.036
	Latino	1988-2005	-21.9	-1.17	(-4.76, 2.54)	0.507

↑ =Statistically significant increase  
↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Hodgkin Lymphoma



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### KIDNEY AND RENAL PELVIS CANCER

Each year, an average of 3,690 Californians are diagnosed with kidney cancer, and 1,150 die from it. Kidney cancer is usually diagnosed in people over 40 years of age, and occurs two to three times more often in men than in women. Although the exact causes of the disease are unknown, the following factors may raise a person's risk of developing kidney cancer:

- [Smoking](#) doubles the risk for kidney cancer
- [Obesity](#)
- Hypertension (high blood pressure)
- Long-term dialysis
- Von Hippel-Lindau syndrome, a rare inherited disorder
- Occupational exposures to asbestos or cadmium

#### *Trends in Incidence and Mortality in California*

Between 1988 and 2005, the incidence of kidney cancer increased in males and females of all racial/ethnic groups. Trends for whites were best described in two different periods, with faster increases in more recent years (2.7 percent per year for males and 4.4 percent per year for females). Trends for kidney cancer risk factors may offer some insight into this increase in incidence rates: although [smoking](#) is declining, [obesity](#) has almost tripled in California since 1984. Mortality rates for kidney cancer remained mostly stable, with the exception of white and Latina females plus African-American males, for whom rates increased significantly by 0.5 to 1.6 percent per year during the period.

#### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Kidney

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-1995	-2.2	-0.32	(-1.63, 1.02)	0.615
		1995-2005	30.7	↑ 2.71	(2.03, 3.40)	<0.001
	African American	1988-2003	34.5	↑ 2.00	(0.84, 3.17)	0.003
		2003-2005	34.5	15.97	(-5.21, 41.9)	0.137
	Latino	1988-2005	46.2	↑ 2.26	(1.52, 3.00)	<0.001
Asian/Pacific Islander	1988-2005	30.5	↑ 1.58	(0.30, 2.87)	0.018	
Females	Non-Latino White	1988-2001	12.2	↑ 0.89	(0.31, 1.47)	0.006
		2001-2005	18.7	↑ 4.39	(1.14, 7.74)	0.012
	African American	1988-2005	38.0	↑ 1.91	(0.93, 2.91)	0.001
	Latino	1988-2005	41.9	↑ 2.08	(1.47, 2.70)	<0.001
	Asian/Pacific Islander	1988-2005	27.1	1.42	(-0.08, 2.95)	0.062

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

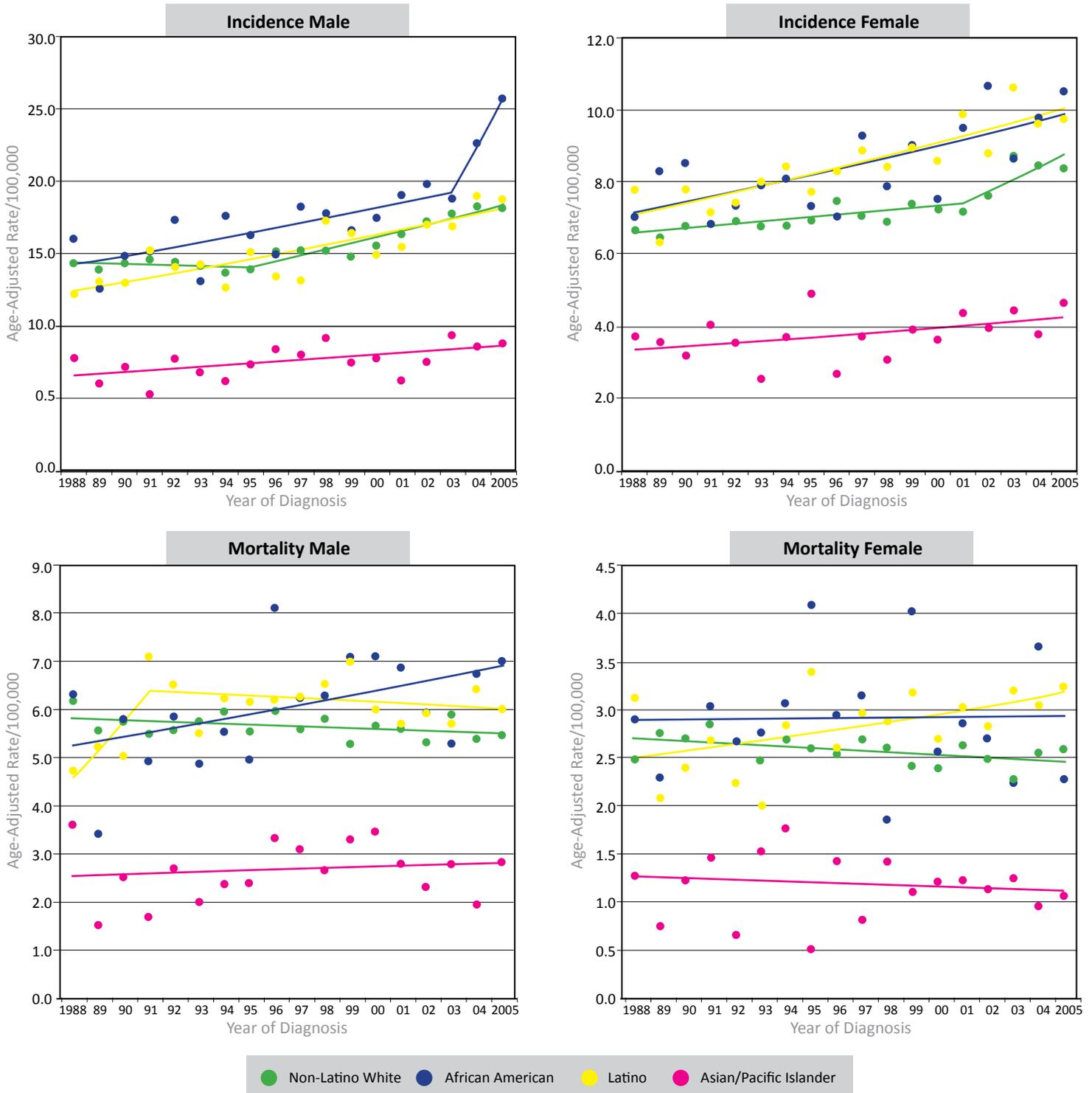
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Kidney (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-5.8	-0.33	(-0.71, 0.05)	0.084
	African American	1988-2005	31.1	↑ 1.61	(0.02, 3.21)	0.047
	Latino	1988-1991	39.5	11.75	(-1.99, 27.4)	0.090
		1991-2005	-5.8	-0.40	(-1.30, 0.50)	0.350
	Asian/Pacific Islander	1988-2005	9.5	0.53	(-1.68, 2.80)	0.619
Females	Non-Latino White	1988-2005	-9.0	↓ -0.51	(-0.97, -0.04)	0.035
	African American	1988-2005	1.7	0.10	(-2.02, 2.27)	0.922
	Latino	1988-2005	27.5	↑ 1.44	(0.31, 2.58)	0.015
	Asian/Pacific Islander	1988-2005	-11.6	-0.65	(-3.24, 2.01)	0.609

↑ =Statistically significant increase  
↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Kidney and Renal Pelvis



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### LARYNX CANCER

Laryngeal cancer is one of the most common cancers of the head and neck. Each year, 920 Californians on average are diagnosed with cancer of the larynx, and 310 die each year due to the disease. Men are four to five times more likely than women to develop laryngeal cancer. African Americans are more likely than whites to develop laryngeal cancer. The disease is also more common over the age of 55 years. Factors that can raise a person's risk of developing laryngeal cancer include:

- [Tobacco use](#), including cigarettes, cigars, pipes, and smokeless tobacco, which is linked to 85 percent of head and neck cancers
- [Alcohol consumption](#), especially when associated with tobacco use
- Gastroesophageal reflux disease (GERD), a condition where stomach acid flows into the esophagus
- Occupational exposure to sulfuric acid mist, nickel, or asbestos

#### *Trends in Incidence and Mortality in California*

The incidence of cancer of the larynx declined steadily in Californians of all racial/ethnic groups. The decline in rates from 1988 through 2005, ranging from 28 percent among Latinas to over 130 percent among Asian/Pacific Islander females, was statistically significant in virtually all population groups. On the other hand, declines in mortality rates for laryngeal cancer were significant among white persons only, by about two percent per year. Declining trends are most likely due to the steady decrease in the [use of tobacco](#) in California.

#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Larynx**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-75.7	↓ -3.37	(-3.71, -3.03)	<0.001
	African American	1988-2005	-69.0	↓ -3.14	(-4.31, -1.94)	<0.001
	Latino	1988-2005	-28.0	↓ -1.46	(-2.42, -0.50)	0.006
	Asian/Pacific Islander	1988-2005	-64.7	↓ -2.98	(-4.72, -1.21)	0.003
Females	Non-Latino White	1988-2005	-75.9	↓ -3.38	(-4.37, -2.37)	<0.001
	African American	1988-2005	-61.4	↓ -2.86	(-4.96, -0.71)	0.013
	Latino	1988-2002	-43.2	-2.14	(-4.27, 0.04)	0.054
	Asian/Pacific Islander	1988-2005	-134.1	↓ -5.13	(-8.58, -1.55)	0.008

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

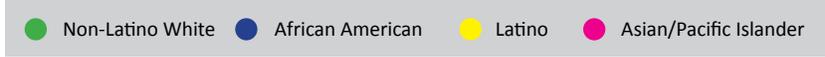
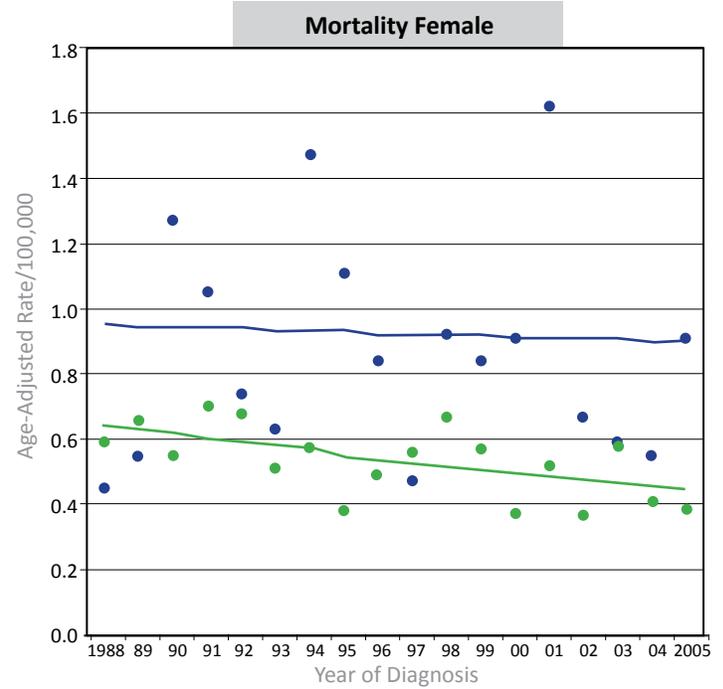
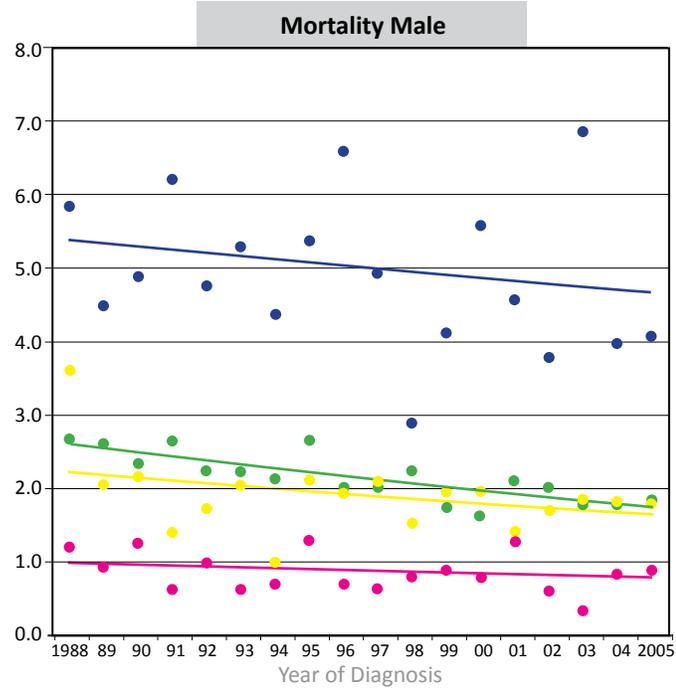
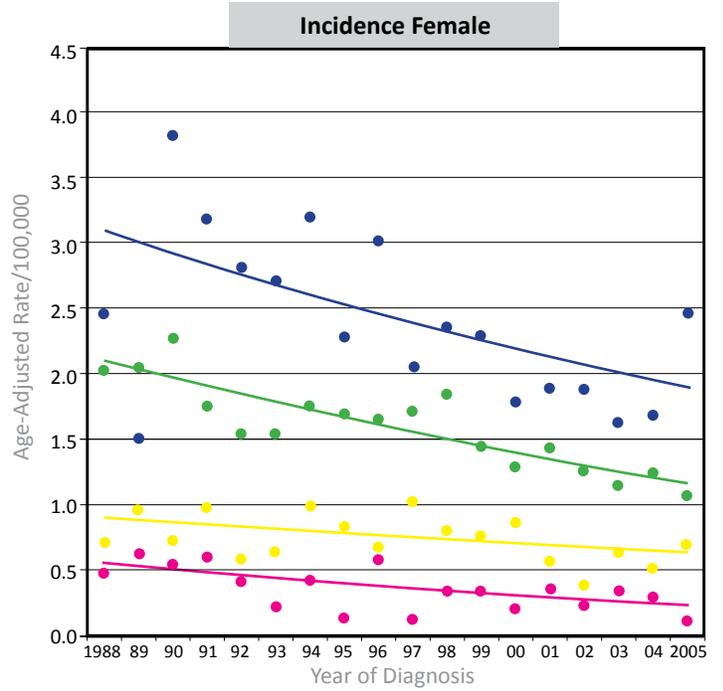
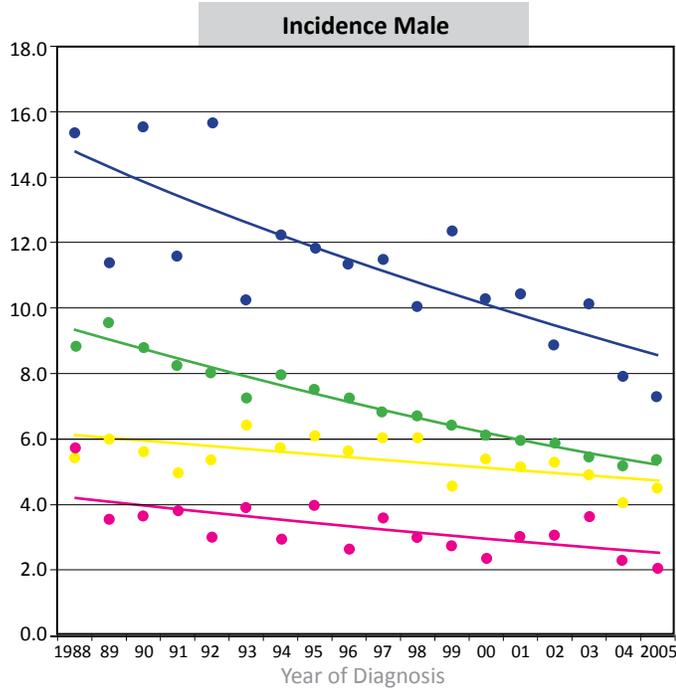
**Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Larynx (continued)**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-47.5	↓ -2.31	(-3.19, -1.44)	<0.001
	African American	1988-2005	-15.2	-0.83	(-2.87, 1.25)	0.406
	Latino	1988-2005	-34.3	-1.75	(-3.79, 0.33)	0.093
	Asian/Pacific Islander	1988-2005	-25.7	-1.35	(-4.31, 1.69)	0.356
Females	Non-Latino White	1988-2005	-43.2	↓ -2.14	(-3.79, -0.46)	0.016
	African American	1988-2005	-4.9	-0.28	(-4.16, 3.75)	0.882

↑ =Statistically significant increase  
↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Larynx



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### LEUKEMIA

An average of 3,730 Californians are diagnosed with leukemia each year, and 2,160 die each year because of the disease. Leukemia is a cancer of the white blood cells. Based on how quickly the disease progresses and by the type of white blood cell involved, leukemia is grouped into four main types: acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), acute myeloid leukemia (AML), and chronic myeloid leukemia (CML). Chronic types of leukemia occur mostly in adults, while the acute types occur in both adults and children. The causes of leukemia are unknown, but studies have found the following risk factors for the disease:

- Exposure to high doses of radiation through treatment, or survivors, of atomic bombs and nuclear power plant accidents
- Occupational exposure to high levels of benzene or formaldehyde
- Previous chemotherapy
- Down syndrome and other genetic disorders caused by abnormal chromosomes
- Human T-cell leukemia virus-I (HTLV-I), linked to a rare type of CLL
- Myelodysplastic syndrome increases the risk for AML

Exposure to electromagnetic fields or high voltage electric lines has not been proven to increase a person's risk of leukemia.

#### *Trends in Incidence and Mortality in California*

Overall, the incidence of leukemia during the period between 1988 and 2005 did not increase in any racial/ethnic group in California. Regardless of statistical significance, incidence and mortality rates for the disease declined in some groups and remained stable in others. White males and females experienced significant decreases in incidence since around 2000. Significant decreases in incidence were also detected among Asian/Pacific Islander males and females, plus among African-American males. Trends in leukemia mortality followed a similar pattern, with significant decreases detected among white females and white, African-American, and Asian/Pacific Islander males. Trends in incidence and mortality of the four main histologic types of leukemia are described below.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

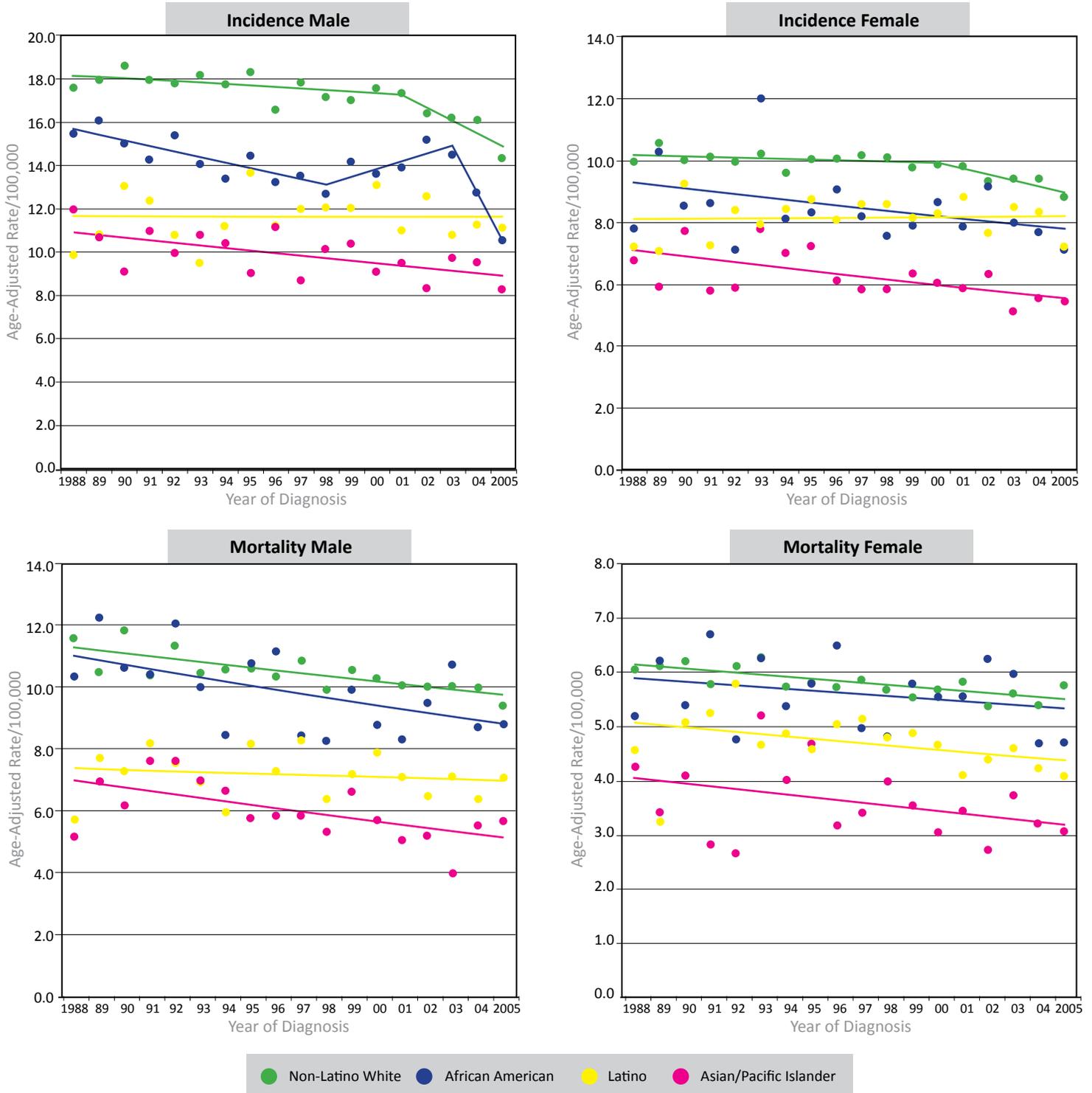
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Leukemia (All Types)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2001	-5.1	-0.38	(-0.86, 0.10)	0.109
		2001-2005	-15.4	↓ -3.65	(-6.42, -0.79)	0.017
	African American	1988-1998	-19.2	↓ -1.77	(-2.76, -0.78)	0.003
		1998-2003	13.7	2.60	(-1.15, 6.50)	0.155
		2003-2005	-33.8	↓ -15.66	(-25.5, -4.48)	0.012
	Latino	1988-2005	-0.5	-0.03	(-0.84, 0.79)	0.945
Asian/Pacific Islander	1988-2005	-22.6	↓ -1.20	(-1.99, -0.41)	0.005	
Females	Non-Latino White	1988-2000	-2.7	-0.22	(-0.63, 0.20)	0.274
		2000-2005	-10.2	↓ -1.97	(-3.54, -0.37)	0.020
	African American	1988-2005	-18.9	-1.03	(-2.26, 0.23)	0.102
	Latino	1988-2005	1.5	0.08	(-0.68, 0.85)	0.818
	Asian/Pacific Islander	1988-2005	-27.3	↓ -1.43	(-2.35, -0.50)	0.005
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-15.4	↓ -0.85	(-1.19, -0.50)	<0.001
	African American	1988-2005	-24.6	↓ -1.30	(-2.31, -0.28)	0.016
	Latino	1988-2005	-6.0	-0.34	(-1.31, 0.64)	0.470
	Asian/Pacific Islander	1988-2005	-35.4	↓ -1.80	(-3.01, -0.57)	0.007
Females	Non-Latino White	1988-2005	-11.4	↓ -0.64	(-0.93, -0.35)	<0.001
	African American	1988-2005	-10.3	-0.58	(-1.68, 0.54)	0.286
	Latino	1988-2005	-15.6	-0.86	(-1.89, 0.18)	0.099
	Asian/Pacific Islander	1988-2005	-25.3	-1.33	(-2.99, 0.35)	0.112

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Leukemia



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### Lymphocytic Leukemia

During the period covered in this report, the incidence of ALL remained relatively stable, except for Latinos and Latinas, for whom rates increased significantly by 1.3 percent per year and 2.2 percent per year, respectively. Incidence rates of CLL, the chronic form of the disease, declined by 1.4 percent per year to 2.6 percent per year among whites and African Americans, respectively. Trends in mortality rates for lymphocytic leukemia were mostly not statistically significant. The only exception was mortality rates among African-American males, which declined significantly by 3.5 and 3.7 percent per year, respectively, for the acute and chronic forms of the disease.

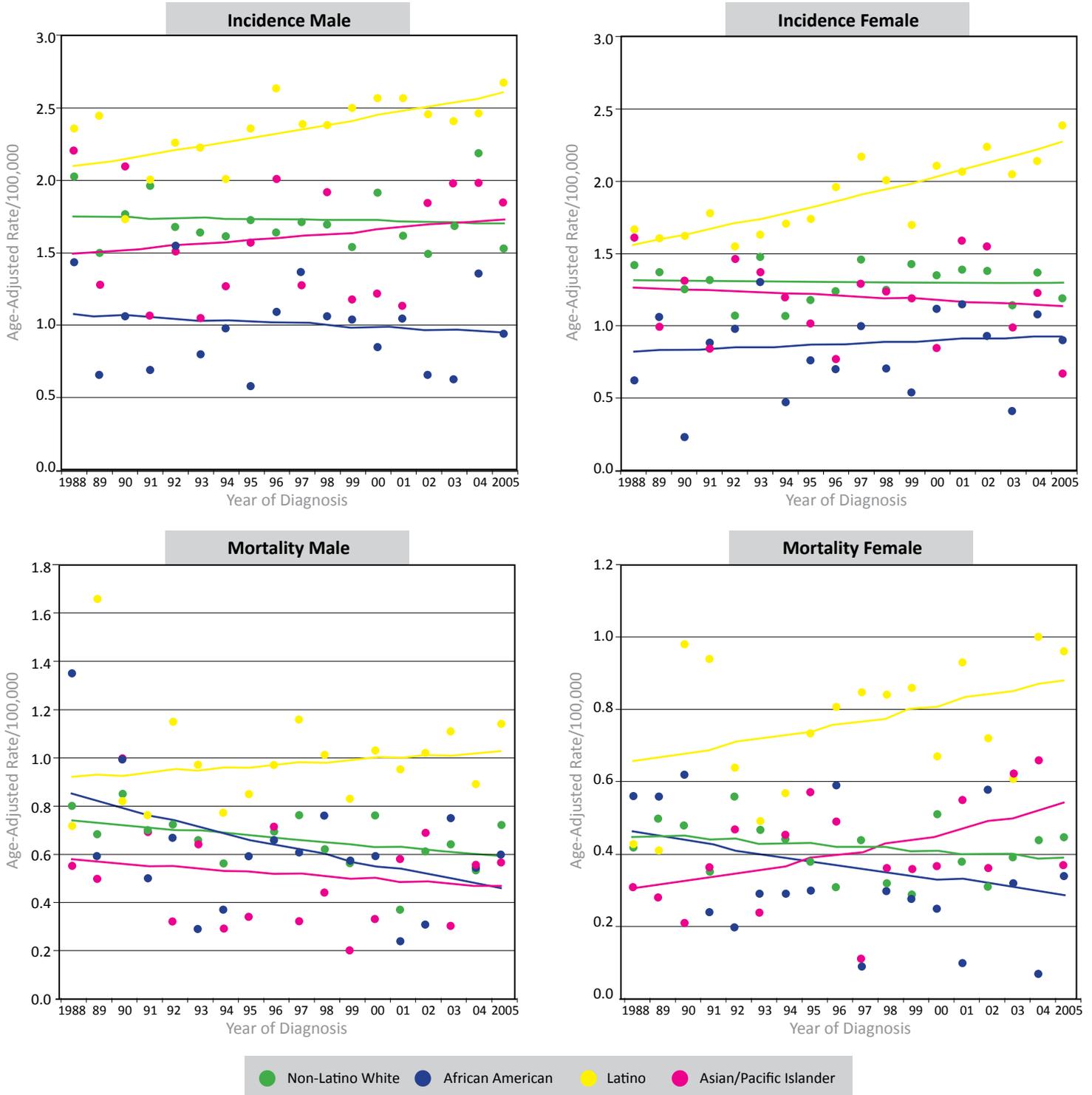
#### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Acute Lymphocytic Leukemia

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-3.0	-0.17	(-1.24, 0.90)	0.737
	African American	1988-2005	-12.1	-0.67	(-3.47, 2.20)	0.623
	Latino	1988-2005	24.5	↑ 1.30	(0.49, 2.11)	0.003
	Asian/Pacific Islander	1988-2005	15.9	0.87	(-1.48, 3.28)	0.447
Females	Non-Latino White	1988-2005	-1.2	-0.07	(-1.06, 0.93)	0.885
	African American	1988-2005	14.0	0.78	(-2.61, 4.28)	0.638
	Latino	1988-2005	45.6	↑ 2.23	(1.53, 2.95)	<0.001
	Asian/Pacific Islander	1988-2005	-11.1	-0.62	(-3.04, 1.85)	0.598
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-25.0	-1.32	(-2.79, 0.17)	0.078
	African American	1988-2005	-79.2	↓ -3.49	(-6.79, -0.09)	0.045
	Latino	1988-2005	11.3	0.63	(-1.12, 2.41)	0.457
	Asian/Pacific Islander	1988-2005	-22.5	-1.20	(-4.66, 2.39)	0.484
Females	Non-Latino White	1988-2005	-16.1	-0.88	(-2.59, 0.86)	0.296
	African American	1988-2005	-56.0	-2.65	(-7.09, 2.00)	0.241
	Latino	1988-2005	34.1	1.74	(-0.50, 4.04)	0.120
	Asian/Pacific Islander	1988-2005	73.9	3.31	(-0.06, 6.81)	0.054

Table continues

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Acute Lymphocytic Leukemia



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

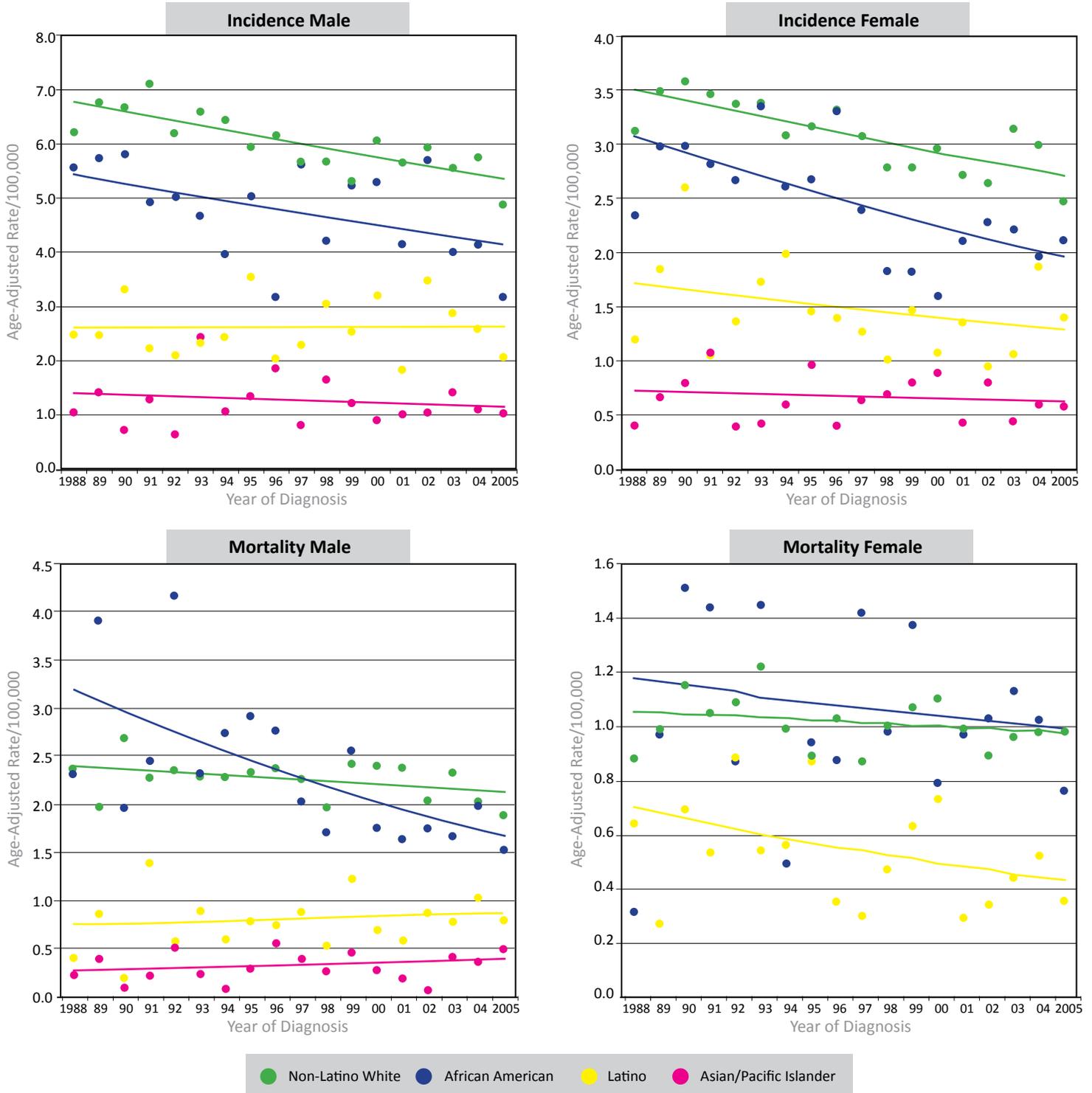
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Chronic Lymphocytic Leukemia (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2005	-26.1	↓	-1.37	(-1.92, -0.82)	<0.001
	African American	1988-2005	-30.4		-1.57	(-3.15, 0.03)	0.054
	Latino	1988-2005	1.6		0.10	(-1.95, 2.19)	0.923
	Asian/Pacific Islander	1988-2005	-21.2		-1.14	(-4.34, 2.18)	0.472
Females	Non-Latino White	1988-2005	-28.4	↓	-1.48	(-2.11, -0.84)	<0.001
	African American	1988-2005	-53.9	↓	-2.57	(-4.10, -1.01)	0.003
	Latino	1988-2005	-33.5		-1.71	(-4.16, 0.80)	0.166
	Asian/Pacific Islander	1988-2005	-15.2		-0.84	(-3.94, 2.37)	0.584
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-12.4		-0.69	(-1.52, 0.15)	0.099
	African American	1988-2005	-85.8	↓	-3.71	(-5.90, -1.47)	0.003
	Latino	1988-2005	14.9		0.82	(-2.33, 4.06)	0.593
	Asian/Pacific Islander	1988-2005	45.5		2.23	(-2.28, 6.95)	0.316
Females	Non-Latino White	1988-2005	-8.3		-0.47	(-1.38, 0.45)	0.298
	African American	1988-2005	-19.0		-1.03	(-3.96, 2.00)	0.478
	Latino	1988-2005	-60.2		-2.81	(-5.91, 0.39)	0.080

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Chronic Lymphocytic Leukemia



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Myeloid Leukemia

AML rates among white males and females increased until the end of the 1990s or the beginning of the current decade, but have since significantly declined. Among Latinas, a steady increase in AML rates seem to be reversing. Mortality rates for AML still increased during the period, although increases (of about 1.5 to 2.0 percent per year) were statistically significant only among white and Latino patients. On the other hand, the incidence of CML declined in both genders and in all racial/ethnic groups, although some of the estimated changes did not reach statistical significance. Likewise, mortality rates for the disease declined sharply among Californians in all racial/ethnic groups. Declining trends after the mid 1990s were particularly steep, ranging from 9.8 to 13.0 percent decrease per year.

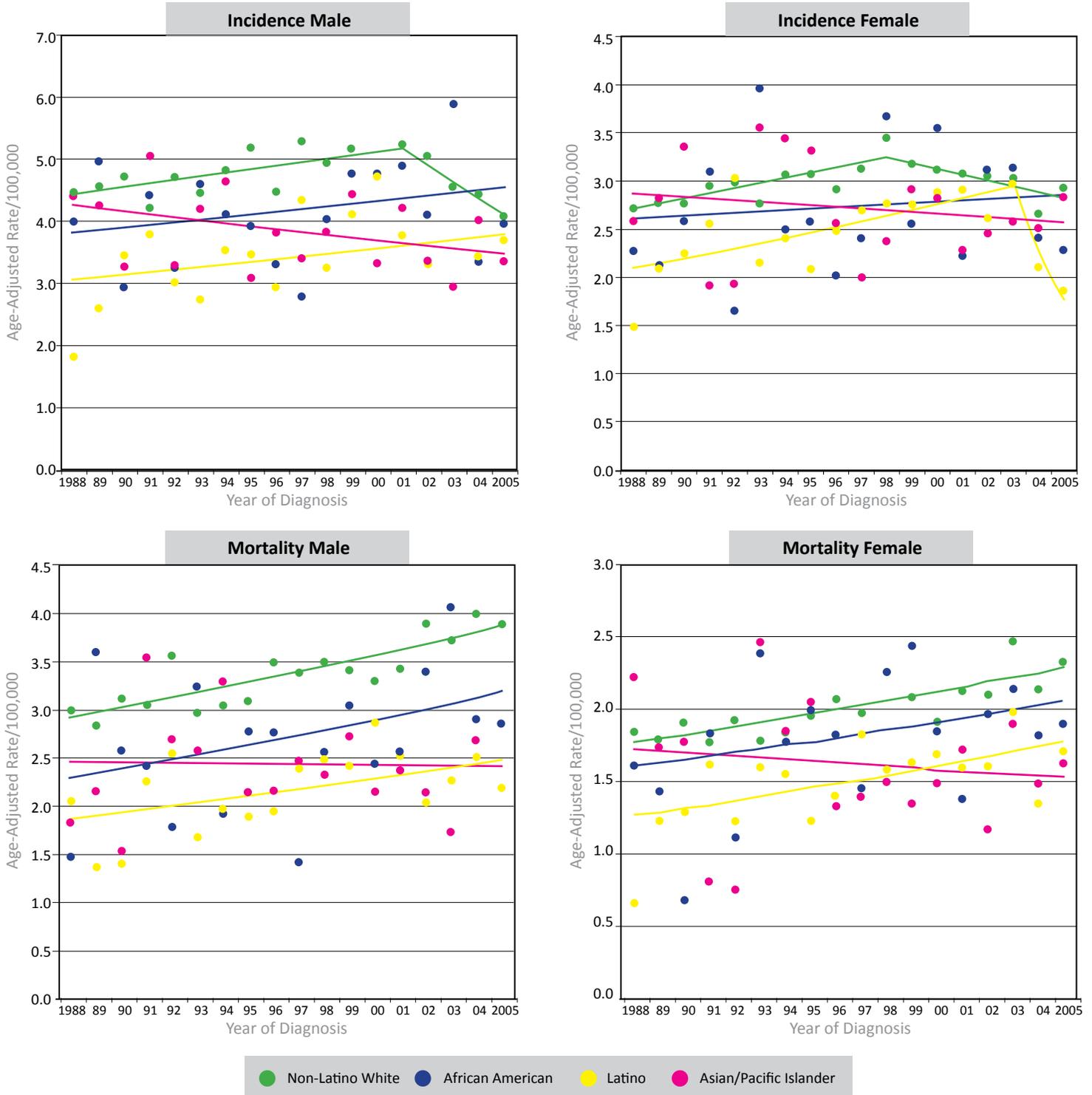
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Acute Myeloid Leukemia

Sex	Race/Ethnicity	Time Period	Overall % Change		APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2001	16.7	↑	1.20	(0.34, 2.05)	0.010
		2001-2005	-23.7	↓	-5.47	(-10.0, -0.69)	0.029
	African American	1988-2005	18.8		1.02	(-0.87, 2.95)	0.272
	Latino	1988-2005	23.0		1.23	(-0.52, 3.00)	0.157
	Asian/Pacific Islander	1988-2005	-21.6		-1.16	(-2.55, 0.26)	0.102
Females	Non-Latino White	1988-1998	19.9	↑	1.83	(0.91, 2.76)	0.001
		1988-2005	-14.0	↓	-1.89	(-3.34, -0.41)	0.017
	African American	1988-2005	9.7		0.55	(-1.75, 2.90)	0.624
	Latino	1988-2003	40.3	↑	2.28	(0.62, 3.97)	0.011
		2003-2005	-49.6		-22.30	(-44.9, 9.54)	0.136
Asian/Pacific Islander	1988-2005	-11.8		-0.66	(-2.32, 1.03)	0.418	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	32.7	↑	1.68	(1.14, 2.22)	<0.001
	African American	1988-2005	38.4		1.93	(-0.47, 4.39)	0.108
	Latino	1988-2005	33.2	↑	1.70	(0.13, 3.29)	0.035
	Asian/Pacific Islander	1988-2005	-1.2	↑	-0.07	(-2.06, 1.95)	0.939
Females	Non-Latino White	1988-2005	29.2	↑	1.52	(0.94, 2.10)	<0.001
	African American	1988-2005	28.8		1.50	(-0.86, 3.91)	0.198
	Latino	1988-2005	40.0	↑	2.00	(0.38, 3.65)	0.018
	Asian/Pacific Islander	1988-2005	-11.8		-0.66	(-3.09, 1.82)	0.576

Table continues

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Acute Myeloid Leukemia



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

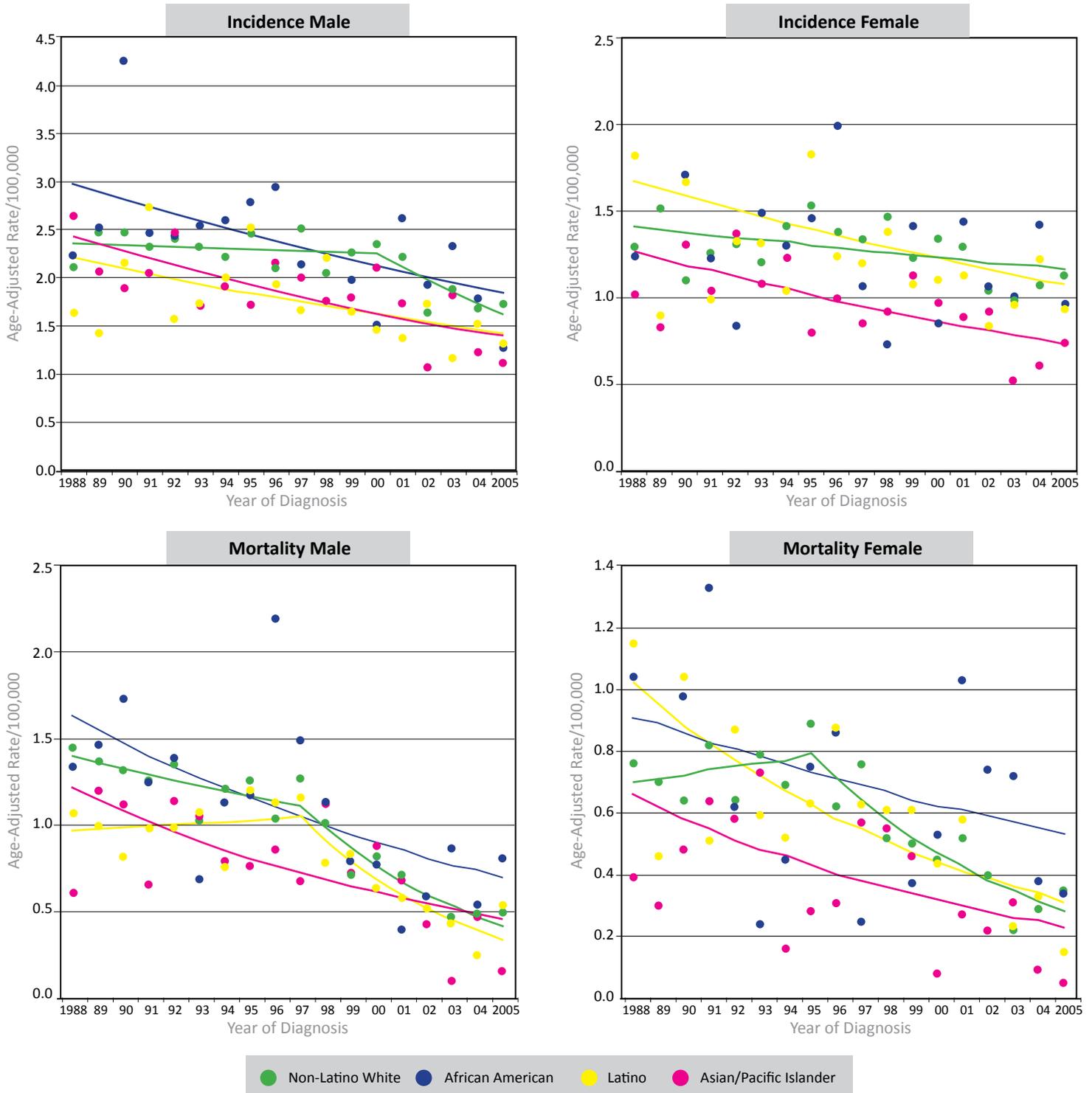
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Chronic Myeloid Leukemia

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2000	-4.8	-0.39	(-1.84, 1.07)	0.568	
		2000-2005	-36.1	↓	-6.36	(-11.5, -0.90)	0.026
	African American	1988-2005	-58.9	↓	-2.76	(-4.72, -0.75)	0.010
	Latino	1988-2005	-52.7	↓	-2.52	(-4.43, -0.57)	0.015
	Asian/Pacific Islander	1988-2005	-68.7	↓	-3.12	(-4.83, -1.38)	0.002
Females	Non-Latino White	1988-2005	-20.6	↓	-1.11	(-2.20, 0.00)	0.050
	African American	1988-2005	-53.8		-2.57	(-5.17, 0.11)	0.059
	Latino	1988-2005	-46.4	↓	-2.27	(-4.13, -0.38)	0.022
	Asian/Pacific Islander	1988-2005	-70.8	↓	-3.20	(-5.00, -1.36)	0.002
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-1997	-25.2	↓	-2.53	(-4.91, -0.08)	0.044
		1997-2005	-138.0	↓	-11.45	(-14.8, -7.96)	<0.001
	African American	1988-2005	-123.3	↓	-4.84	(-8.00, -1.57)	0.007
	Latino	1988-1997	7.5		0.81	(-4.09, 5.96)	0.733
		1997-2005	-165.5	↓	-12.98	(-18.2, -7.38)	<0.001
	Asian/Pacific Islander	1988-2005	-146.9	↓	-5.46	(-9.19, -1.58)	0.009
Females	Non-Latino White	1988-1995	12.8		1.74	(-3.98, 7.79)	0.531
		1995-2005	-154.0	↓	-9.77	(-13.5, -5.90)	<0.001
	African American	1988-2005	-68.6		-3.12	(-7.04, 0.96)	0.123
	Latino	1988-2005	-199.7	↓	-6.67	(-9.87, -3.36)	<0.001
	Asian/Pacific Islander	1988-2005	-165.8	↓	-5.92	(-10.9, -0.62)	0.031

↑ =Statistically significant increase  
↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Chronic Myeloid Leukemia



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

**LIVER AND INTRAHEPATIC BILE DUCT CANCER**

Liver cancer is one of the most commonly diagnosed cancers in the world, but is less common in the United States. In California, an average of 2,150 persons are diagnosed with liver cancer, and 1,540 die from it each year. The major risks for liver cancer are chronic liver infection with the hepatitis B or hepatitis C virus. A vaccine, recommended for all children, can protect people from hepatitis B infection; a vaccine against hepatitis C has not been developed yet. Cirrhosis of the liver, caused mostly by chronic alcoholism and hepatitis C, is another risk factor for liver cancer. The risk of developing liver cancer may also be increased by eating grains or nuts contaminated with the mold aflatoxin.

*Trends in Incidence and Mortality in California*

Liver cancer is one of the few types of cancer for which incidence increased substantially among Californians. From 1988 through 2005, the incidence of liver cancer in California females increased significantly, from about 22 percent among Asian/Pacific Islanders to almost 100 percent among African Americans. Even higher increases in liver cancer incidence were detected among males of white, African American, and Latino descent (although the increase in rates among Latinos seems to be slowing down). For Asian/Pacific Islander males, incidence rates may have increased slightly, but the pattern is not statistically significant. Liver cancer mortality rates paralleled those for incidence, increasing in males and females of all racial/ethnic groups with one notable exception: among Asian/Pacific Islander males, mortality rates declined significantly by 16 percent since 1996.

**Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Liver and Intrahepatic Bile Duct**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	100.8	↑ 4.19	(3.65, 4.72)	<0.001
	African American	1988-2005	118.9	↑ 4.72	(3.69, 5.75)	<0.001
	Latino	1988-1999	99.2	↑ 6.47	(4.96, 7.99)	<0.001
		1999-2005	6.2	1.00	(-1.17, 3.23)	0.339
	Asian/Pacific Islander	1988-2005	11.7	0.65	(-0.10, 1.40)	0.084
Females	Non-Latino White	1988-2005	63.0	↑ 2.91	(2.35, 3.48)	<0.001
	African American	1988-2005	98.9	↑ 4.13	(2.50, 5.78)	<0.001
	Latino	1988-2005	65.6	↑ 3.01	(1.51, 4.54)	0.001
	Asian/Pacific Islander	1988-2005	22.0	↑ 1.18	(0.16, 2.20)	0.025

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

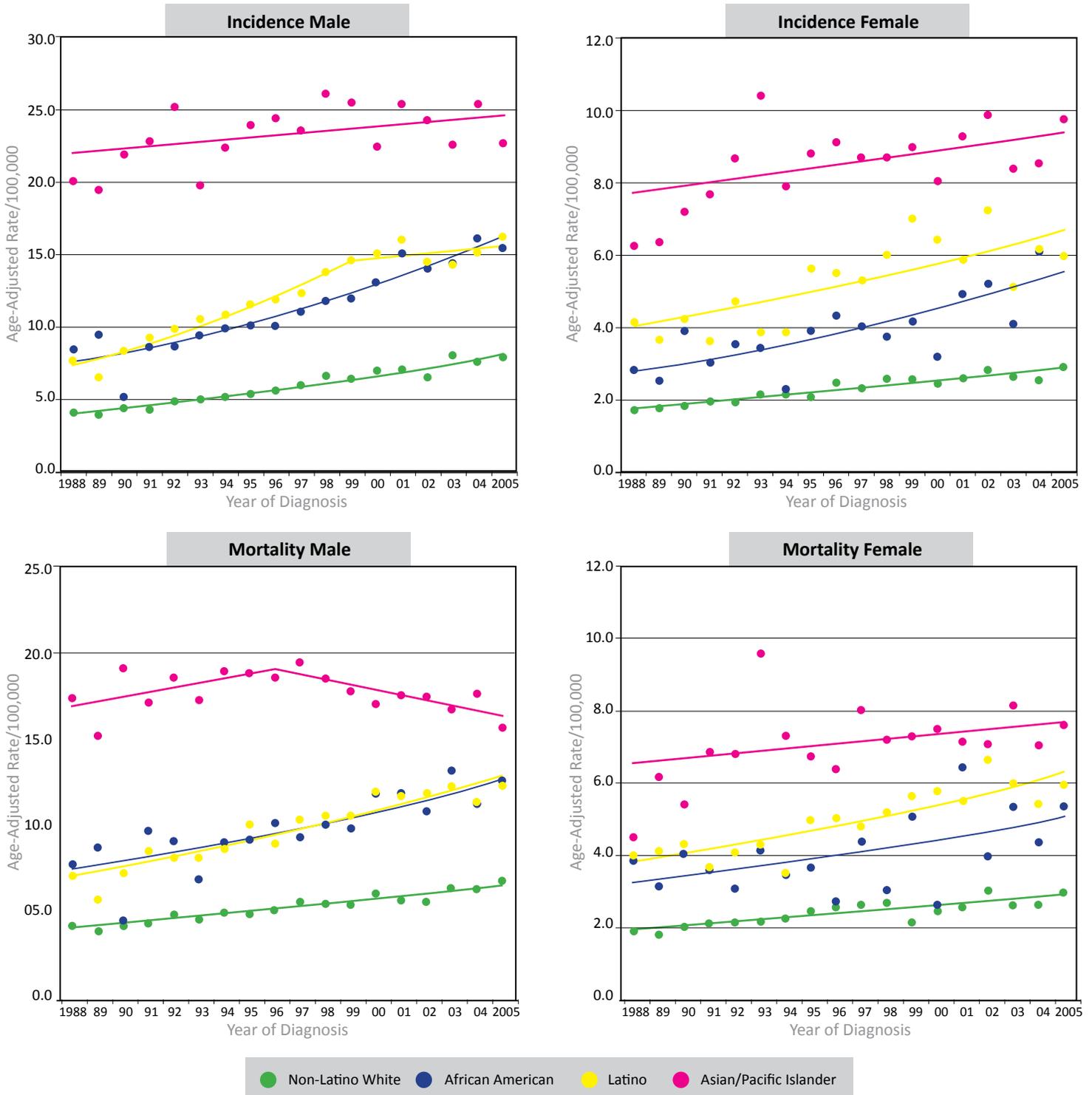
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Liver and Intrahepatic Bile Duct (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	60.5	↑	2.82	(2.39, 3.25)	<0.001
	African American	1988-2005	69.8	↑	3.16	(1.90, 4.44)	<0.001
	Latino	1988-2005	78.3	↑	3.46	(2.71, 4.22)	<0.001
	Asian/Pacific Islander	1988-1996	12.3		1.46	(-0.45, 3.41)	0.123
		1996-2005	-16.0	↓	-1.66	(-2.84, -0.47)	0.010
Females	Non-Latino White	1988-2005	48.3	↑	2.34	(1.60, 3.09)	<0.001
	African American	1988-2005	54.2	↑	2.58	(0.45, 4.76)	0.021
	Latino	1988-2005	64.3	↑	2.96	(2.01, 3.93)	<0.001
	Asian/Pacific Islander	1988-2005	16.8	↑	0.92	(-0.32, 2.17)	0.136

↑ =Statistically significant increase  
↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Liver and Intrahepatic Bile Duct



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## LUNG AND BRONCHUS CANCER

Lung cancer is the leading cause of cancer deaths in both men and women. An average of 17,320 Californians are diagnosed with lung cancer each year, and 13,610 die each year from the disease. **Smoking** is the predominant cause of lung cancer, and most lung cancers occur in people who smoke. Tobacco smoke further increases the chance of developing the disease when other environmental risk factors are present. Other substances that can cause lung cancer, even among people who have never smoked, include asbestos, radon, arsenic, chromium, nickel, tar, and soot. However, the impact of these chemicals on the incidence of lung cancer is small compared to smoking.

### *Trends in Incidence and Mortality in California*

The incidence of lung cancer in California declined significantly among males of all racial/ethnic groups, reflecting the continuing decline of **smoking in California** in the 1980s. Among females, for whom smoking trends declined only recently, significant decreases in lung cancer incidence were detected in Latinas and white women since the late 1990s. Rates for Asian/Pacific Islander and African-American women remained stable during the period between 1988 and 2005. Trends in lung cancer mortality paralleled those for incidence, and decreased among males of all racial/ethnic backgrounds, particularly in recent years. Among Latinas and white women, mortality trends shifted direction around 1997, when rates began to decline significantly. Similar to what is described for incidence rates, lung cancer mortality among Asian/Pacific Islander and African-American females did not change significantly during the period.

### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Lung and Bronchus**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2001	-31.4	↓	-2.12	(-2.29, -1.95)	<0.001
		2001-2005	-14.3	↓	-3.41	(-4.50, -2.30)	<0.001
	African American	1988-2005	-49.3	↓	-2.39	(-2.84, -1.93)	<0.001
	Latino	1988-2005	-43.2	↓	-2.14	(-2.50, -1.77)	<0.001
	Asian/Pacific Islander	1988-2005	-22.6	↓	-1.21	(-1.60, -0.81)	<0.001
Females	Non-Latino White	1988-1997	4.4	↑	0.48	(0.15, 0.81)	0.007
		1997-2005	-9.1	↓	-1.09	(-1.47, -0.72)	<0.001
	African American	1988-2005	5.6		0.32	(-0.23, 0.87)	0.231
	Latino	1988-1998	9.9		0.95	(-0.29, 2.19)	0.122
		1998-2005	-18.6	↓	-2.46	(-4.15, -0.75)	0.009
	Asian/Pacific Islander	1988-2005	2.2		0.13	(-0.33, 0.58)	0.558

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

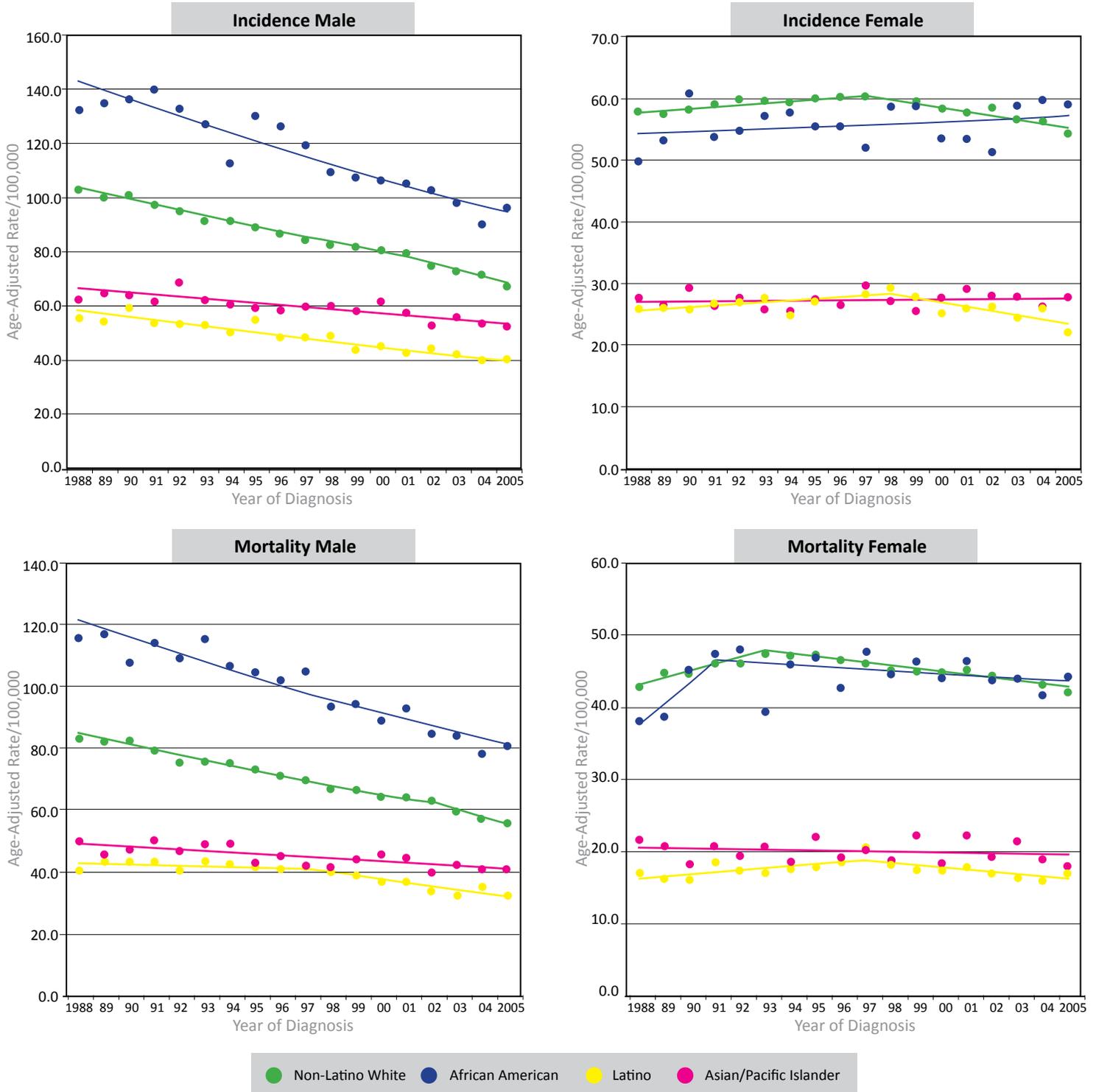
**Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Lung and Bronchus (continued)**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2002	-34.3	↓	-2.13	(-2.31, -1.94)	<0.001
		2002-2005	-12.0	↓	-3.85	(-5.87, -1.78)	0.002
	African American	1988-2005	-47.8	↓	-2.33	(-2.71, -1.95)	<0.001
		Latino	1988-1997	-3.8		-0.42	(-1.46, 0.63)
			1997-2005	-27.7	↓	-3.11	(-4.14, -2.06)
		Asian/Pacific Islander	1988-2005	-21.0	↓	-1.13	(-1.57, -0.69)
Females	Non-Latino White	1988-1993	10.2	↑	1.96	(1.17, 2.76)	<0.001
		1993-2005	-10.9	↓	-0.87	(-1.07, -0.67)	<0.001
	African American	1988-1991	23.0		7.16	(-2.26, 17.48)	0.128
		1991-2005	-6.2		-0.43	(-1.18, 0.33)	0.242
	Latino	1988-1997	14.6	↑	1.52	(0.43, 2.63)	0.010
		1997-2005	-15.9	↓	-1.86	(-2.89, -0.83)	0.002
		Asian/Pacific Islander	1988-2005	-5.2		-0.30	(-1.10, 0.50)

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Lung and Bronchus



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

### MELANOMA OF THE SKIN

Melanoma is the most serious and aggressive type of skin cancer. Almost 10,000 Californians are diagnosed with melanoma each year (including about 3,850 persons diagnosed with *in situ* melanomas), and an average of 810 Californians die each year from the disease. The chance of developing a melanoma increases with age, although the disease may be diagnosed in people of all ages, and in any skin surface. Melanoma is more common among whites than in African Americans, probably because light skin is more easily damaged by the sun. The following factors increase the risk of developing melanoma:

- Having a large number of ordinary moles or dysplastic nevi (moles with irregular color and shape)
- Having light hair, light-colored eyes, and fair skin that burns or freckles easily
- Family history, present in about ten percent of patients with melanoma
- Individual history of blistering [sunburns](#)
- Exposure to natural or artificial sources of ultraviolet (UV) radiation
- Weakened immune system (by certain cancers or immunosuppressant drugs)

#### *Trends in Incidence and Mortality in California*

Starting around 1993, the incidence of invasive melanoma of the skin increased sharply among white males and females. Among persons of Latino background, incidence rates also increased significantly during the period (by 45 and 32 percent among males and females, respectively) dispelling the myth that only very fair skinned persons are at risk for melanoma. Increases in the incidence of invasive melanoma, although not statistically significant, were also detected among Asian/Pacific Islander males and females. The incidence of *in situ* melanomas (i.e. lesions that have not yet spread beyond the outer layer of the skin) doubled or tripled during the period covered in this report. To some extent, increasing trends for *in situ* melanomas reflect heightened awareness and screening for skin cancers. Despite increases in incidence, mortality due to melanoma has not significantly increased in California, and did actually decrease among white females. However, survey data showing an increase in the percent of California women reporting [recent sunburns](#) is worrisome. The need for protection against harmful sun exposure cannot be overstated.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Melanoma

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
<b><i>In Situ</i></b>							
Males	Non-Latino White	1988-1990	46.6	↑	21.09	(6.25, 38.00)	0.011
		1990-1993	16.4		5.21	(-7.68, 19.9)	0.389
		1993-1998	85.4	↑	13.15	(8.56, 17.92)	<0.001
		1998-2005	21.1	↑	2.77	(0.99, 4.58)	0.008
	Latino	1988-2005	154.8	↑	5.65	(2.05, 9.39)	0.004
	Asian/Pacific Islander	1988-2005	101.8		4.22	(-1.59, 10.4)	0.146
Females	Non-Latino White	1988-2000	230.2	↑	10.47	(9.28, 11.67)	<0.001
		2000-2005	9.8		1.88	(-2.21, 6.15)	0.344
	Latino	1988-1990	116.6		47.17	(-14.1, 152.1)	0.145
		1990-2005	86.9	↑	4.26	(1.91, 6.65)	0.002
	Asian/Pacific Islander	1988-2005	98.2		4.11	(-0.61, 9.04)	0.084
<b><i>Invasive</i></b>							
Males	Non-Latino White	1988-1993	0.5		0.11	(-1.27, 1.51)	0.858
		1993-1996	33.9	↑	10.22	(4.14, 16.66)	0.005
		1996-2003	17.2	↑	2.29	(1.44, 3.14)	<0.001
		2003-2005	13.5	↑	6.56	(1.95, 11.37)	0.012
	African American	1988-2005	-18.2		-0.99	(-4.10, 2.23)	0.519
	Latino	1988-2005	45.2	↑	2.22	(1.38, 3.06)	<0.001
	Asian/Pacific Islander	1988-2005	48.1		2.34	(-0.41, 5.16)	0.091
Females	Non-Latino White	1988-1993	-2.1		-0.41	(-3.17, 2.44)	0.754
		1993-1996	31.8		9.64	(-2.45, 23.24)	0.110
		1996-2005	25.1	↑	2.52	(1.57, 3.48)	<0.001
	African American	1988-2005	2.0		0.11	(-2.92, 3.25)	0.939
	Latino	1988-2005	32.1	↑	1.65	(0.66, 2.66)	0.003
	Asian/Pacific Islander	1988-2005	53.9		2.57	(-0.16, 5.37)	0.063

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

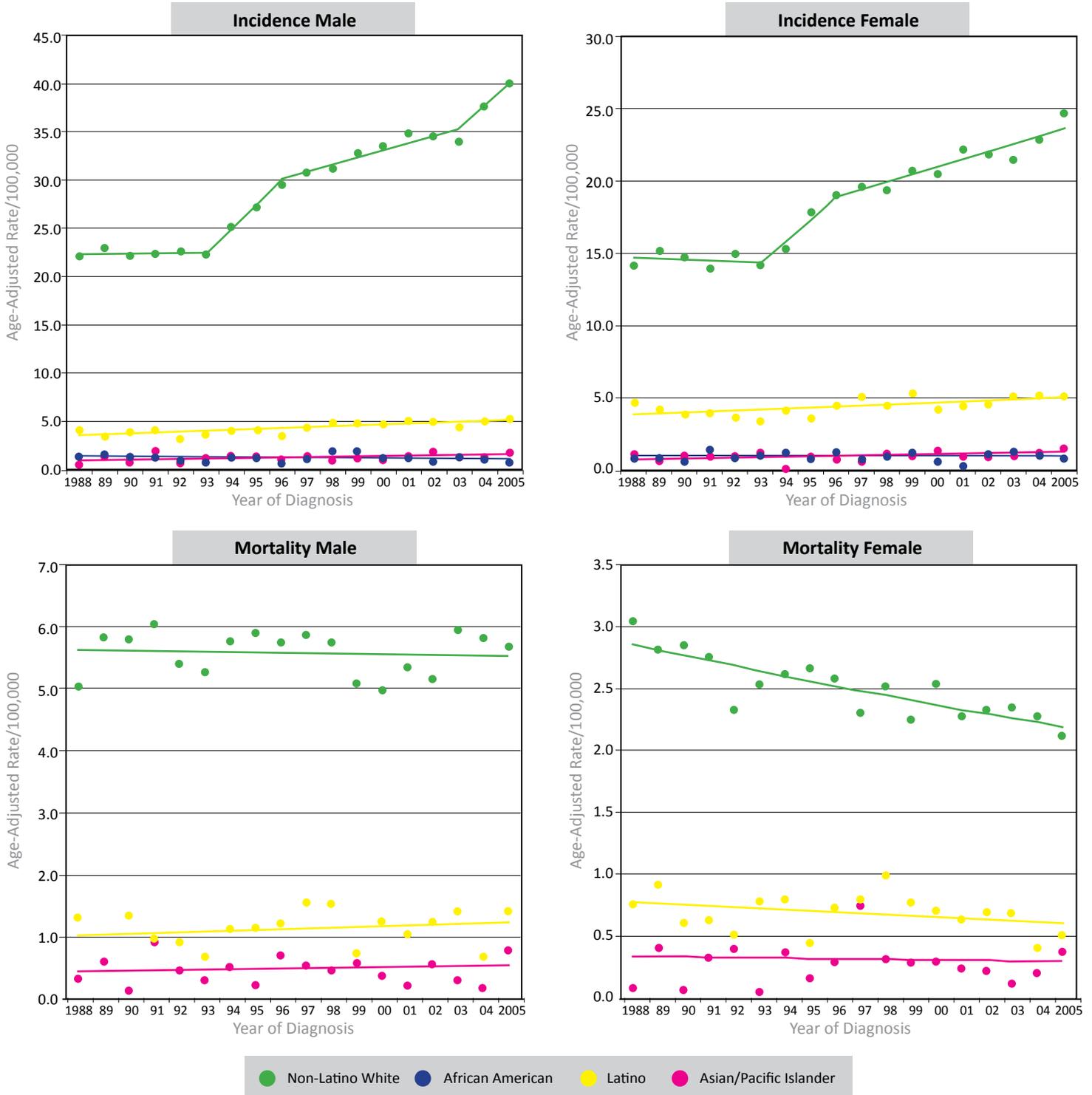
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Melanoma (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-1.1	-0.06	(-0.68, 0.56)	0.829
	Latino	1988-2005	19.2	1.04	(-1.66, 3.82)	0.431
	Asian/Pacific Islander	1988-2005	18.1	0.98	(-3.46, 5.63)	0.651
Females	Non-Latino White	1988-2005	-29.8	↓ -1.55	(-2.06, -1.04)	<0.001
	Latino	1988-2005	-27.1	-1.42	(-3.54, 0.75)	0.182
	Asian/Pacific Islander	1988-2005	-15.2	-0.83	(-6.60, 5.29)	0.771

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Melanoma of the Skin

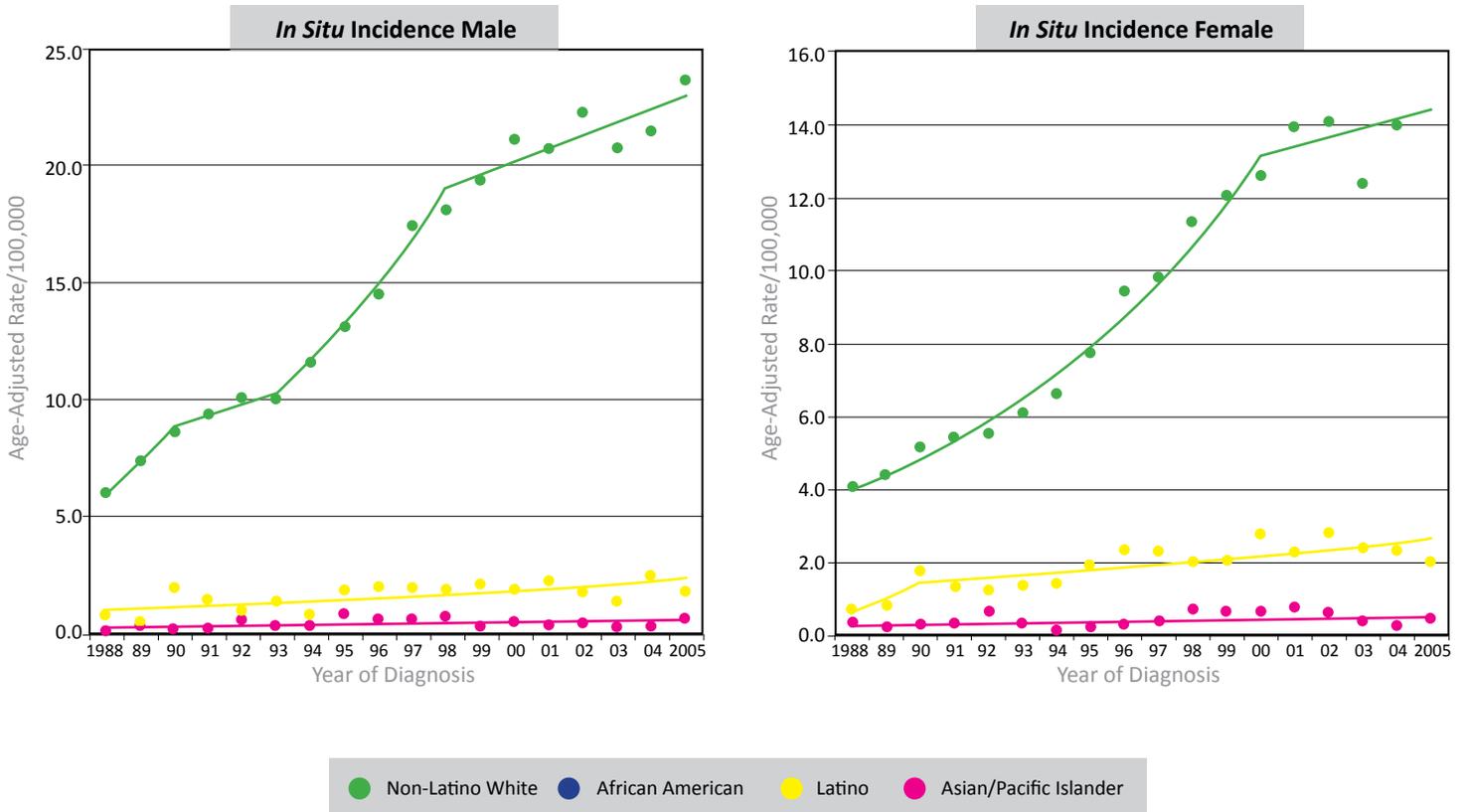


Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

**Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
In Situ Tumors, Melanoma of the Skin**



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### MULTIPLE MYELOMA

Multiple myeloma is a cancer that begins in plasma cells, a type of white blood cell responsible for producing antibodies. The causes of myeloma are not known or well understood; there are no major risk factors for myeloma or ways to prevent it. Studies show that the risk of multiple myeloma increases with age, and that it occurs more often among African American than in white persons. A personal history of monoclonal gammopathy of undetermined significance (MGUS), in itself a benign condition, increases the risk of lymphoma and multiple myeloma. An average of 1,630 Californians develop multiple myeloma each year and 1,030 die each year from the disease.

#### *Trends in Incidence and Mortality in California*

Between 1988 and 2005, significant declines in both incidence and mortality for multiple myeloma were detected among white females and Asian/Pacific Islander males, with declines more pronounced in the latter group. Mortality rates for the disease significantly declined among African-American males as well, but increased among Latinas (albeit the statistical significance was marginal). Multiple myeloma rates for persons of other racial/ethnic groups did not change during the period.

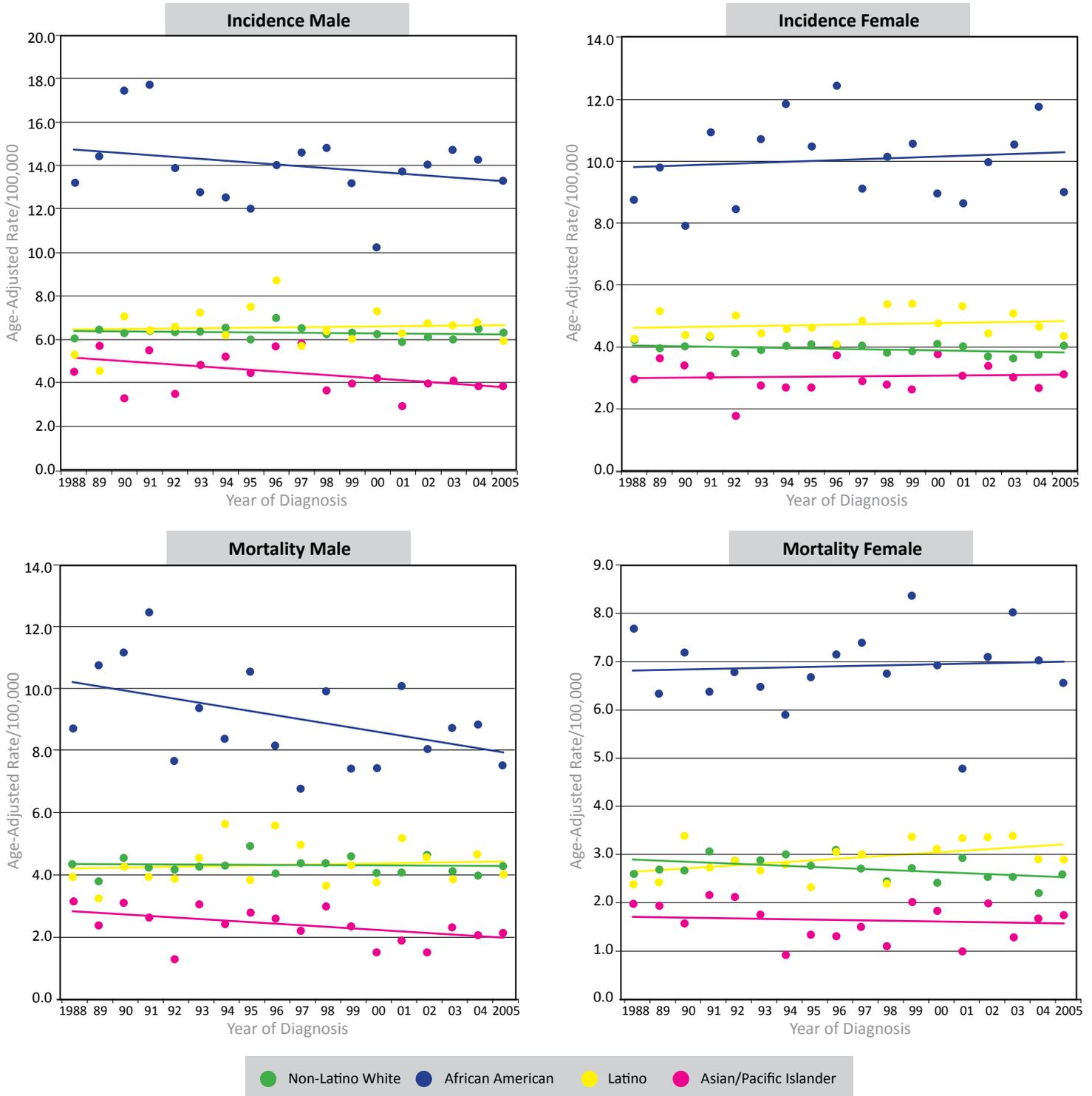
#### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Multiple Myeloma

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-2.4	-0.14	(-0.54, 0.26)	0.464
	African American	1988-2005	-10.6	-0.59	(-1.75, 0.57)	0.296
	Latino	1988-2005	3.7	0.21	(-1.08, 1.52)	0.733
	Asian/Pacific Islander	1988-2005	-35.3	↓ -1.79	(-3.52, -0.03)	0.046
Females	Non-Latino White	1988-2005	-7.1	↓ -0.41	(-0.79, -0.02)	0.041
	African American	1988-2005	4.9	0.28	(-0.99, 1.57)	0.650
	Latino	1988-2005	4.0	0.23	(-0.65, 1.12)	0.590
	Asian/Pacific Islander	1988-2005	2.8	0.16	(-1.37, 1.71)	0.828
<b>MORTALITY TRENDS</b>						
Males	Non-Latino White	1988-2005	-1.3	-0.08	(-0.71, 0.57)	0.805
	African American	1988-2005	-27.7	↓ -1.45	(-2.86, -0.02)	0.047
	Latino	1988-2005	5.7	0.33	(-1.16, 1.83)	0.648
	Asian/Pacific Islander	1988-2005	-43.3	↓ -2.14	(-4.18, -0.06)	0.045
Females	Non-Latino White	1988-2005	-14.2	↓ -0.78	(-1.56, 0.00)	0.049
	African American	1988-2005	2.9	0.17	(-1.02, 1.36)	0.771
	Latino	1988-2005	20.2	1.09	(-0.02, 2.20)	0.053
	Asian/Pacific Islander	1988-2005	-9.5	-0.53	(-2.85, 1.84)	0.636

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Multiple Myeloma



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### NON-HODGKIN LYMPHOMA

Non-Hodgkin lymphoma (NHL) comprises a large group of cancers of the immune system. The risk of developing NHL increases with age and the most common types are usually diagnosed after age 60. In California, an average number of 5,940 persons are diagnosed with NHL each year, and 2,170 die from it. The cause of NHL is unknown, but certain factors can raise the risk of developing the disease:

- Infection with human immunodeficiency virus (HIV), Epstein-Barr virus (EBV), human T-cell leukemia/lymphoma virus type 1 (HTLV-1), hepatitis C virus, and *Helicobacter pylori*
- Weakened immune system from treatment with immune-suppressing drugs or from some inherited conditions
- Occupational exposure to herbicides and certain other chemicals

#### *Trends in Incidence and Mortality in California*

Among Latino and white males, the incidence of NHL increased steadily until around 1995, and has since declined. A similar pattern was detected among Latina and white females, for whom rates started to decline around 1999. During the period, incidence rates for African-American males and Asian/Pacific Islander males and females remained unchanged, while rates for African-American females fluctuated without a significant pattern. Similar to trends for incidence, mortality rates for white and Latino males and females declined significantly after the late 1990s. Mortality rates remained unchanged among African-Americans and Asian/Pacific Islander females, but among males of Asian/Pacific Islander descent, rates peaked around 1993 and declined significantly by 36 percent since then.

#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Non-Hodgkin Lymphoma**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-1994	14.0	↑	2.21	(0.49, 3.97)	0.016
		1994-2005	-11.0	↓	-0.95	(-1.57, 0.33)	0.006
	African American	1988-2005	7.8		0.45	(-0.56, 1.46)	0.361
	Latino	1988-1995	30.9	↑	3.92	(1.41, 6.49)	0.005
		1995-2005	-5.3		-0.52	(-1.60, 0.57)	0.319
	Asian/Pacific Islander	1988-2005	5.1		0.30	(-0.46, 1.06)	0.423
Females	Non-Latino White	1988-2000	21.5	↑	1.63	(1.18, 2.09)	<0.001
		2000-2005	-3.0		-0.60	(-2.13, 0.96)	0.419
	African American	1988-1991	50.8		14.67	(-1.73, 33.8)	0.074
		1991-1994	-24.9		-7.71	(-28.7, 19.5)	0.487
		1994-1997	49.0		14.21	(-11.1, 46.7)	0.250
	1997-2005	-10.8		-1.30	(-3.54, 1.00)	0.222	
		Latino	1988-1999	33.3	↑	2.65	(1.45, 3.86)
	1999-2005		-7.6		-1.23	(-3.36, 0.95)	0.242
	Asian/Pacific Islander	1988-2005	11.5		0.64	(-0.26, 1.56)	0.151

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

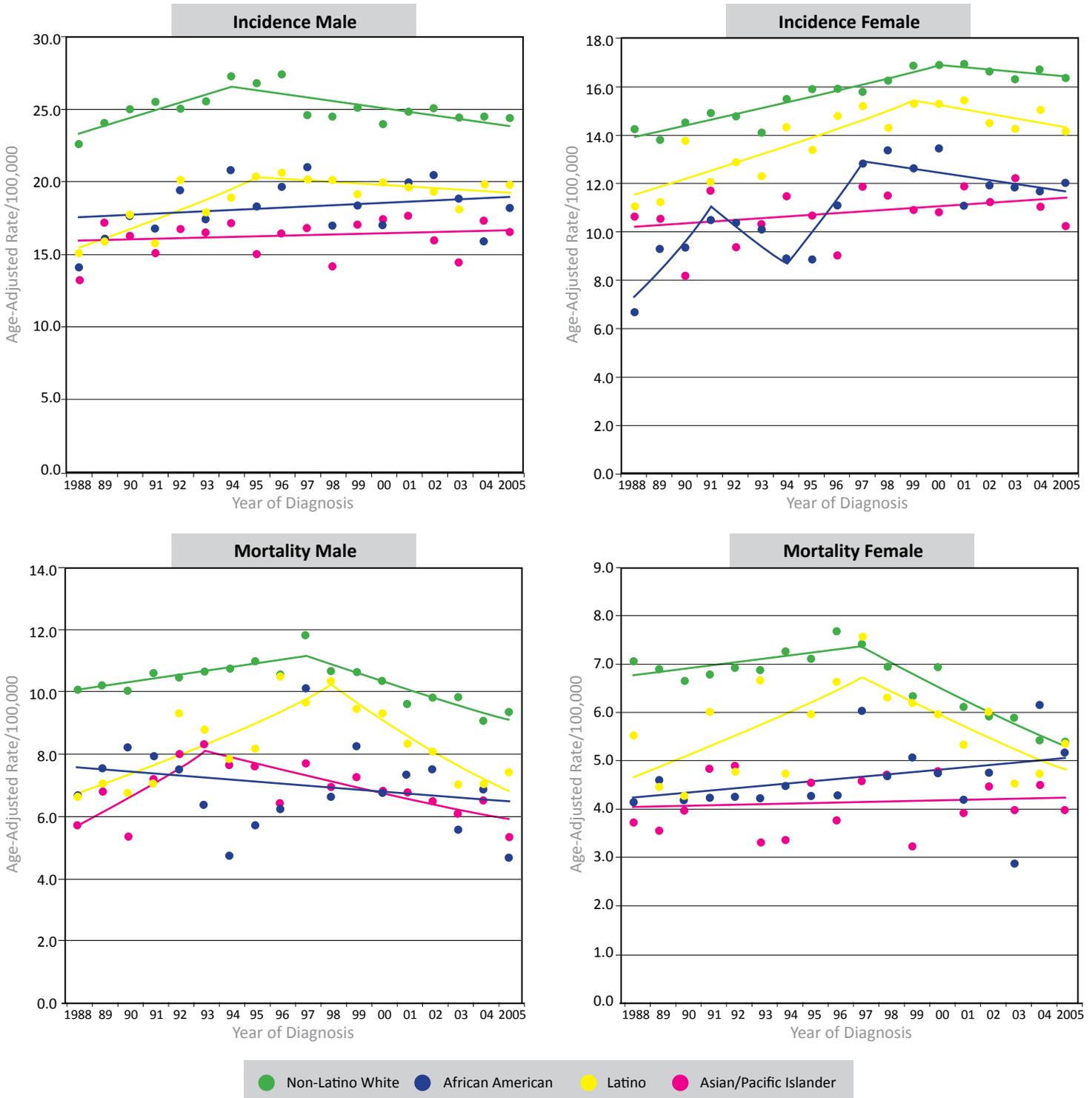
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Non-Hodgkin Lymphoma (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change		APC	95% CI	P-value
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-1997	11.3	↑	1.20	(0.54, 1.86)	0.002
		1997-2005	-22.0	↓	-2.52	(-3.24, -1.79)	<0.001
	African American	1988-2005	-15.9		-0.87	(-2.73, 1.02)	0.341
	Latino	1988-1998	51.9	↓	4.27	(2.09, 6.49)	0.001
		1998-2005	-46.5	↓	-5.61	(-8.28, -2.87)	0.001
	Asian/Pacific Islander	1988-1993	42.3	↑	7.31	(0.41, 14.7)	0.039
		1993-2005	-36.3	↓	-2.61	(-3.93, -1.28)	0.001
Females	Non-Latino White	1988-1997	8.5		0.91	(-0.12, 1.96)	0.079
		1997-2005	-36.1	↓	-3.93	(-5.16, -2.69)	<0.001
	African American	1988-2005	19.5		1.06	(-0.51, 2.64)	0.173
	Latino	1988-1997	43.7	↑	4.11	(0.27, 8.09)	0.037
		1997-2005	-37.5	↓	-4.06	(-7.40, -0.60)	0.025
	Asian/Pacific Islander	1988-2005	5.0		0.29	(-1.03, 1.62)	0.653

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Non-Hodgkin Lymphoma



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### ORAL CAVITY AND PHARYNX CANCER

Oral cancer can develop in any part of the oral cavity or oropharynx, the most common sites being the tongue, lip, and floor of the mouth. Each year, an average of 3,270 Californians are diagnosed with oral cancer, and 850 die from the disease. Rates of oral cancer are more than two times higher in men than in women. Although not all the risk factors for oral and pharyngeal cancer can be controlled, many cancers can be avoided by making lifestyle changes. Studies show the following factors increase the risk of developing oral cancer:

- [Tobacco use](#) (including cigarettes, cigars, pipes, and smokeless tobacco) is the strongest risk factor for oral cancer
- [Alcohol consumption](#), with the risk increasing significantly if combined with tobacco use
- Prolonged sun exposure (linked to cancer in the lip area)
- Infection with Human papillomavirus (HPV)

#### *Trends in Incidence and Mortality in California*

The incidence of cancers of the oral cavity and pharynx declined significantly among males and females of all racial/ethnic groups except among African-American females, for whom rates fluctuated without a clear pattern. On the other hand, African-American males were the group for whom the sharpest declines in rates were detected - approximately 48 percent and 80 percent for incidence and mortality rates, respectively. These trends are consistent with the very encouraging decline of [smoking in California](#). Mortality rates for oral cancer declined among males of all racial/ethnic groups as well. Similar findings were observed among females, except among Latinas, for whom mortality remained unchanged during the period.

#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Oral Cavity and Pharynx**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-12.8	↓ -0.71	(-0.90, -0.52)	<0.001
	African American	1988-2005	-48.3	↓ -2.35	(-2.98, -1.71)	<0.001
	Latino	1988-2005	-18.6	↓ -1.01	(-1.52, -0.49)	0.001
	Asian/Pacific Islander	1988-2005	-30.2	↓ -1.56	(-2.40, -0.72)	0.001
Females	Non-Latino White	1988-2005	-33.0	↓ -1.69	(-2.01, -1.37)	<0.001
	African American	1988-2005	-5.2	-0.30	(-1.54, 0.95)	0.617
	Latino	1988-1992	34.2	7.63	(-0.16, 16.0)	0.054
		1992-2005	-32.1	↓ -2.17	(-3.11, -1.22)	<0.001
	Asian/Pacific Islander	1988-2005	-26.4	↓ -1.39	(-2.34, -0.42)	0.008

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

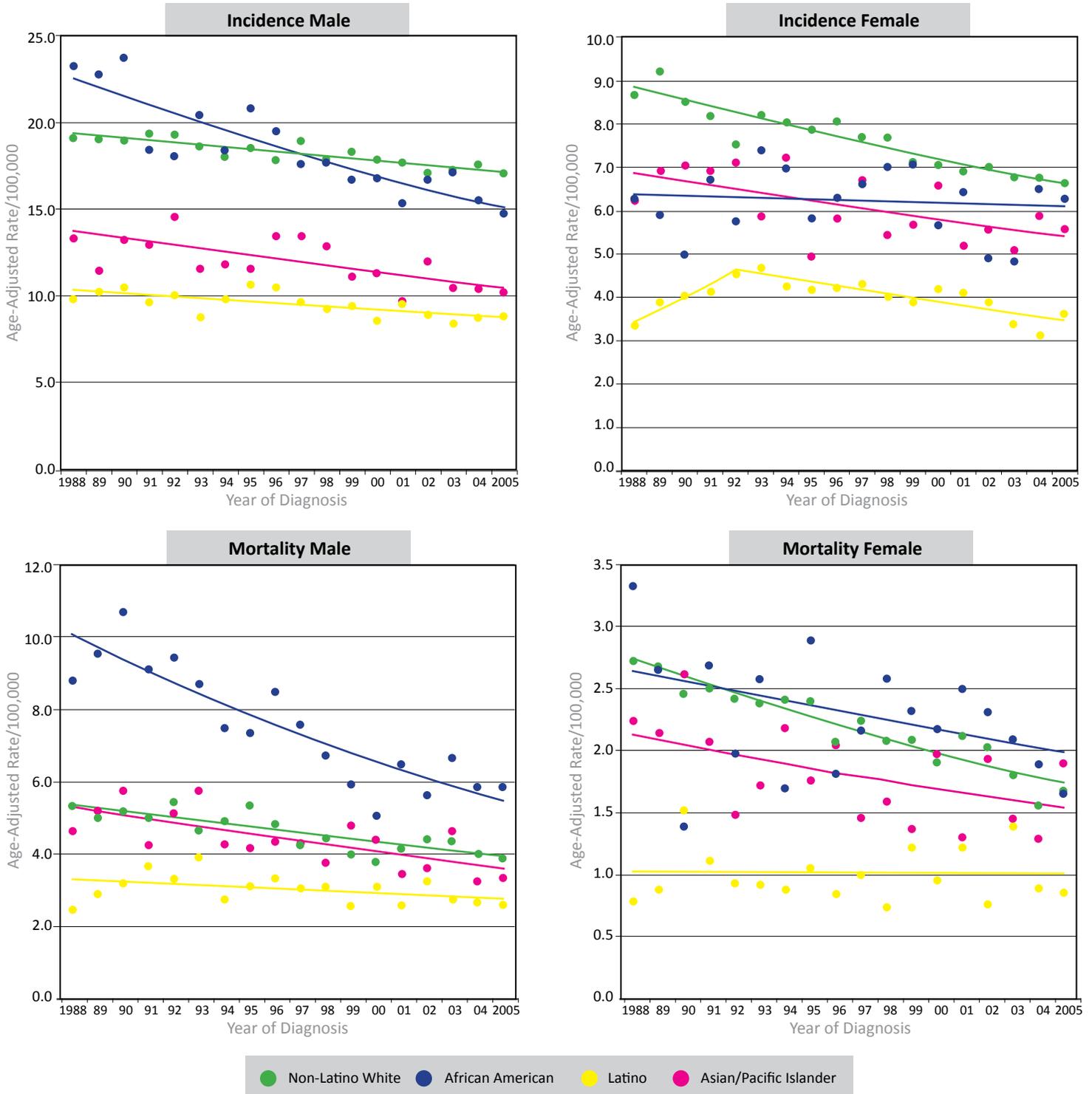
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Oral Cavity and Pharynx (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-36.1	↓	-1.83	(-2.45, -1.20)	<0.001
	African American	1988-2005	-79.9	↓	-3.51	(-4.46, -2.56)	<0.001
	Latino	1988-2005	-19.3		-1.04	(-2.19, 0.12)	0.075
	Asian/Pacific Islander	1988-2005	-46.5	↓	-2.27	(-3.48, -1.05)	0.001
Females	Non-Latino White	1988-2005	-55.7	↓	-2.64	(-3.14, -2.14)	<0.001
	African American	1988-2005	-31.7		-1.63	(-3.45, 0.22)	0.079
	Latino	1988-2005	-2.1		-0.12	(-2.26, 2.06)	0.904
	Asian/Pacific Islander	1988-2005	-37.6	↓	-1.90	(-3.58, -0.18)	0.032

↑ =Statistically significant increase  
↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Oral Cavity and Pharynx



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### OVARY CANCER

Ovarian cancer is the most deadly of all gynecologic cancers. In California, an average of 2,300 women are diagnosed each year with ovarian cancer, and 1,560 die from the disease. Over 90 percent of ovarian cancers are of epithelial origin, one of the three types of malignant ovarian tumors. As with many other cancers, the incidence of ovarian cancer increases with age. Studies have shown that using [oral contraceptives](#), undergoing tubal ligation (sterilization), or having a [hysterectomy](#) decrease the risk of developing ovarian cancer. Although the exact cause of ovarian cancer is unknown, the disease can sometimes be associated with known risk factors such as:

- Family history of ovarian cancer in the mother, daughter, or sister
- Personal history of breast, uterus, or colorectal cancer
- Inherited mutations in the BRCA1, BRCA2, or hereditary nonpolyposis colon cancer genes
- Use of hormone replacement therapy after menopause
- [Obesity](#)

#### *Trends in Incidence and Mortality in California*

The incidence of ovarian cancer in California declined among all racial/ethnic groups, except among Latinas, for whom rates remained flat from 1988 through 2005. Such declines were slight but statistically significant, ranging from about 10 to 32 percent from 1988 through 2005 among Asian/Pacific Islander and African-American women, respectively. During the same period, a corresponding decline in ovarian cancer mortality rates was not yet detected in any racial/ethnic group in California women.

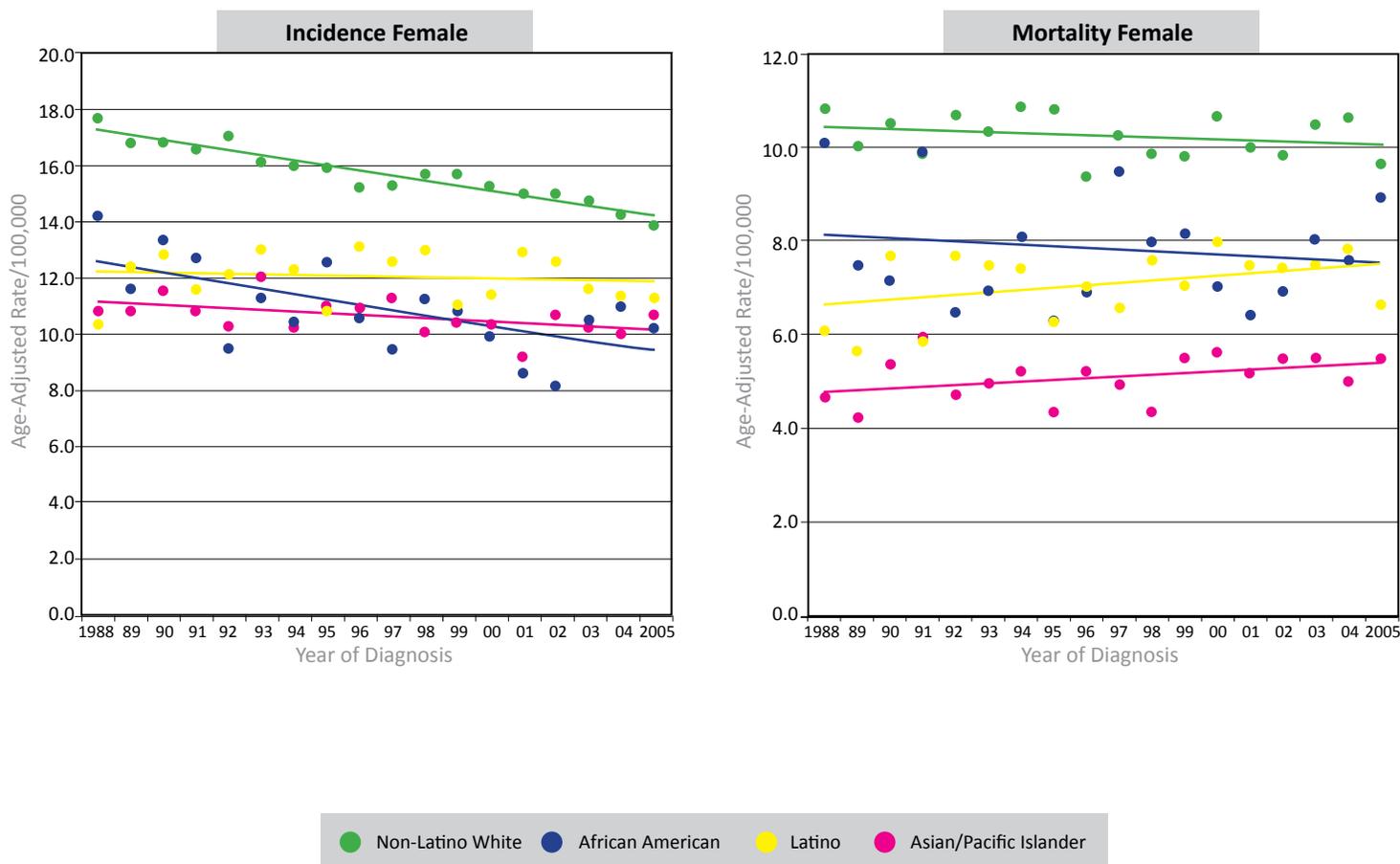
#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Ovary**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Females	Non-Latino White	1988-2005	-21.4	↓	-1.15	(-1.33, -0.96)	<0.001
	African American	1988-2005	-31.7	↓	-1.63	(-2.68, -0.58)	0.005
	Latino	1988-2005	-3.3		-0.19	(-0.87, 0.49)	0.559
	Asian/Pacific Islander	1988-2005	-9.6	↓	-0.54	(-1.08, 0.00)	0.050
<b>MORTALITY TRENDS</b>							
Females	Non-Latino White	1988-2005	-3.8		-0.22	(-0.65, 0.21)	0.301
	African American	1988-2005	-7.0		-0.40	(-1.80, 1.02)	0.556
	Latino	1988-2005	13.3		0.74	(-0.13, 1.62)	0.092
	Asian/Pacific Islander	1988-2005	12.2		0.68	(-0.14, 1.51)	0.099

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

**Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Ovary**



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### PANCREAS CANCER

An average of 3,400 Californians develop pancreatic cancer each year, and 3,140 die each year from the disease. Cancer of the pancreas is most commonly diagnosed among men, African Americans, and people older than 60 years. Although the cause of pancreatic cancer is not known, the following factors can raise a person's risk of developing pancreatic cancer:

- [Cigarette smoking](#) doubles or triples the risk of pancreatic cancer
- Long term [diabetes](#)
- Family history of pancreatic, colon, or ovarian cancer
- Chronic pancreatitis

#### *Trends in Incidence and Mortality in California*

During the period from 1988 to 2005, both incidence and mortality rates for pancreatic cancer declined significantly among males of African American and Asian/Pacific Islander descent by 29 to 36 percent, respectively. On the other hand, mortality rates among Latinas and Asian/Pacific Islander females increased significantly by 20 to 26 percent, respectively, during the period. Such increase in mortality rates was not accompanied by a corresponding increase in incidence rates, suggesting that these two groups experienced poor survival after a diagnosis of pancreatic cancer. Regarding trends in risk factors for pancreatic cancer, the fortunate decline in [smoking](#) is counteracted by a worrisome increase in the percent of Californians ever diagnosed with [diabetes](#).

#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Pancreas**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-2.7	-0.16	(-0.47, 0.15)	0.297
	African American	1988-2005	-29.0	↓ -1.51	(-2.47, -0.54)	0.005
	Latino	1988-2005	-9.3	-0.53	(-1.21, 0.16)	0.124
	Asian/Pacific Islander	1988-2005	-30.9	↓ -1.60	(-2.72, -0.46)	0.009
Females	Non-Latino White	1988-2005	-0.7	-0.04	(-0.44, 0.37)	0.841
	African American	1988-2005	-4.3	-0.25	(-1.29, 0.81)	0.627
	Latino	1988-2005	5.7	0.33	(-0.40, 1.06)	0.358
	Asian/Pacific Islander	1988-2005	-1.5	-0.09	(-1.27, 1.11)	0.877

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

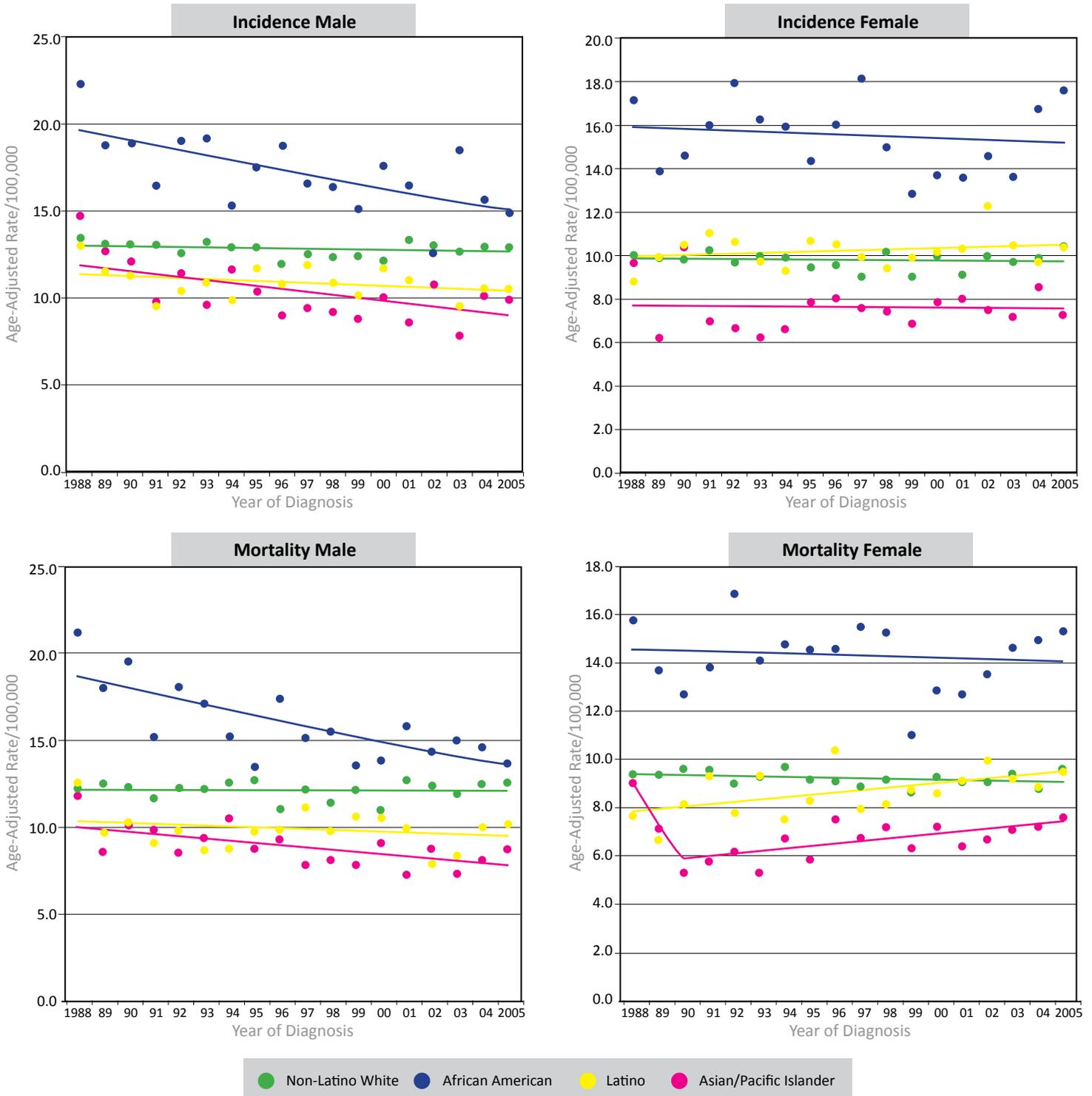
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Pancreas (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	0.2	0.01	(-0.42, 0.45)	0.947	
	African American	1988-2005	-36.3	↓	-1.84	(-2.65, -1.02)	<0.001
	Latino	1988-2005	-8.4		-0.48	(-1.49, 0.55)	0.338
	Asian/Pacific Islander	1988-2005	-27.4	↓	-1.44	(-2.36, -0.50)	0.005
Females	Non-Latino White	1988-2005	-3.0		-0.17	(-0.47, 0.12)	0.235
	African American	1988-2005	-3.0		-0.17	(-1.11, 0.77)	0.700
	Latino	1988-2005	19.5	↑	1.05	(0.20, 1.91)	0.018
	Asian/Pacific Islander	1988-1990	-42.2		-19.27	(-41.7, 11.8)	0.179
		1990-2005	26.3	↑	1.57	(0.55, 2.60)	0.005

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Pancreas



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are age-adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

### PROSTATE GLAND CANCER

Prostate cancer is the most commonly diagnosed non-skin cancer among men in California and in the U.S. Each year, an average of 21,100 Californians are diagnosed with prostate cancer, and 3,000 die from the disease. The incidence of prostate cancer is highest among African Americans, followed by non-Latino whites, Latinos, and Asian/Pacific Islanders. Age is a strong risk factor, as the incidence of prostate cancer increases with age. The exact cause of prostate cancer is still unknown, but the following risk factors may increase the risk of developing the disease:

- Family history of prostate cancer in a brother or father
- High levels of testosterone
- Diet high in fat, especially animal fat

#### *Trends in Incidence and Mortality in California*

Trends in prostate cancer in California followed a complex pattern which is best described in four periods. Following the introduction and widespread use of the [prostate-specific antigen \(PSA\)](#) test, the incidence of the disease climbed rapidly and peaked in the early 1990s. Around 1992 and 1993, incidence rates dropped fairly quickly and stabilized until around 2002, when incidence rates again began to decline. The pattern described above was evident in all four racial/ethnic groups in California. Despite the extreme fluctuation in incidence rates, a very different pattern was detected for prostate cancer-related mortality. From 1988 through 2005, mortality rates declined steadily in Californians of all racial/ethnic groups, from 1.3 and 1.7 percent per year among Latinos and African Americans, respectively, to 3.6 percent per year among white and Asian/Pacific Islander males.

Rates for [PSA screening in California](#) follow a pattern similar to that for incidence of the disease. On the other hand, survey data suggest that the percent of men receiving a [digital rectal exam](#) has slightly declined.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

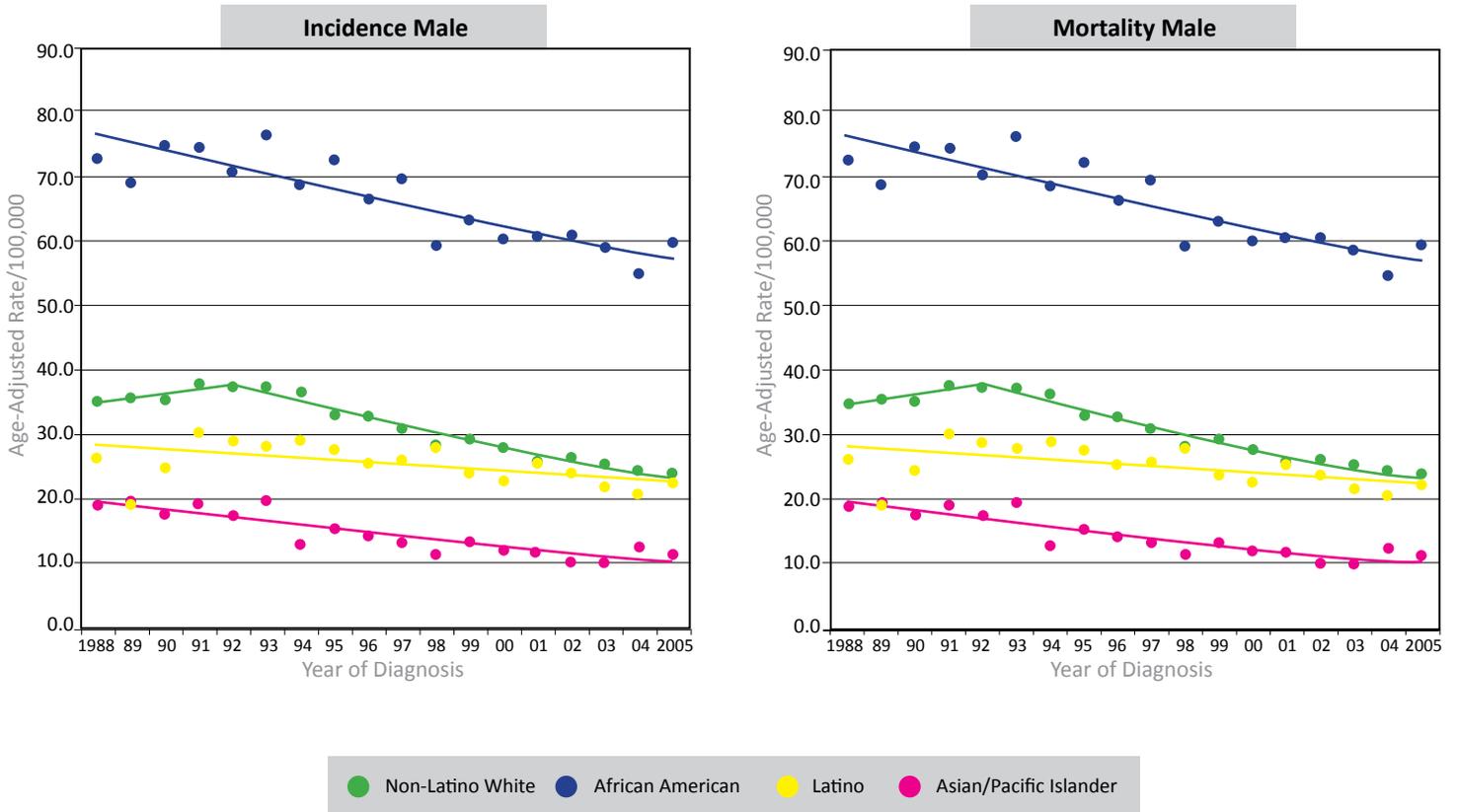
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Prostate Gland

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-1992	79.7	↑	15.79	(9.91, 22.0)	<0.001
		1992-1995	-43.5		-12.80	(-24.81, 1.12)	0.065
		1995-2002	7.7		1.07	(-1.51, 3.72)	0.363
		2002-2005	-17.8		-5.62	(-12.7, 2.08)	0.125
	African American	1988-1992	77.5	↑	15.43	(9.18, 22.0)	<0.001
		1992-1996	-19.7		-4.61	(-11.0, 2.20)	0.150
		1996-2002	-1.2		-0.20	(-3.13, 2.82)	0.877
		2002-2005	-24.6	↓	-7.62	(-13.7, -1.12)	0.028
	Latino	1988-1992	88.6	↑	17.18	(10.9, 23.86)	<0.001
		1992-1997	-18.0		-3.36	(-7.25, 0.69)	0.090
		1997-2002	8.6		1.65	(-1.96, 5.41)	0.320
		2002-2005	-15.3		-4.85	(-9.64, 0.20)	0.057
	Asian/Pacific Islander	1988-1993	80.8	↑	12.57	(8.04, 17.30)	<0.001
		1993-1996	-29.3		-8.95	(-20.4, 4.12)	0.142
		1996-2003	11.6		1.58	(-0.38, 3.58)	0.098
		2003-2005	-22.6	↓	-10.74	(-19.7, -0.77)	0.039
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-1992	8.4		2.03	(-1.13, 5.29)	0.191
		1992-2005	-59.2	↓	-3.64	(-4.14, -3.15)	<0.001
	African American	1988-2005	-32.8	↓	-1.68	(-2.14, -1.22)	<0.001
	Latino	1988-2005	-24.3	↓	-1.29	(-2.28, -0.28)	0.015
	Asian/Pacific Islander	1988-2005	-82.3	↓	-3.60	(-4.59, -2.59)	<0.001

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

**Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Prostate Gland**



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### STOMACH CANCER

Stomach cancer is the fourth most common cancer found worldwide. Each year, an average of 2,600 Californians are diagnosed, and 1,550 die from the disease. Most cases of stomach cancer occur in people over 70 years old, and men are much more likely to develop the disease than women. The following factors can raise a person's risk of developing stomach cancer:

- Diets high in smoked, salted, or pickled foods
- Infection with the bacteria *Helicobacter pylori* and chronic gastritis
- Stomach surgery and pernicious anemia
- [Smoking](#) and high [alcohol consumption](#)
- Genetic disorders: hereditary non-polyposis colorectal cancer and familial adenomatous polyposis

#### *Trends in Incidence and Mortality in California*

The incidence of stomach cancer declined significantly in all population groups in California. Latinas experienced the smallest decrease in rates - one percent per year, while Latinos experienced the largest decrease, of almost 4 percent per year after 1999. However, the decline in mortality rates among persons of Latino ethnicity (by about 24 percent) was much smaller than the decline in mortality detected in other racial/ethnic groups (which varied from 46 percent among African-American females to 86 percent among white males). A previous study has documented a decline in the type of gastric lesions that are considered precursors of stomach cancer. The authors believed that a decrease in the prevalence of *H. pylori* infection, together with dietary changes and decreased [smoking](#) may have contributed to these declining trends.

#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Stomach**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-55.5	↓ -2.63	(-2.89, -2.38)	<0.001
	African American	1988-2005	-44.2	↓ -2.17	(-3.10, -1.24)	<0.001
	Latino	1988-1999	-2.2	-0.20	(-1.36, 0.97)	0.719
		1999-2005	-26.0	↓ -3.93	(-6.23, -1.57)	0.003
	Asian/Pacific Islander	1988-2005	-44.0	↓ -2.17	(-2.91, -1.42)	<0.001
Females	Non-Latino White	1988-2005	-46.8	↓ -2.28	(-2.84, -1.73)	<0.001
	African American	1988-2005	-46.7	↓ -2.28	(-3.27, -1.28)	<0.001
	Latino	1988-2005	-19.2	↓ -1.04	(-1.77, -0.29)	0.009
	Asian/Pacific Islander	1988-2005	-57.8	↓ -2.72	(-3.42, -2.01)	<0.001

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

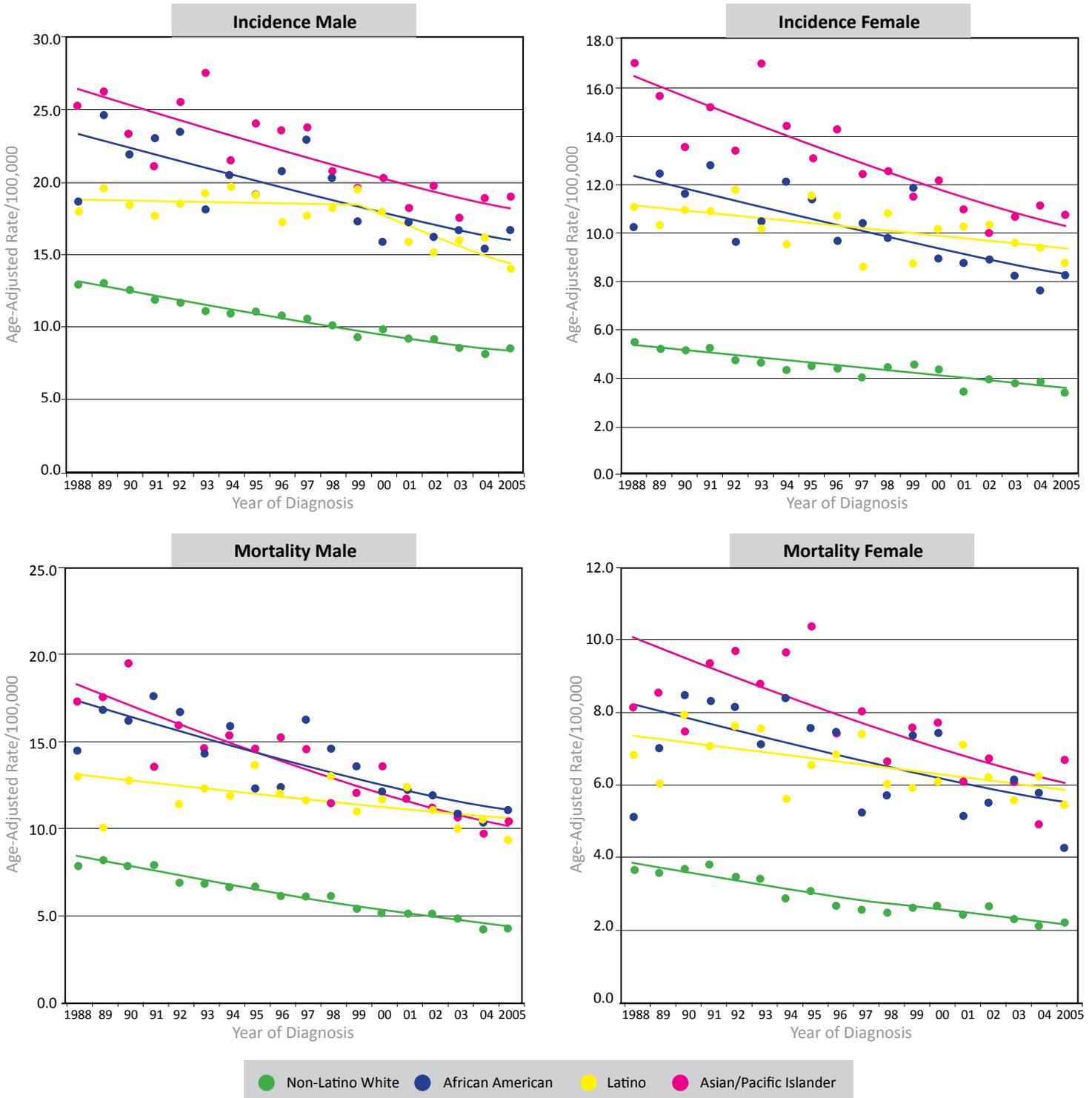
Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Stomach (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-86.5	↓	-3.73	(-4.10, -3.36)	<0.001
	African American	1988-2005	-55.4	↓	-2.63	(-3.53, -1.71)	<0.001
	Latino	1988-2005	-23.2	↓	-1.25	(-2.11, -0.38)	0.008
	Asian/Pacific Islander	1988-2005	-76.4	↓	-3.40	(-4.16, -2.62)	<0.001
Females	Non-Latino White	1988-2005	-73.0	↓	-3.28	(-3.88, -2.67)	<0.001
	African American	1988-2005	-46.1	↓	-2.25	(-3.85, -0.63)	0.010
	Latino	1988-2005	-24.4	↓	-1.29	(-2.21, -0.36)	0.009
	Asian/Pacific Islander	1988-2005	-62.6	↓	-2.90	(-4.22, -1.57)	<0.001

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Stomach



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are age-adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### TESTIS CANCER

Testicular cancer is a relatively rare disease. Each year, an average of 950 Californians are diagnosed with testicular cancer, and about 50 males die from the disease. Testicular cancer occurs most often in men between the ages of 20 and 39 years, and is the most common cancer among men between the ages of 15 and 34 years. Although the cause of testicular cancer is not known, studies have shown that the following factors increase a man's risk of developing the disease:

- Cryptorchidism (undescended testicle)
- History of testicular cancer increases the risk of cancer in the other testicle
- Family history of testicular cancer in a brother or father

#### *Trends in Incidence and Mortality in California*

The incidence of testicular cancer among California white males and Latinos increased between one and two percent per year during the period from 1988 through 2005. Among African-American males, rates had also increased but declined significantly by 76 percent after 2001. Incidence rates among Asian/Pacific Islander males did not change significantly during this time period. Despite the detected increase in the incidence of the disease, mortality due to testicular cancer among Latino and white males remained unchanged during the entire period. Due to the small number of deaths, trends in mortality rates could not be evaluated for males of African American and Asian/Pacific Islander descent.

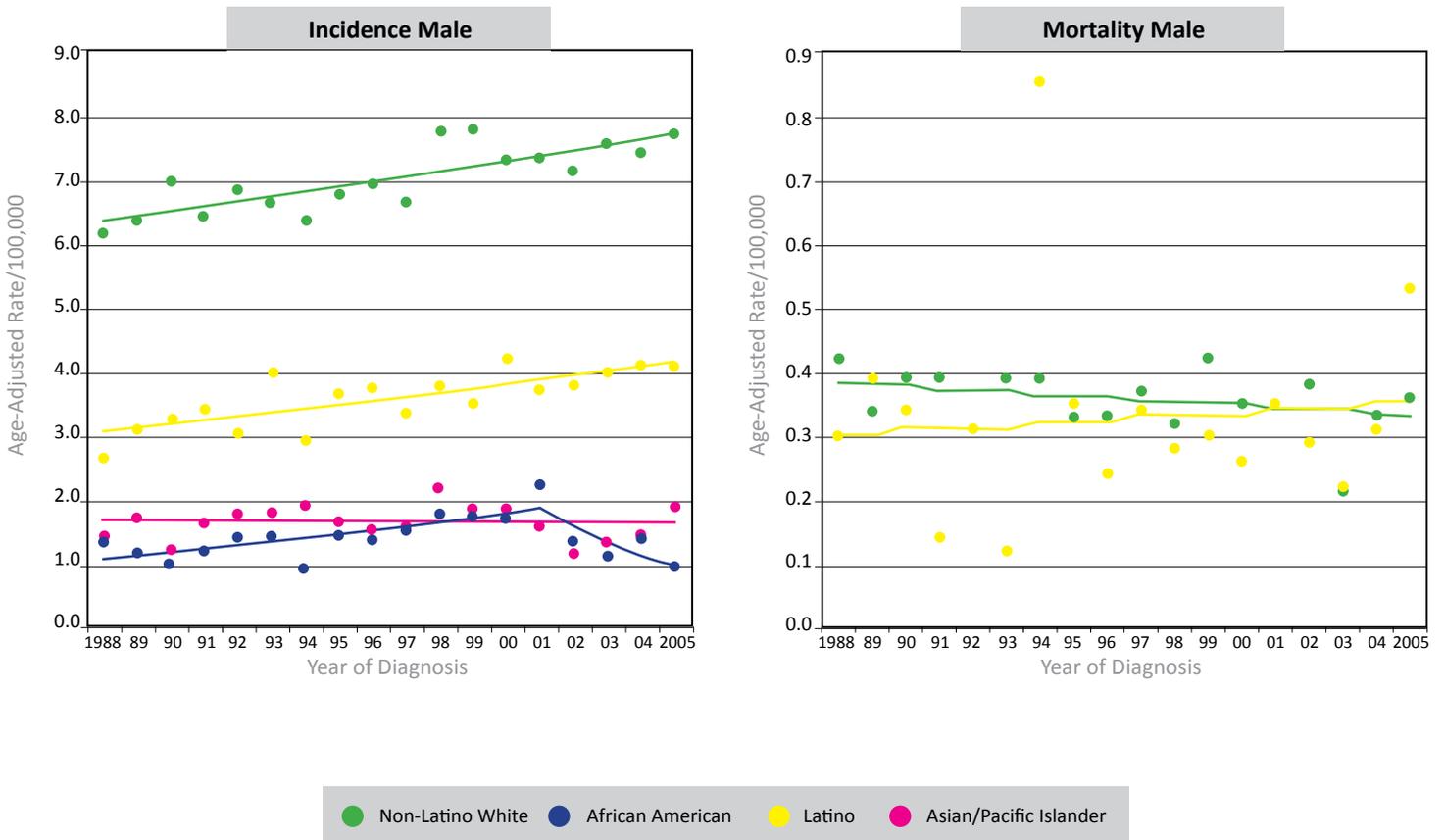
#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Testis**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>INCIDENCE TRENDS</b>							
Males	Non-Latino White	1988-2005	21.4	↑	1.15	(0.71, 1.58)	<0.001
	African American	1988-2001	70.5	↑	4.19	(1.80, 6.63)	0.002
		2001-2005	-75.6	↓	-15.11	(-27.3, -0.89)	0.040
	Latino	1988-2005	35.4	↑	1.80	(1.05, 2.55)	<0.001
	Asian/Pacific Islander	1988-2005	-2.5		-0.15	(-1.84, 1.58)	0.860
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	-16.0		-0.88	(-2.14, 0.40)	0.163
	Latino	1988-2005	16.3		0.89	(-3.14, 5.09)	0.650

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

**Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Testis**



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### THYROID GLAND CANCER

The thyroid is a gland located in front of the neck beneath the larynx. If diagnosed early, most people with thyroid cancer can be cured. In California, an average of 2,640 persons are diagnosed each year with thyroid cancer, and 155 die from the disease each year. Thyroid cancer is more often diagnosed after age 45, and is almost three times more common in women than in men. Studies have found the following risk factors for thyroid cancer:

- Radiation exposure from radiotherapy to the head and neck
- Radioactive fallout from atomic weapons and nuclear power plant accidents
- Mutation to the RET proto-oncogene (associated with medullary thyroid cancer)
- History of goiters (swollen thyroids), or of familial adenomatous polyposis

#### *Trends in Incidence and Mortality in California*

During the period covered in this report (1988-2005), the incidence of thyroid cancer increased rather dramatically. The increase in incidence rates was detected in all racial/ethnic groups, although the increase was less steep among persons of Asian/Pacific Islander descent. It is worth noting, however, that the sharp increase in incidence was not accompanied by an increase in thyroid cancer mortality (except for Latino males during the period from 1988 through 1996). Among Asian/Pacific Islander females, thyroid cancer mortality actually decreased by about 45 percent during the period. In the absence of major improvements in the treatment for the disease, cancer researchers have explained these trends as a result of more sensitive diagnostic techniques, which can detect small thyroid tumors before clinical signs are present.

#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Thyroid Gland**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-1996	0.7	0.09	(-1.22, 1.42)	0.882
		1996-2005	55.6	↑ 5.04	(4.05, 6.03)	<0.001
	African American	1988-2005	79.8	↑ 3.51	(0.62, 6.48)	0.020
	Latino	1988-2005	48.6	↑ 2.36	(0.86, 3.87)	0.004
	Asian/Pacific Islander	1988-2005	18.8	↑ 1.02	(0.03, 2.02)	0.044
Females	Non-Latino White	1988-1996	18.7	↑ 2.16	(1.03, 3.32)	0.001
		1996-2005	61.6	↑ 5.47	(4.65, 6.31)	<0.001
	African American	1988-2005	138.5	↑ 5.25	(3.49, 7.03)	<0.001
	Latino	1988-2005	87.8	↑ 3.78	(3.18, 4.38)	<0.001
	Asian/Pacific Islander	1988-2005	42.1	↑ 2.09	(1.41, 2.77)	<0.001

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

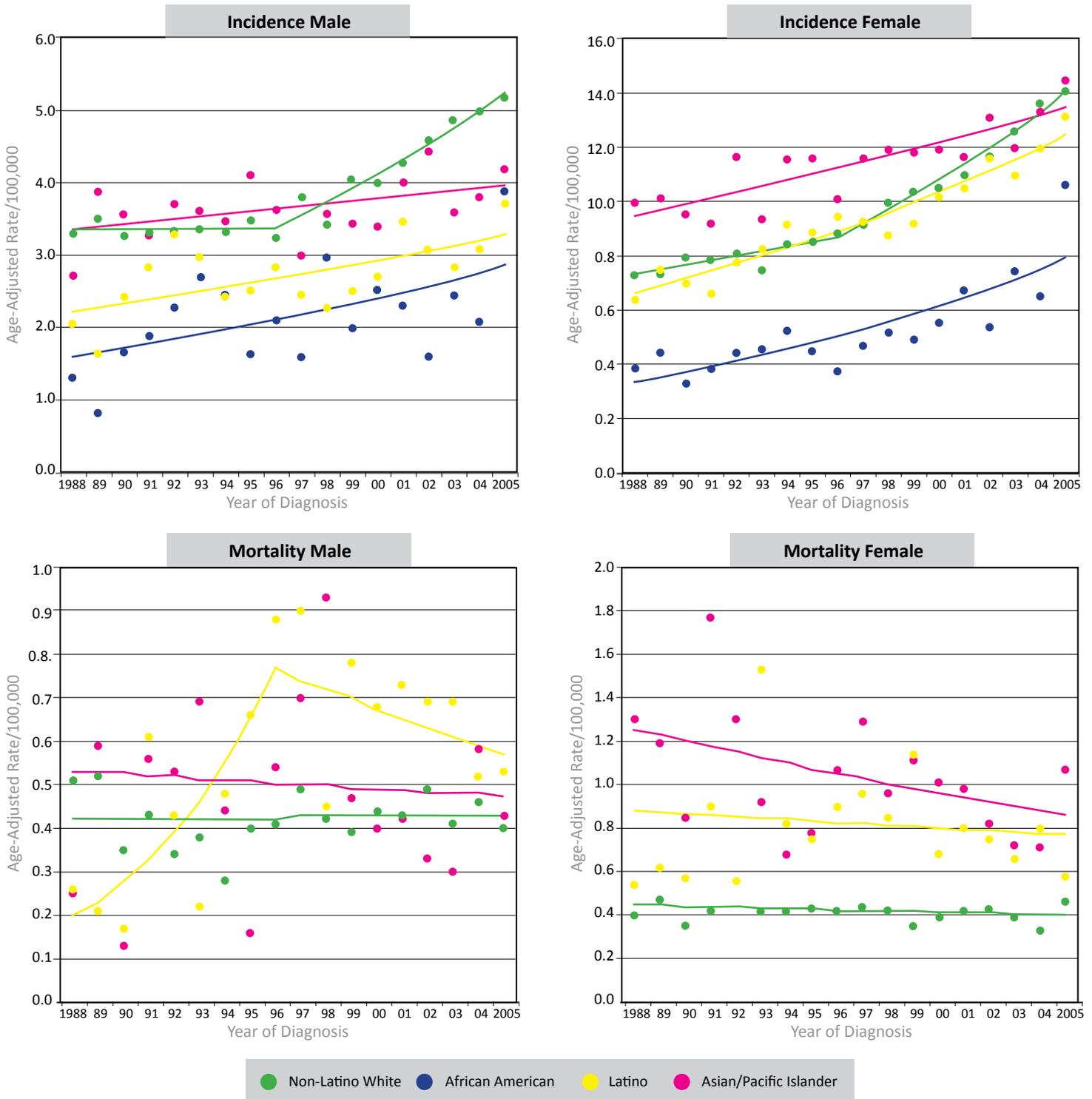
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Thyroid Gland (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value	
<b>MORTALITY TRENDS</b>							
Males	Non-Latino White	1988-2005	1.8	0.11	(-1.27, 1.50)	0.873	
	Latino	1988-1996	290.5	↑	18.57	(4.34, 34.7)	0.013
		1996-2005	-33.2		-3.23	(-9.53, 3.50)	0.310
	Asian/Pacific Islander	1988-2005	-12.3		-0.69	(-4.72, 3.52)	0.730
Females	Non-Latino White	1988-2005	-12.5		-0.69	(-1.91, 0.54)	0.248
	Latino	1988-2005	-14.1		-0.78	(-3.57, 2.10)	0.571
	Asian/Pacific Islander	1988-2005	-44.8		-2.20	(-4.39, 0.03)	0.053

↑ =Statistically significant increase  
↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Thyroid Gland



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## URINARY BLADDER CANCER

The incidence and mortality for bladder cancer vary by factors such as age, sex, and race/ethnicity. Each year, an average of 5,980 Californians are diagnosed with bladder cancer, and 1,240 die from the disease. Men are about two to three times more likely to develop bladder cancer than women. Whites are diagnosed with bladder cancer twice as often as African Americans and Latinos. However, African-American women have higher bladder cancer mortality rates than women of other racial/ethnic groups in California. Similar to other cancers, the incidence of bladder cancer increases with age. Studies have found the following risk factors for bladder cancer:

- **Smoking** increases the risk of developing bladder cancer two to three times
- Occupational exposure to textile, rubber, leather, dye, paint, or print industries and to chemicals called aromatic amines
- Treatment with cyclophosphamide or arsenic
- Family history of bladder cancer

### *Trends in incidence and mortality in California*

Because of the difficulty in interpreting the language used by pathologists to describe the extent of invasion of bladder cancers, *in situ* and invasive bladder tumors were combined in this report. From 1988 through 2005, a very slight but significant decline in the incidence of bladder cancer was detected among white males and females, the racial group most often diagnosed with the disease. The steady decline in **smoking**, a risk factor for bladder cancer, is likely to have contributed to this decrease in the incidence of the disease. In the other racial/ethnic groups, bladder cancer rates fluctuated and trends were non-significant. Likewise, changes in mortality rates did not follow a clear pattern and were non-significant. The only exceptions were a not quite significant increase in mortality rates among Latinas and a significant and substantial decline in mortality rates among Asian/Pacific Islander females during the period.

### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Urinary Bladder**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2005	-4.0	↓ -0.23	(-0.42, -0.04)	0.019
	African American	1988-2005	4.1	0.24	(-0.61, 1.09)	0.562
	Latino	1988-2005	-7.3	-0.41	(-0.96, 0.13)	0.129
	Asian/Pacific Islander	1988-2005	4.9	0.28	(-0.51, 1.08)	0.466
Females	Non-Latino White	1988-2005	-5.5	↓ -0.31	(-0.62, 0.00)	0.050
	African American	1988-2005	3.8	0.22	(-0.93, 1.38)	0.690
	Latino	1988-2005	-13.2	-0.73	(-1.65, 0.20)	0.115
	Asian/Pacific Islander	1988-2005	-6.3	-0.36	(-1.93, 1.24)	0.639

Table continues

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

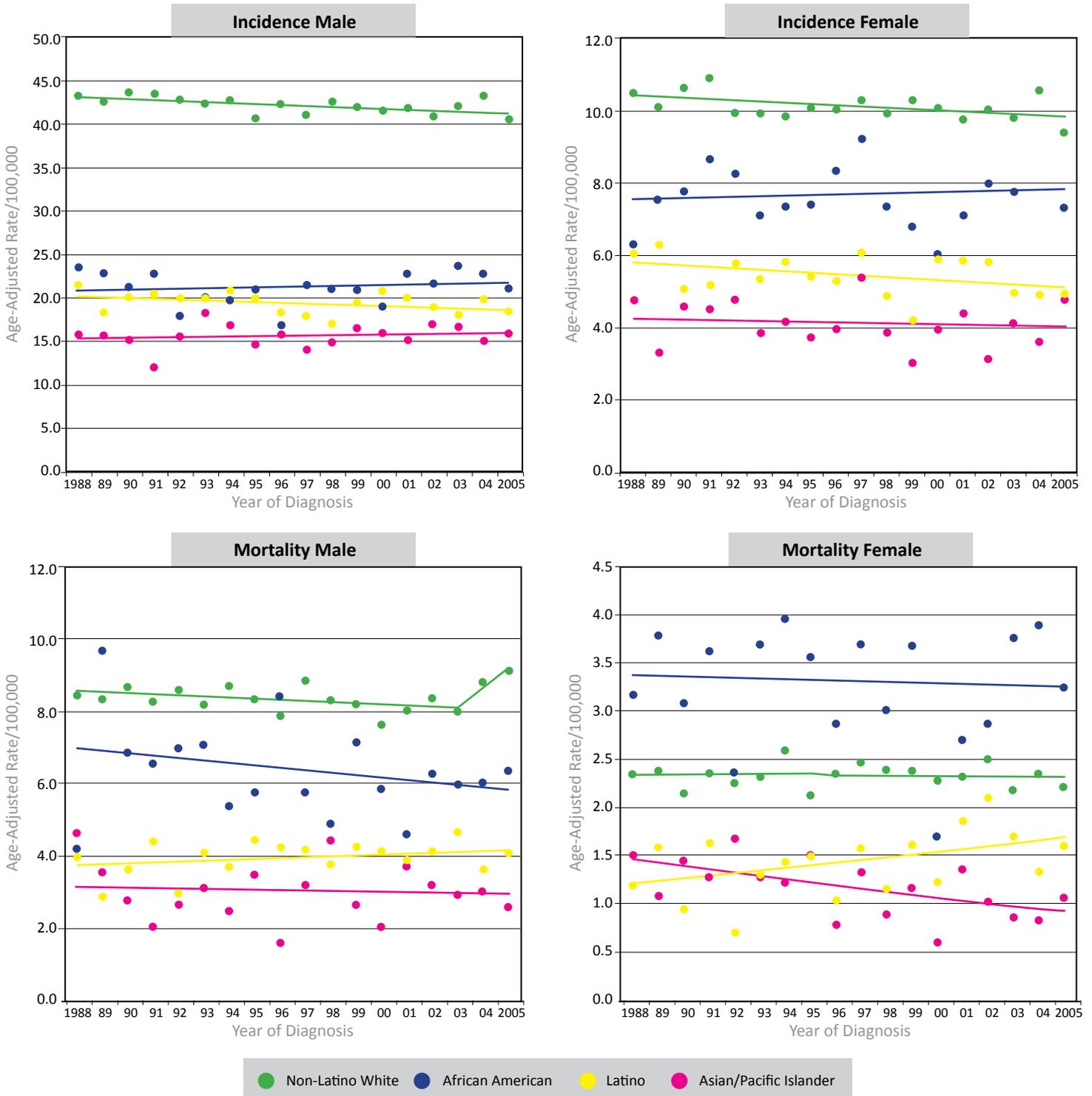
### Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Urinary Bladder (continued)

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Males	Non-Latino White	1988-2003	-5.5	-0.36	(-0.83, 0.11)	0.123
		2003-2005	13.8	6.69	(-3.26, 17.7)	0.177
	African American	1988-2005	-19.0	-1.03	(-2.86, 0.84)	0.257
	Latino	1988-2005	12.1	0.67	(-0.38, 1.74)	0.195
	Asian/Pacific Islander	1988-2005	-6.6	-0.38	(-2.80, 2.10)	0.747
Females	Non-Latino White	1988-2005	-0.8	-0.05	(-0.57, 0.47)	0.842
	African American	1988-2005	-3.4	-0.19	(-1.98, 1.63)	0.822
	Latino	1988-2005	39.9	1.99	(-0.12, 4.15)	0.063
	Asian/Pacific Islander	1988-2005	-56.1	↓ -2.66	(-4.78, 0.49)	0.020

↑ =Statistically significant increase  
↓ =Statistically significant decrease

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005: Urinary Bladder



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are age-adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

## TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

### UTERUS AND CORPUS CANCER

In California, an average of 3,750 women are diagnosed each year with uterine cancer, while 680 die each year from the disease. Endometrial cancer, or cancer that develops in the lining of the uterus, is the most common invasive cancer of the female reproductive system. The incidence of endometrial cancer is highest among white women, and the disease is usually diagnosed after menopause. The following factors may raise a woman's risk of developing uterine cancer:

- Lifetime exposure to the hormone estrogen, which is higher among women who started menstruating before age 12, had a late menopause, were never pregnant, or who received estrogen (without progesterone) replacement after menopause
- Hereditary nonpolyposis colon cancer syndrome
- Treatment with the drug tamoxifen
- Polycystic ovary syndrome
- [Obesity](#)

#### *Trends in Incidence and Mortality in California*

Between 1988 and 2005, the incidence of uterine cancer increased significantly among non-white women in California, from 0.5 percent per year among Latinas to 1.3 percent per year among Asian/Pacific Islander females. At the same time, modest but significant declines of 16 and 10 percent in uterine cancer incidence and mortality rates, respectively, were detected among white women. Despite the increase in incidence rates, mortality rates for uterine cancer among minority women did not change significantly during the period.

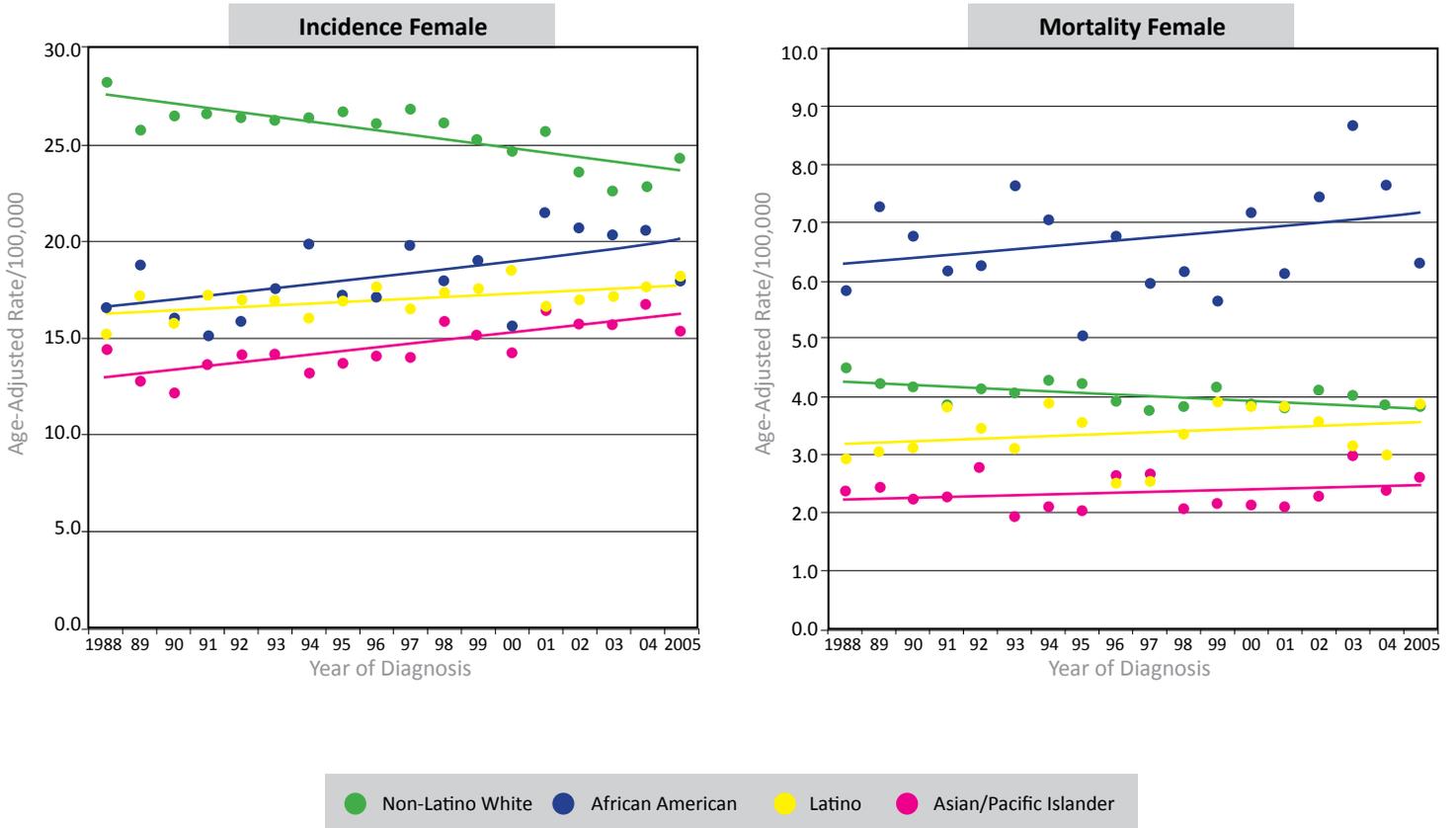
#### **Annual Percent Change (APC) and Overall Percent Change in Age-Adjusted Cancer Incidence and Mortality Rates, by Race/Ethnicity, Sex, and Time-Period: Corpus Uteri (Females)**

Sex	Race/Ethnicity	Time Period	Overall % Change	APC	95% CI	P-value
<b>INCIDENCE TRENDS</b>						
Females	Non-Latino White	1988-2005	-16.0	↓	-0.88	(-1.21, -0.54) <0.001
	African American	1988-2005	22.1	↑	1.18	(0.29, 2.08) 0.012
	Latino	1988-2005	9.4	↑	0.53	(0.15, 0.91) 0.009
	Asian/Pacific Islander	1988-2005	25.3	↑	1.34	(0.82, 1.86) <0.001
<b>MORTALITY TRENDS</b>						
Females	Non-Latino White	1988-2005	-10.1	↓	-0.57	(-0.96, -0.17) 0.008
	African American	1988-2005	13.5		0.75	(-0.51, 2.02) 0.226
	Latino	1988-2005	11.4		0.64	(-0.71, 2.00) 0.331
	Asian/Pacific Islander	1988-2005	10.7		0.60	(-0.65, 1.86) 0.326

↑ =Statistically significant increase  
 ↓ =Statistically significant decrease

TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

Trends in Age-Adjusted Incidence and Mortality Rates by Race/Ethnicity in California, 1988-2005:  
Urinary Bladder



Note: *In situ* cancers are excluded, unless specified. Race/ethnicity categories are mutually exclusive. Persons of Latino ethnicity may be of any race. Rates are adjusted to the 2000 U.S. population.

Source: California Cancer Registry, California Department of Public Health.  
Prepared by the California Department of Public Health, Cancer Surveillance Section.

**Section 2**

**Trends in Specific Cancer Risk Factors and Health Behaviors by Sex and Race/Ethnicity**

Section 2 presents trends in selected risk factors for cancer, health behaviors, and cancer screening, obtained from telephone surveys conducted within California: the California Behavioral Risk Factor Survey, the California Women's Health Survey, and the California Adult Tobacco Survey. Whenever possible, information is presented for the four major racial/ethnic groups in the State: white, African American, Asian/Other, and Latino. Asian/Other category includes American Indian/Alaska Native, Asian/Pacific Islander and multiracial/other racial/ethnic groups. Because small sample sizes decrease the reliability of estimates, if there were less than 30 respondents in any group, information was collapsed into white and non-white only.

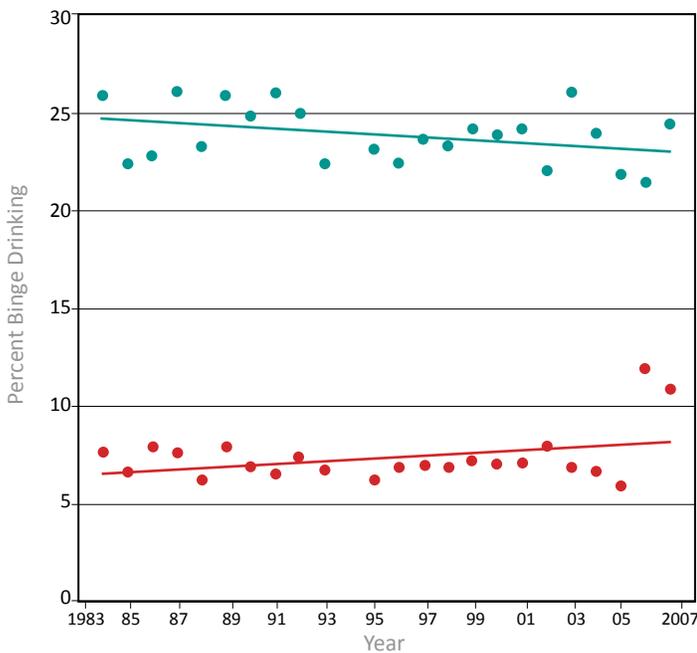
For each factor or behavior, a brief description of the main findings is presented, together with graphs showing the prevalence for that factor in the year during which the survey was conducted. Within each graph, solid lines represent the trend that best fits the data, while dots represent the observed percentage of persons in that category.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

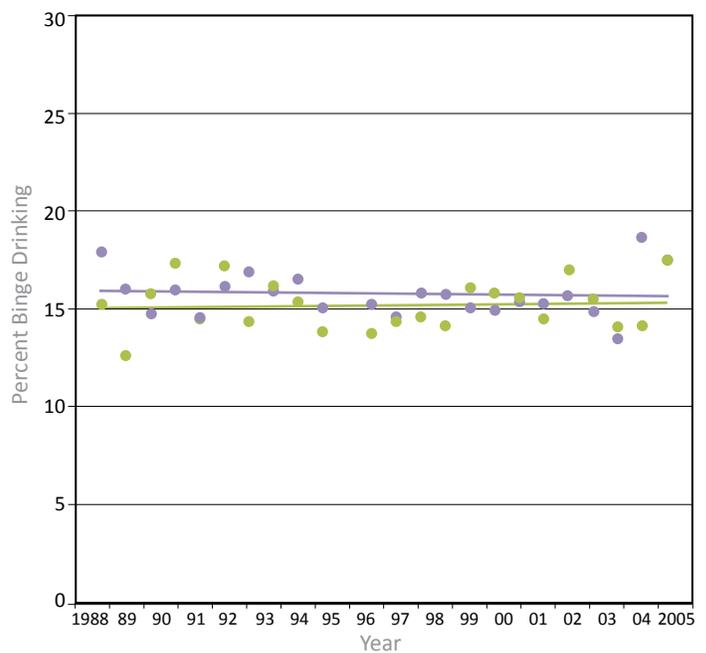
## BINGE DRINKING

Based on the California Behavioral Risk Factor Survey the percent of California adults engaging in binge drinking (defined as five or more drinks per day) between 1984 and 2007 appeared to remain fairly steady, despite some variation. Binge drinking occurred far more frequently among males than females. However, the frequency of binge drinking among white and non-white Californians appeared to be similar. Because the definition of female binge drinking changed in 2006, from five to four or more drinks per day, trends for females were only evaluated from 1987 through 2005. None of the trends among white and non-white or among males and females were significant. Consistent use of alcohol is linked to [breast](#), [esophagus](#), [larynx](#), [liver](#), [oral cavity & pharynx](#), and [stomach cancer](#).

**Percent of California Adults Binge Drinking in the Past Month by Sex: 1984-2007 CBRFS**



**Percent of California Adults Binge Drinking in the Past Month by Race/Ethnicity: 1984-2007 CBRFS**



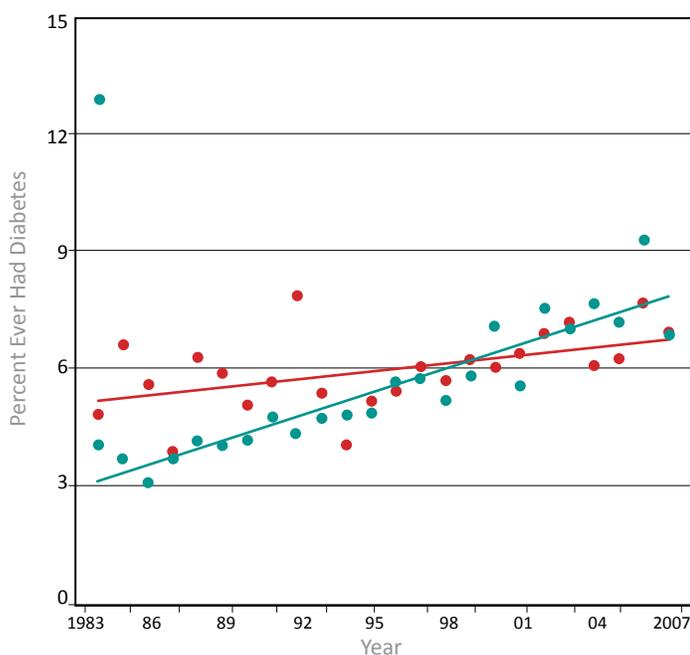
Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

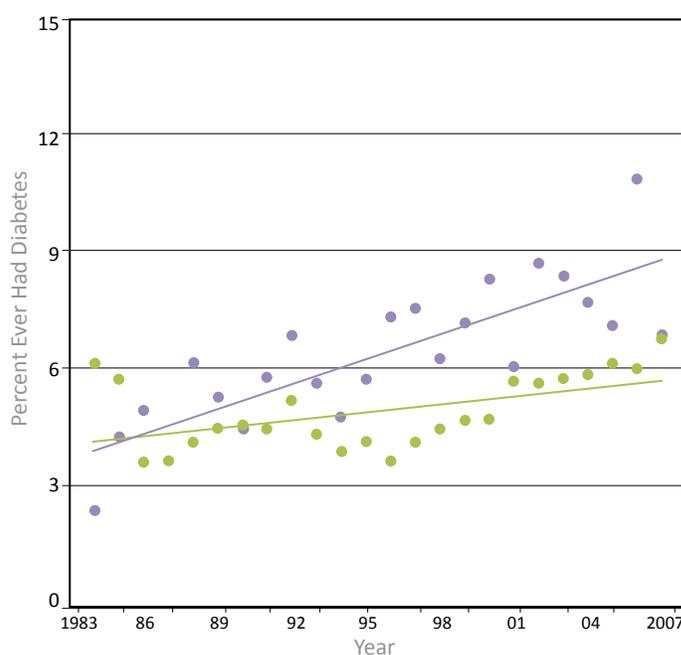
## DIABETES

According to the California Behavioral Risk Factor Survey, there was a significant increase among whites and non-whites in the percent of California adults ever diagnosed with diabetes between 1984 and 2007. The trend among non-whites, which increased from 2.5 to 7.0 percent, was steeper than the trend among whites, which increased from 6.2 to 6.8 percent. The increase among males, from 4.0 percent to 6.9 percent, was also significant but the increase among females, which was not as steep (4.8 to 6.9 percent) was not significant. There was also more variation in the estimates among females. Long term diabetes increases the risk for [pancreatic cancer](#).

**Percent of California Adults Who Were Ever Diagnosed With Diabetes by Sex, 1984-2007 CBRFS**



**Percent of California Adults Who Were Ever Diagnosed With Diabetes by Race/Ethnicity, 1984-2007 CBRFS**



Note: Data are weighted to the 2000 California population.

Source: California Behavioral Risk Factor Survey.

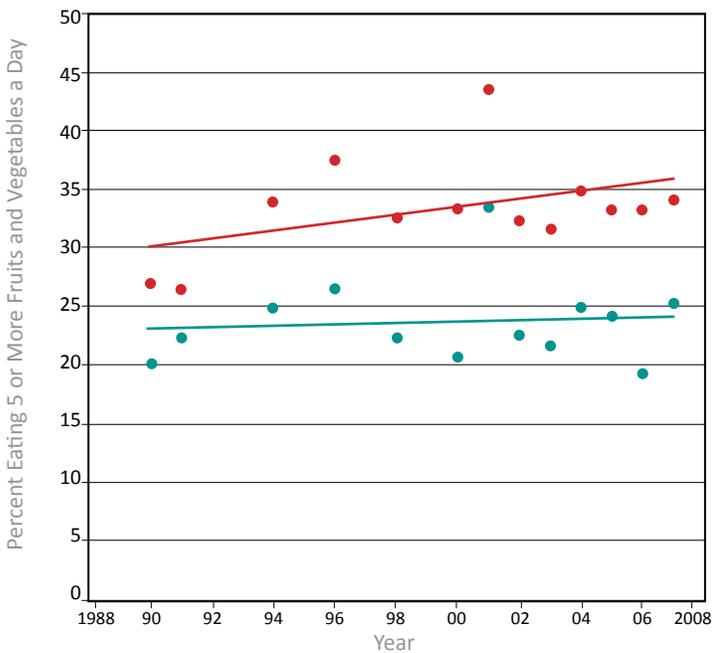
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

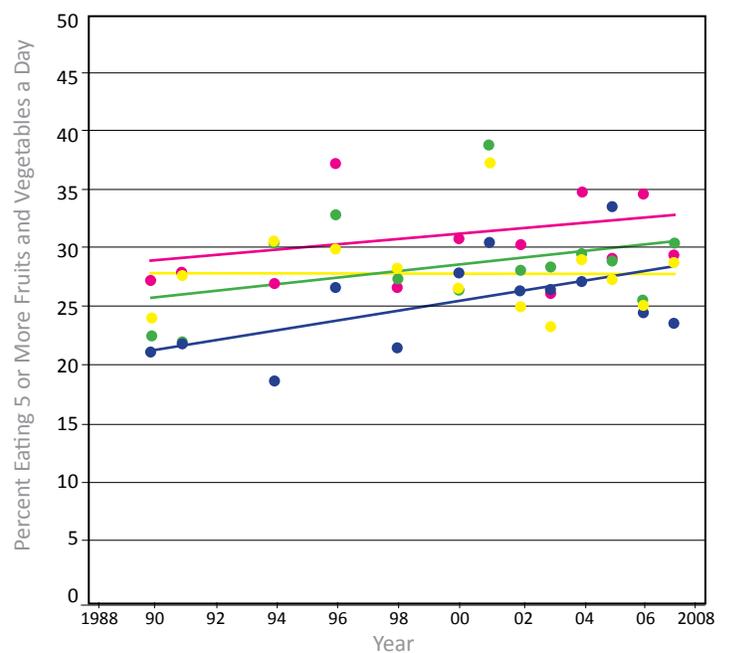
## FRUITS AND VEGETABLES CONSUMPTION

According to the California Behavioral Risk Factor Survey, there was a significant increase in the percent of California adults eating five or more fruits and vegetables a day for males and females between 1990 and 2007. The incline for females (26.9 percent to 34.1 percent) was steeper than for males (20.1 percent to 25.2 percent) and rates for females were consistently higher than for males. There was also a significant increase for whites, Latinos, and Asian/Others but not for African Americans. Rates for African Americans (21.4 to 23.8 percent) tended to be lower than rates for whites (22.7 to 30.5 percent), Latinos (24.3 to 28.9 percent) and Asian/Other (27.5 to 29.6 percent). However, there was a lot of variation in the estimates. Although the consumption of fruits and vegetables does not protect a person against cancer, a healthy diet has been linked to a lower risk of cancer and other diseases.

**Percent of California Adults who Ate 5 or More Fruits and Vegetables a Day by Sex: 1990-2007 CBRFS**



**Percent of California Adults Who Ate 5 or More Fruits and Vegetables a Day by Race/Ethnicity: 1990-2007 CBRFS**

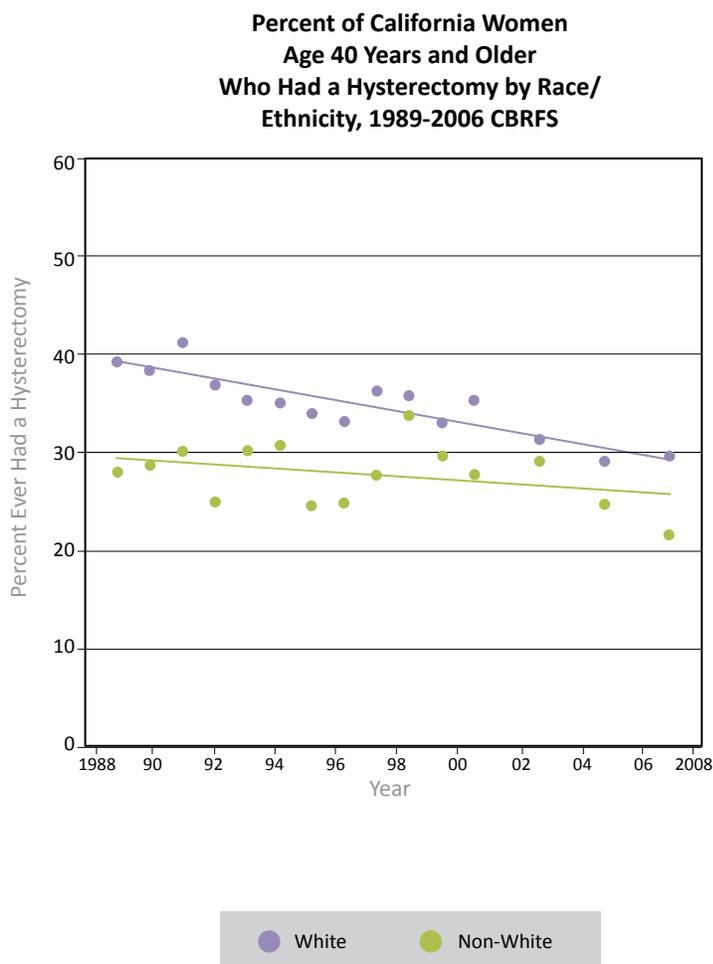


Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## HYSTERECTOMY

Women who had a hysterectomy may have a lower risk of developing [ovarian cancer](#). According to the California Behavioral Risk Factor Survey, the percent of California women aged 40 years and older that had a hysterectomy at some time in their life has steadily declined since 1989. Among whites it declined from 39.2 percent in 1989 to 28.6 percent in 2006. Among African Americans it went from 28 percent in 1989 to 21.7 percent in 2006. The decreasing trend was significant among whites but not among non-whites. Rates for whites were consistently higher than rates for non-whites.



Note: Data are weighted to the 2000 California population.

Source: California Behavioral Risk Factor Survey.

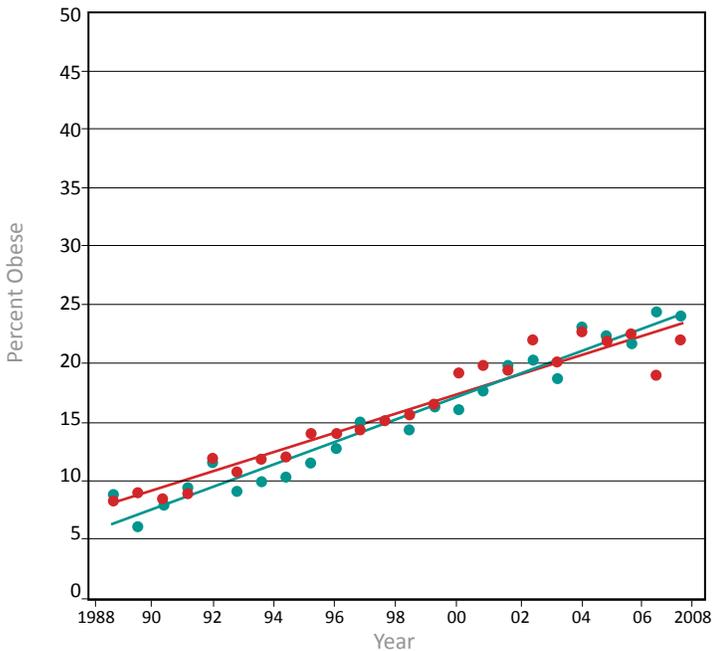
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

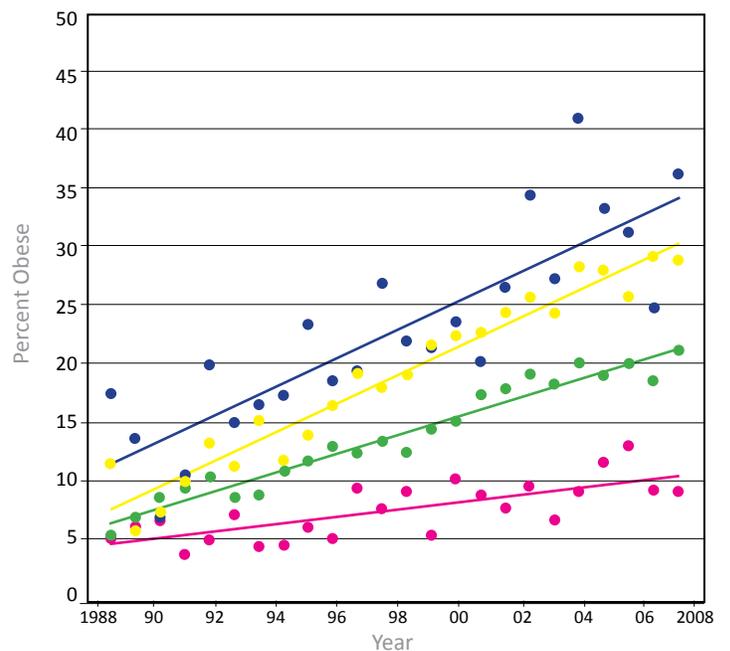
## OBESITY

The Body Mass Index (BMI), a measure that relates a person's weight to height, is commonly used to evaluate obesity. BMI is defined as  $[\text{weight (lb)} * 703 / \text{Height}^2 (\text{in}^2)]$ ; persons with a BMI greater than or equal to 30 are considered obese. Data from the California Behavioral Risk Factor Survey detected a significant increase between 1984 and 2007 in the percent of California adults who are obese. The trend for males was almost identical to the trend for females. The rates for females increased from 8.9 percent in 1989 to 24.0 percent in 2006. The rates for males increased from 8.3 percent in 1989 to 22.1 percent in 2006. There was also a significantly increasing trend among whites, African Americans, and Latinos. The trend for African Americans, from 17.7 to 36.4 percent, was higher than the trend for Latinos, from 11.7 to 28.1 percent. The trend for whites, from 5.6 to 21.4 percent, was less steep and lower than the trend for Latinos. Obesity is linked to cancer of the [breast](#), [esophagus](#) (adenocarcinoma), [kidney](#), [ovary](#), and [uterus](#).

**Percent of California Adults Who Were Obese by Sex: 1984-2007 CBRFS**



**Percent of California Adults Who Were Obese by Race/Ethnicity: 1984-2007 CBRFS**



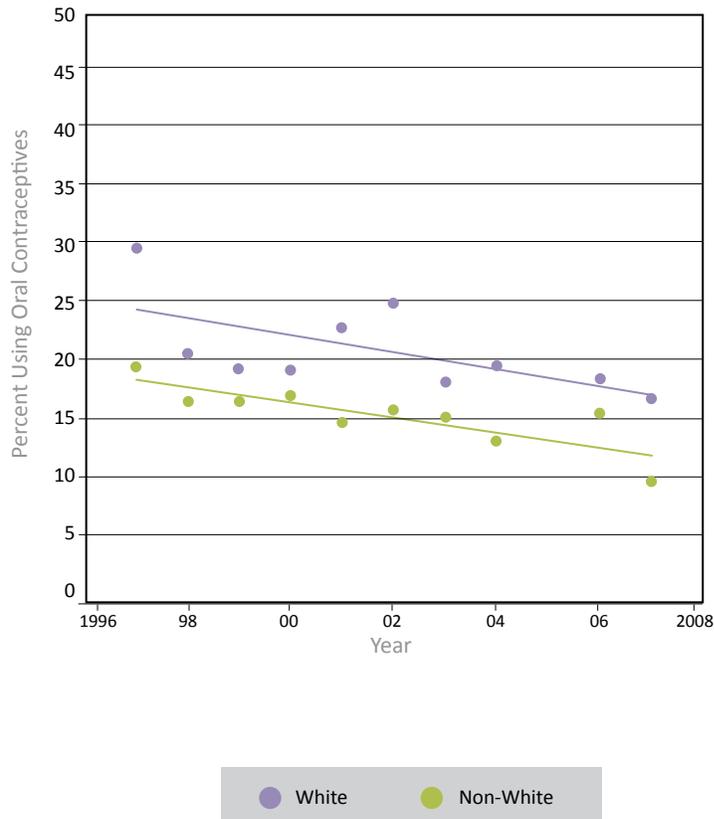
Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## ORAL CONTRACEPTIVE USE

Use of oral contraceptives is linked to a lower risk of [ovarian cancer](#). Based on information from the California Women's Health Survey, there was a significant decrease in the percent of California white and non-white women less than 50 years old who reported current use of oral contraceptives between 1997 and 2007. Rates among whites declined from 30.2 percent in 1997 to 17.3 percent in 2007. Rates among non-white women declined from 20.1 percent to 10.5 percent. Rates of oral contraceptive use among whites were consistently higher than rates among non-whites.

**Percent of California Women Less Than 50 years of Age Who Currently Use Oral Contraceptives by Race/Ethnicity: 1997-2007 CWHS**



Note: Data are weighted to the 2000 California population.

Source: California Women's Health Survey.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

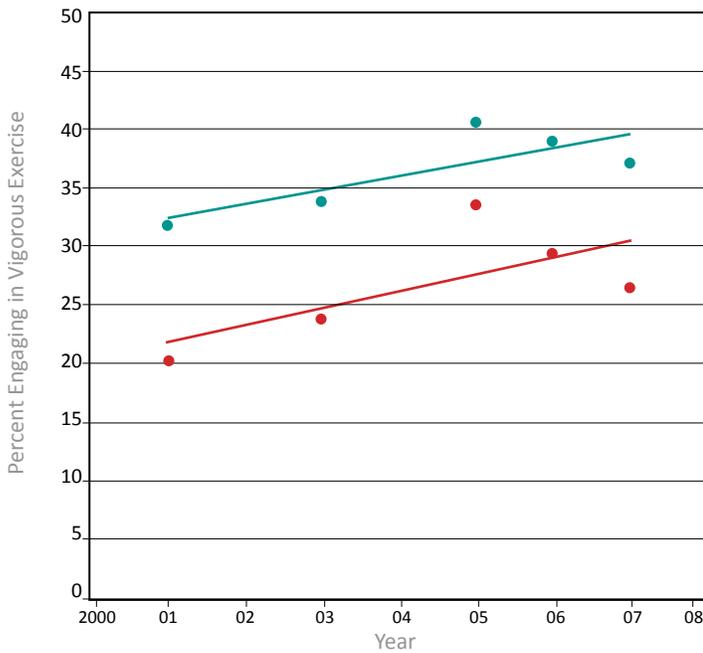
## PHYSICAL ACTIVITY

### Vigorous Exercise

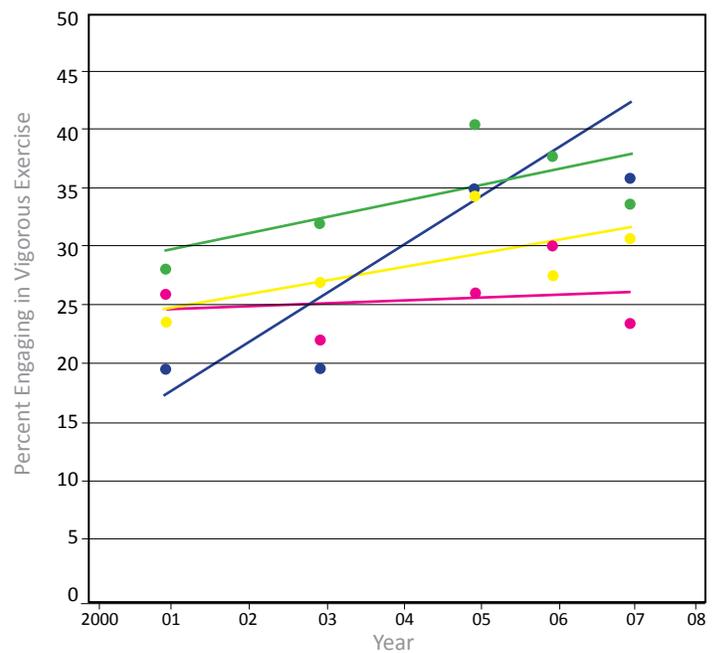
Based on information from the California Behavioral Risk Factor Survey, there was an increasing trend in the percent of California adults engaged in vigorous exercise for 20 or more minutes a day, three or more times a week, for both males and females from 2001 to 2005, but after 2005, there was a slight decrease. The trend for males was lowest in 2001 at 28.4 percent, highest in 2005 at 40.6 percent, and 37.3 percent in 2007. For females it was lowest in 2001 at 20.6 percent, highest in 2005 at 29.6 percent, and 26.7 percent in 2007. Among whites and Latinos the pattern was similar for males and females, with the highest percent in 2005 (40.6 percent for whites and 34.5 percent for Latinos) while the highest percent for African Americans was 47.9 percent in 2006. The overall trend was significant between 2001 and 2007 for males, females, whites, African Americans, and Latinos. The trend for whites was consistently higher than the trend for Latinos and the trend for Asian/Other.

These results indicate that the message to exercise is not reaching all racial/ethnic groups. This is of concern since a sedentary life style is associated with many diseases. Several studies suggest that exercise can lower the risk of [breast cancer](#). Also, as part of a healthy lifestyle, exercise can help reduce the risk of cancer and other diseases.

**Percent of California Adults Who Engaged in Vigorous Exercise (20 or More Minutes 3 or More Times a Week) by Sex: 1984-2007 CBRFS**



**Percent of California Adults Who Engaged in Vigorous Exercise (20 or More Minutes, 3 or More Times a Week) by Race/Ethnicity: 2001-2007 CBRFS**



Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

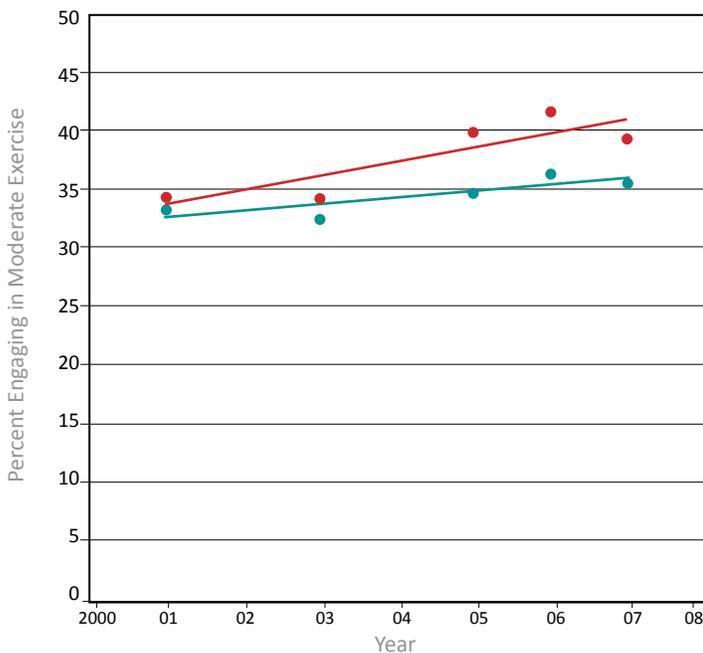
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## PHYSICAL ACTIVITY (continued)

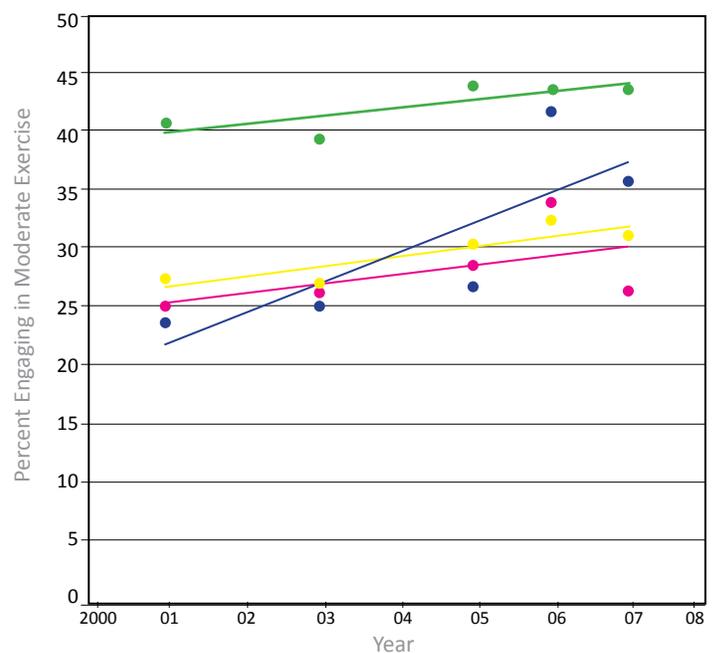
### Moderate Exercise

According to the California Behavioral Risk Factor Survey, between 2001 and 2007 there was a significant increase from 34.5 to 39.5 percent of California adult women engaging in moderate exercise five or more days a week for 30 or more minutes a day. However, among men, the increase from 33.5 to 35.7 was not significant. Rates were consistently higher among women than men. Rates were higher among whites than in any other racial/ethnic group. Although the trends for each race/ethnicity appear to be increasing, trends by race/ethnicity were not significant. These results also indicate that the message to exercise is not reaching all racial/ethnic groups equally.

**Percent of California Adults Who Engaged in Moderate Exercise (5 or More Days a Week, for 30 or More Minutes) by Sex: 2001-2007 CBRFS**



**Percent of California Adults Who Engaged in Moderate Exercise (5 or More Days a Week, for 30 or More Minutes) by Race/Ethnicity: 2001-2007 CBRFS**



Note: Data are weighted to the 2000 California population.

Source: California Behavioral Risk Factor Survey.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

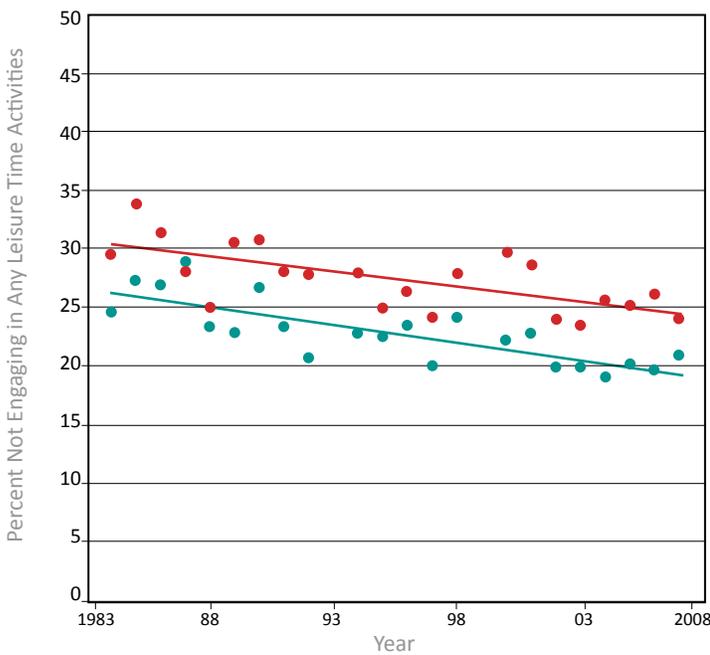
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## PHYSICAL ACTIVITY (continued)

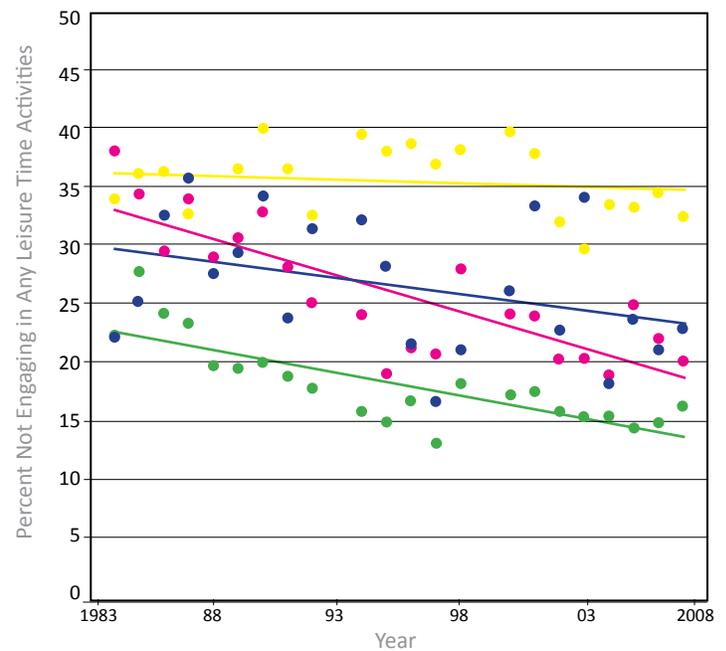
### Lack of Leisure Time Activities

A sedentary life is associated with many diseases and higher mortality. According to the California Behavioral Risk Factor Survey, the percent of California adults who did not engage in any leisure time activities has decreased from 1984 to 2007. The decreasing trend was significant for males and for females. Rates for males were 24.7 percent in 1984 and 21.0 percent in 2007. Rates for females, which were consistently higher than rates for males, were 29.6 percent in 1984 and 24.1 percent in 2007. The trend was also significant for each race/ethnicity; white, African American, Latino, and Asian/Other. Rates for whites tended to be lower than all other racial/ethnic groups. Rates for Latinos were the highest and the trend was the least steep. These results, together with those for moderate and vigorous exercise, demonstrate the importance that the message of an active lifestyle reaches all racial/ethnic groups equally.

**Percent of California Adults Who Did Not Engage in Any Leisure Time Activities by Sex: 1984-2007 CBRFS**



**Percent of California Adults Who Did Not Engage in Any Leisure Time Activities by Race/Ethnicity: 1984-2007 CBRFS**



Note: Data are weighted to the 2000 California population.

Source: California Behavioral Risk Factor Survey.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

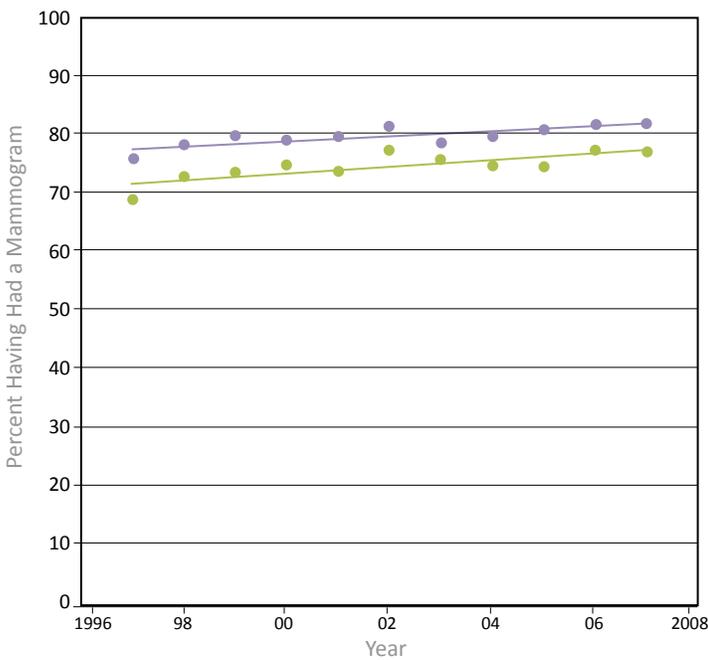
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## BREAST CANCER SCREENING

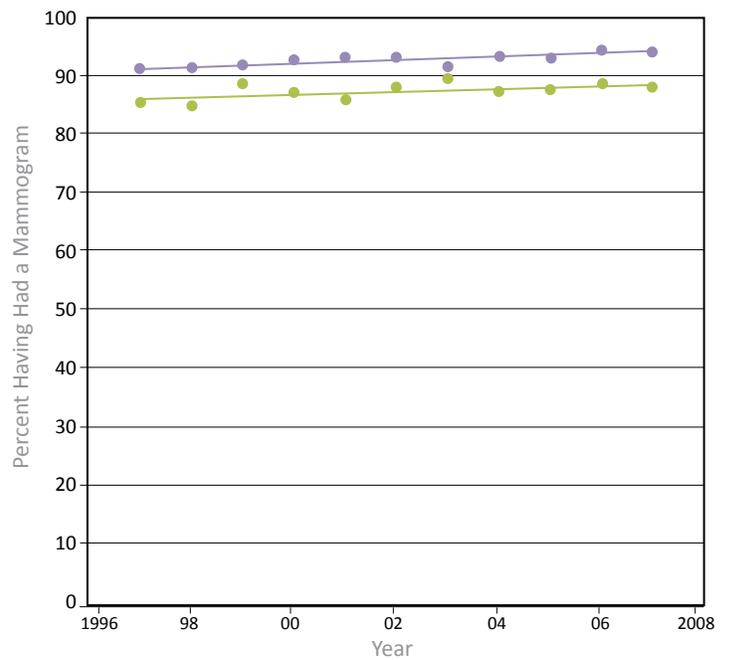
### Mammogram

According to the California Women’s Health Survey, between 1997 and 2007, the percent of California women age 40 years and older who had a mammogram in the past two years significantly increased among whites from 75.8 percent to 81.9 percent; among non-whites, the increase was from 69.0 percent to 77.0 percent. There was also a significant increase (from 91.2 percent to 94.4 percent) in the percent of whites that ever had a mammogram, but for non-whites the increase was not significant. Rates for whites were consistently higher than for non-whites for ever having a mammogram and for having a mammogram in the past 2 years. Mammograms can detect [breast cancer](#) at earlier stages when prognosis is better. However, these results indicate that this message may not be reaching all racial/ethnic groups equally.

**Percent of California Women Aged 40 Years and Older Who Had a Mammogram in the Past Two Years by Race/Ethnicity: 1997-2007 CWHS**



**Percent of California Women Aged 40 and Older Who Ever Had a Mammogram by Race/Ethnicity: 1997-2007 CWHS**



● White ● Non-White

Note: Data are weighted to the 2000 California population.  
 Source: California Women’s Health Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

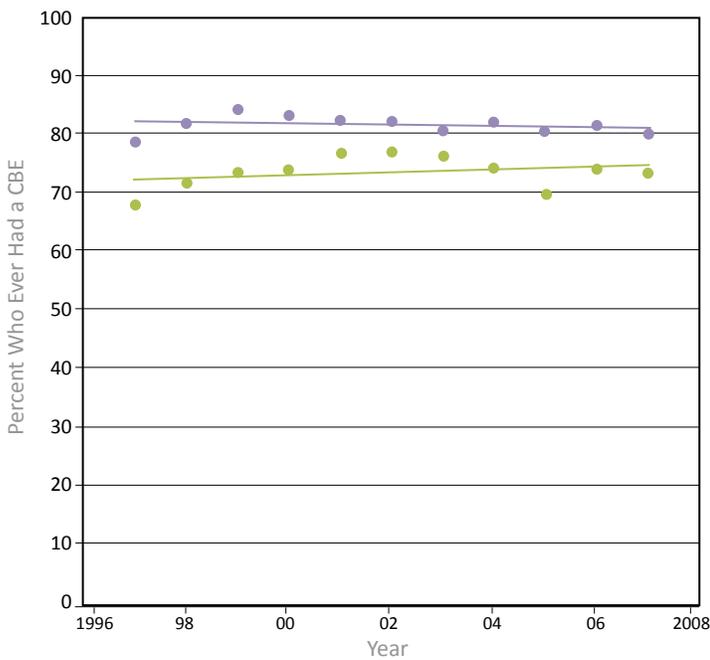
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## BREAST CANCER SCREENING (continued)

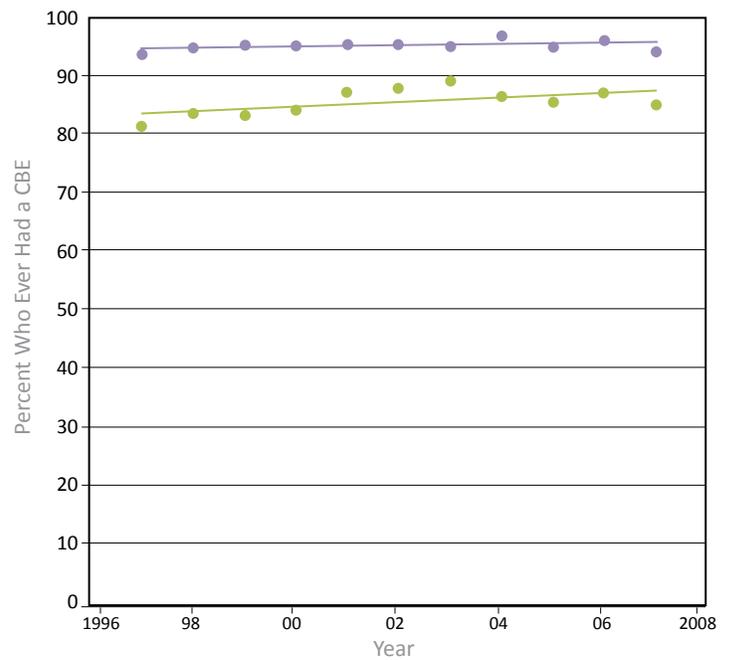
### Clinical Breast Exam (CBE)

Based on information from the California Women’s Health Survey, there was a significant change between 1997 and 2007 in the percent of California women age 40 years and older who ever had a CBE and who had a CBE in the past two years for whites and non-whites. The percent ever having a CBE was lowest in 1997 at 93.9 percent and highest in 2004 at 96.9 percent. For non-whites the percent was lowest in 1997 at 81.6 percent and highest in 2003 at 89.0 percent. Among whites, the percent having a CBE in the past two years was lowest in 1997 at 78.6 percent and highest in 1999 at 84.1 percent. Among non-whites it was lowest in 1997 at 67.7 percent and highest in 2002 at 76.8 percent. Rates for whites were consistently higher than the rates for non-whites for having a CBE in the past two years and ever having a CBE. Clinical Breast Exams can aid in detecting breast cancer at earlier stages, and these results underscore the importance of having this message reach women of all racial/ethnic backgrounds.

**Percent of California Women Aged 40 and Older Who Had a Clinical Breast Exam (CBE) in the Past Two Years: 1997-2007 CWHS**



**Percent of California Women Aged 40 and Older Who Ever Had a Clinical Breast Exam (CBE) by Race: 1997-2007 CWHS**



● White ● Non-White

Note: Data are weighted to the 2000 California population.  
 Source: California Women’s Health Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

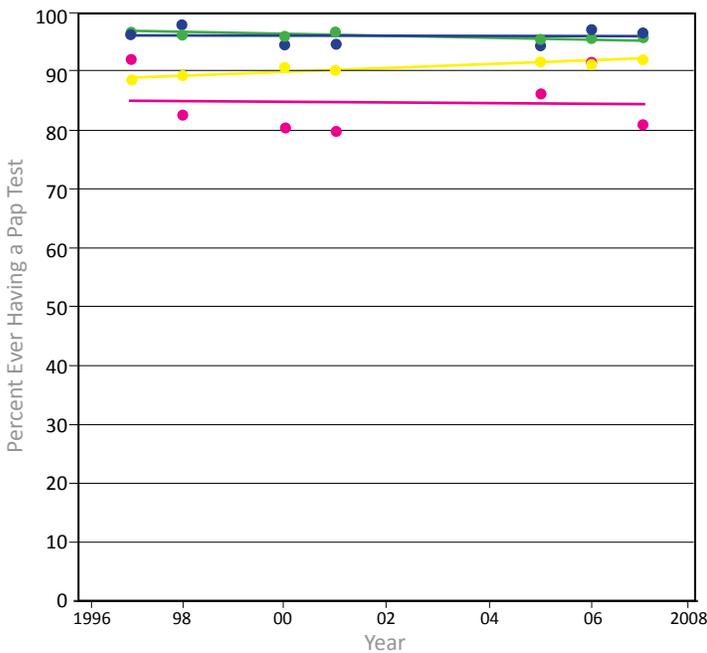
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## CERVICAL CANCER SCREENING

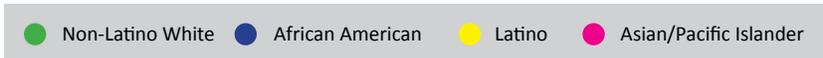
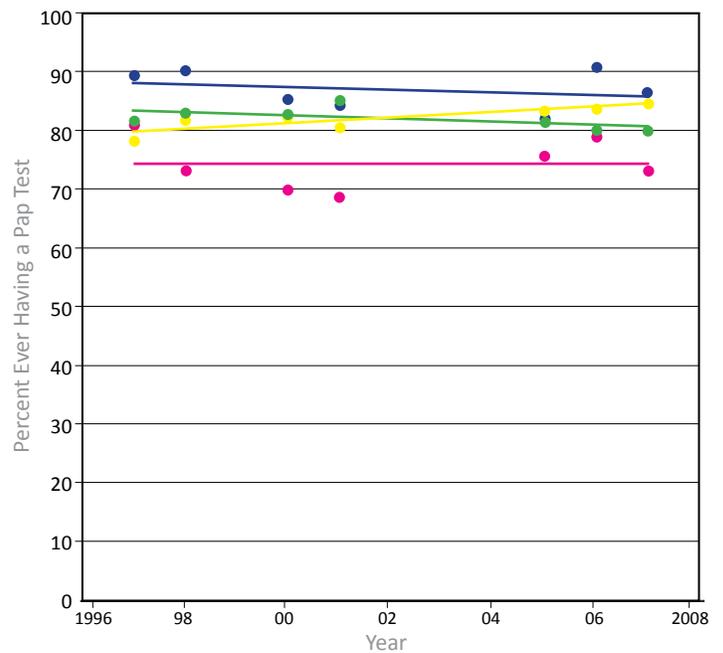
### Pap Smear

According to the California Women’s Health Survey, the percent of women who had a Pap test in the past three years and the percent who ever had a Pap test significantly increased among Latinos, from 78.2 percent to 84.6 percent from 1997 to 2007. However, among whites there was a significant decrease in the percent that had a Pap test in the past three years and no significant change in the percent ever having a Pap test. Among African Americans, there was no significant change in the percent ever having a Pap test or having a test in the past three years. Although there was a significant change for Asian/Other racial ethnic groups in the percent having a Pap test in the past 3 years and ever having a Pap, there was so much variation in these estimates that no real trend appears to exist. Rates for Asian/Others were generally lower than rates for whites, Latinos or African Americans. Routine screening with a Pap test can prevent cervical cancer through detection and treatment of lesions before they become malignant.

**Percent of California Women Who Ever Had a Pap Test by Race/Ethnicity: 1997-2007 CWHS**



**Percent of California Women Who Have Had a Pap Test Within the Past 3 Years by Race/Ethnicity: 1997-2007 CWHS**



Note: Data are weighted to the 2000 California population.

Source: California Women’s Health Survey.

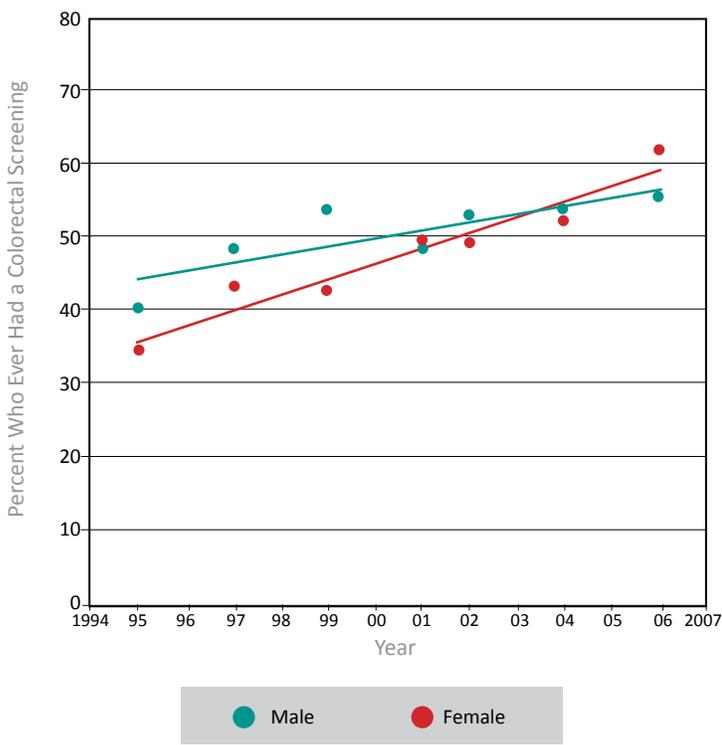
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

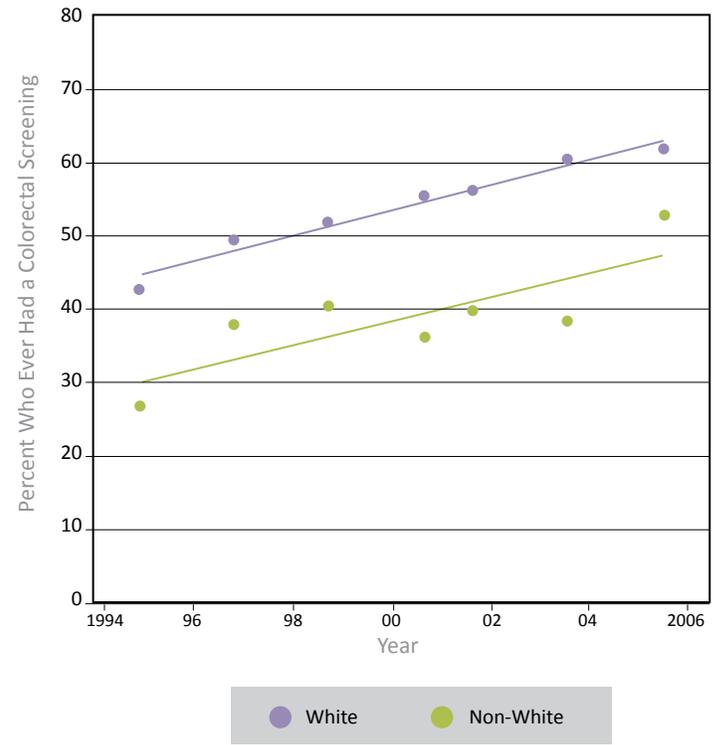
## COLORECTAL CANCER SCREENING

Colorectal screening can prevent cancer by detecting and removing lesions before they become malignant. Based on the California Behavioral Risk Factor Survey, there has been a significant increase in the percent of California adults (aged 40 years and older) who ever had a colorectal screening and who had a screening in the past five years by race and sex. The percent who ever had a colorectal screening increased from 40.5 in 1996 to 55.8 in 2006 among males and from 34.9 in 1996 to 62.0 among females. In this same time period the percent who had a screening in the past 5 years increased from 31.2 to 47.2 among males, and from 23.7 to 51.0 among females. The trends for females were steeper than the trends for males but rates for females were lower than for males until 2006, when the rate among females was higher than among males for both having a colorectal screening in the past 5 years and for ever having a colorectal screening. Between 1996 and 2006, rates for whites increased from 43.1 to 62.0 percent for ever having a screening and from 32.7 to 50.7 percent for ever having a screening in the past 5 years. Rates for non-whites increased from 31.8 to 61.3 percent for ever having a screening and from 18.2 to 46.0 for having a screening in the past five years. Rates for non-whites were consistently lower than for whites.

**Percent of California Adults Aged 40 Years and Older Who Ever Had a Colorectal Screening (Endoscopy) by Sex: 1995-2006 CBRFS**



**Percent of California Adults Aged 40 Years and Older Who Ever Had a Colorectal Screening (Endoscopy) by Race/Ethnicity: 1995-2006 CBRFS**



Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

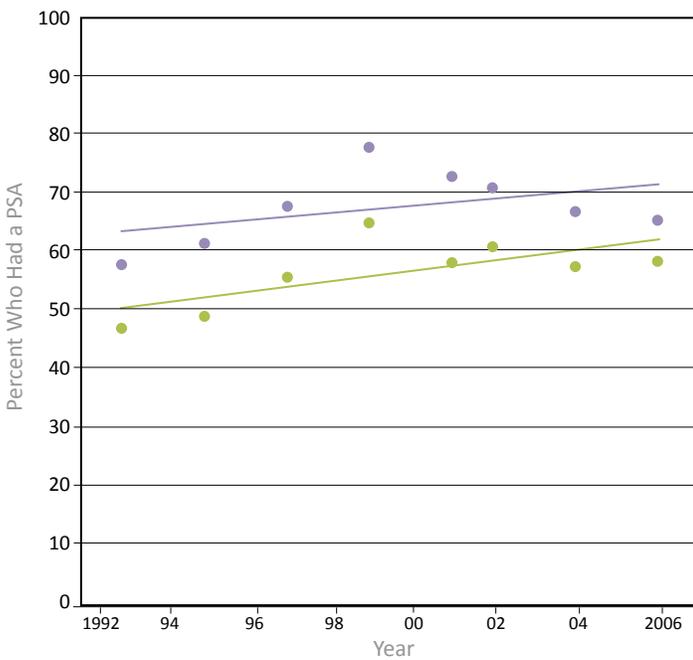
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## PROSTATE CANCER SCREENING

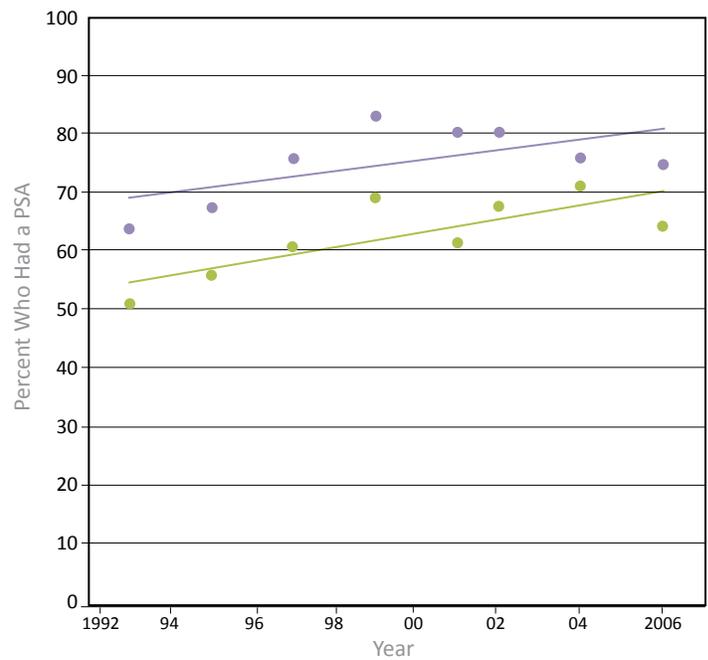
### Prostate Specific Antigen (PSA) Test

Based on the California Behavioral Risk Factor Survey between 1993 and 1999 there was a significant increase in the percent of adult white California men who had a PSA test within the last two years (57.8 to 77.9 percent) and the percent who ever had a PSA (47.1 to 58.5 percent). After 1999 there was a decline in these rates. For non-whites there was no significant increase in the percent reporting a PSA in the last two years or the percent reporting ever having a PSA. However, similar to whites, the percent that had a PSA in the last two years was highest in 1999. Rates for whites were consistently higher than for non-whites, both for reporting a PSA in the last two years and for ever having had a PSA.

**Percent of California Men Aged 50 and Older Who Had a Prostate Specific Antigen (PSA) Test Within the Last Two Years by Race/Ethnicity: 1993-2006 CBRFS**



**Percent of California Men Aged 50 Years and Older Who Ever Had a Prostate Specific Antigen (PSA) Test by Race/Ethnicity: 1993-2006 CBRFS**



● White ● Non-White

Note: Data are weighted to the 2000 California population.

Source: California Behavioral Risk Factor Survey.

Prepared by the California Department of Public Health, Cancer Surveillance Section.

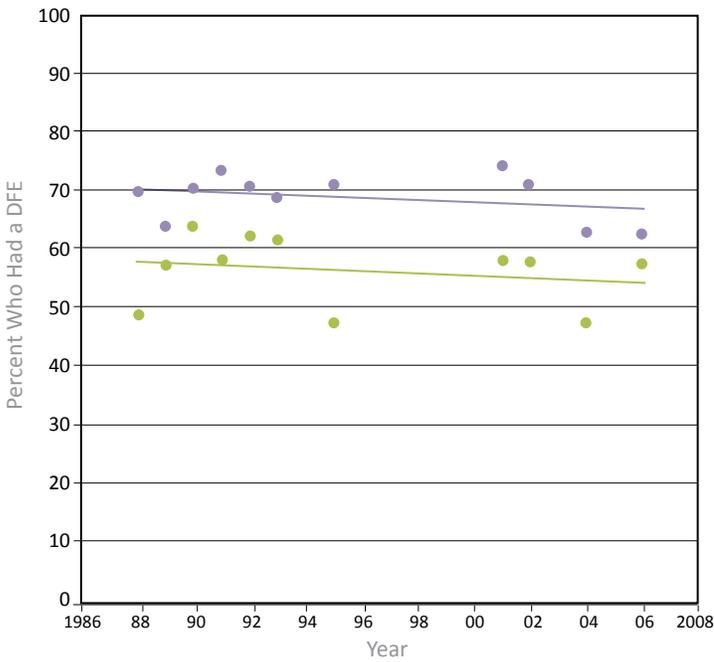
# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

## PROSTATE CANCER SCREENING

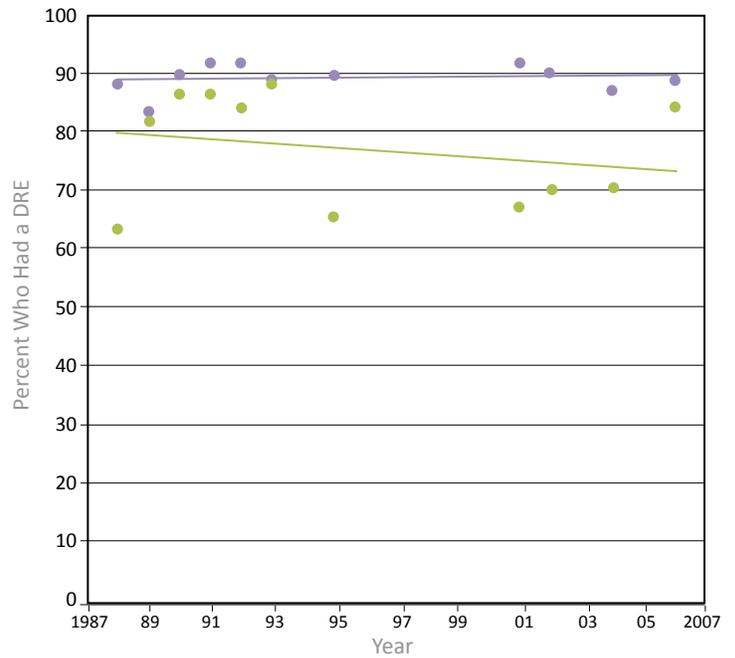
### Digital Rectal Exam (DRE)

A DRE is performed to check for growths in, or enlargement of, the [prostate](#). According to the California Behavioral Risk Factor Survey, there was a significant decrease in the percent of white men who had a DRE in the last two years, from 70.0 percent in 1988 to 62.8 percent in 2006. There was a significant change between 1988 and 2006 in the percent of non-white California men ever having a DRE. However, there was too much variation in the estimates to indicate any clear trend. DRE rates among whites were generally higher than among non-whites.

**Percent of California Men Aged 50 and Older Who Had a Digital Rectal Exam (DRE) in the Last Two Years by Race/Ethnicity: 1988-2006 CBRFS**



**Percent of California Men Aged 50 Years and Older Who Ever Had A Digital Rectal Exam (DRE) by Race/Ethnicity: 1988-2006 CBRFS**



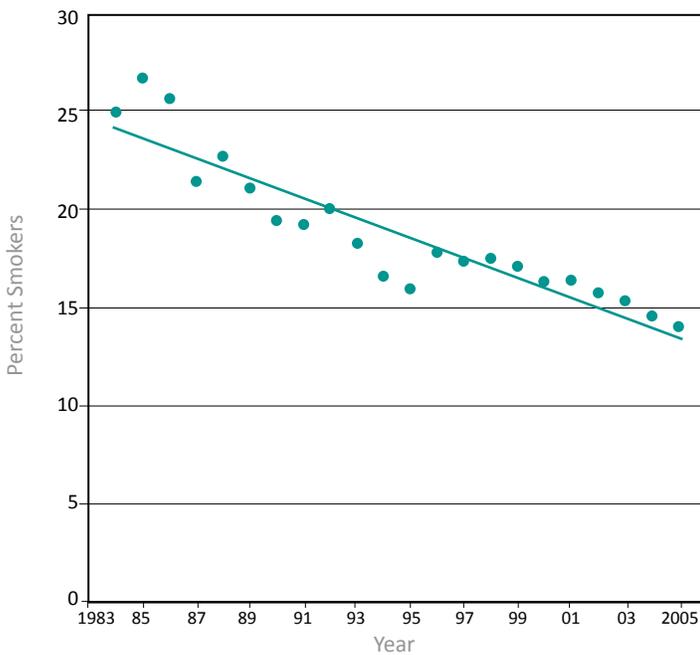
Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

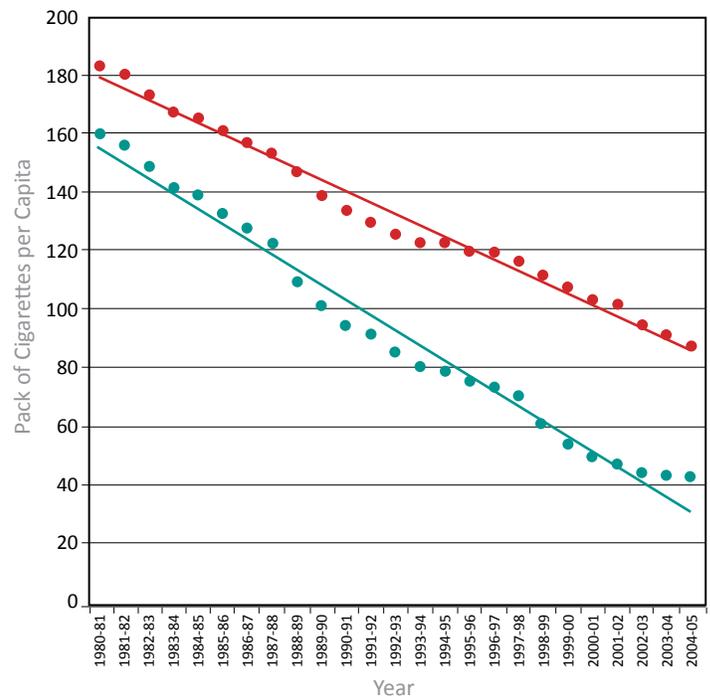
## SMOKING

Due to efforts to reduce smoking in California, overall smoking prevalence among California adults has declined. According to the California Adult Tobacco Survey, smoking prevalence had declined by 33.6 percent from 21.1 percent in 1989 to 14.0 percent in 2005. The decline was most dramatic from 1989 to 1994; the rebound in prevalence in 1996 is likely an artifact of the change adopted in the definition of “current smoker”: before 1996, persons who reported smoking at least 100 cigarettes in their life and reported smoking now were considered “current smokers”. After 1996, possible answers to the question “do you smoke now?” changed from “yes” or “no” to “everyday”, “some days”, and “not at all”, with the first two choices characterizing a person as smoking now. Although smoking prevalence has declined among all racial/ethnic groups, there are significant differences in smoking prevalence between these groups. African Americans had consistently higher smoking prevalence rates than other major racial/ethnic groups among males and among females.

**Percent of California Adults Who Were Smokers: 1984-2005 CBRFS and CATS**



**California and U. S. (Minus California) Adult Per Capita Cigarette Pack Consumption, 1980-2005 CATS**



● California ● US

Note: Data are weighted to the 2000 California population.  
 Source: California Behavioral Risk Factor Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

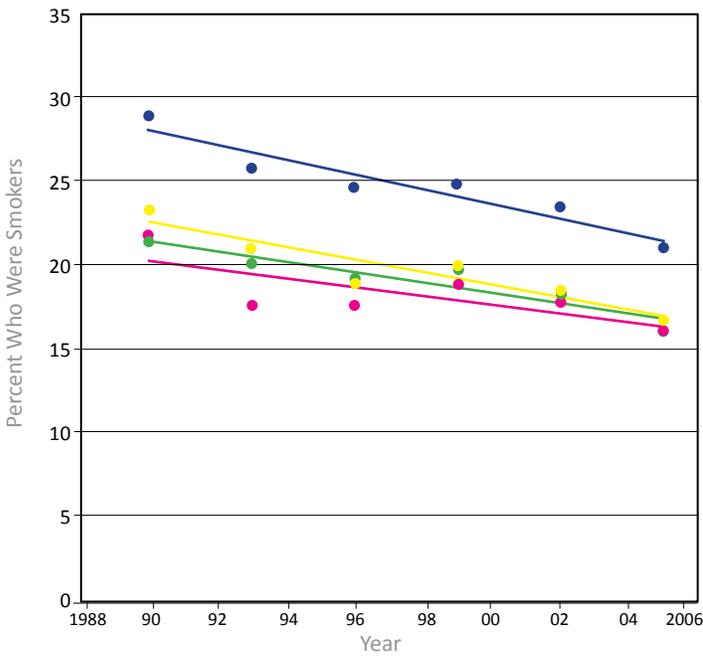
Note: Data are weighted to the 1990 California population.  
 Source: California Adult Tobacco Survey.  
 Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

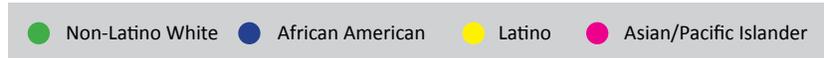
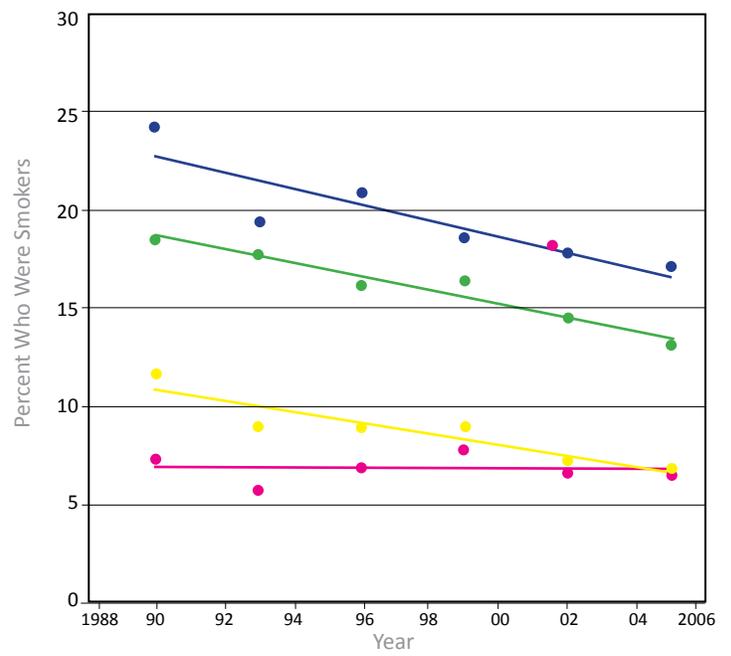
## SMOKING (continued)

There was a downward trend in per capita cigarette consumption from fiscal year 1989-1990 to fiscal year 2004-2005. Per capita cigarette consumption declined by nearly 60 percent in California while per capita consumption for the entire U.S. declined by 36.7 percent during the same time period. Per capita cigarette consumption in California was the lowest of any state in the nation during the 2004-2005 fiscal year. Tobacco use is linked to [lung](#), [colorectal](#), [esophagus](#), [kidney](#), [larynx](#), [oral cavity & pharynx](#), [pancreatic](#), [stomach](#) and [bladder cancer](#).

**Percent of Adult California Males Who Were Smokers by Race/Ethnicity: 1990-2005 CATS**



**Percent of Adult California Females Who Were Smokers by Race/Ethnicity: 1990-2005 CATS**



Note: Data are weighted to the 1990 California population.

Source: California Adult Tobacco Survey.

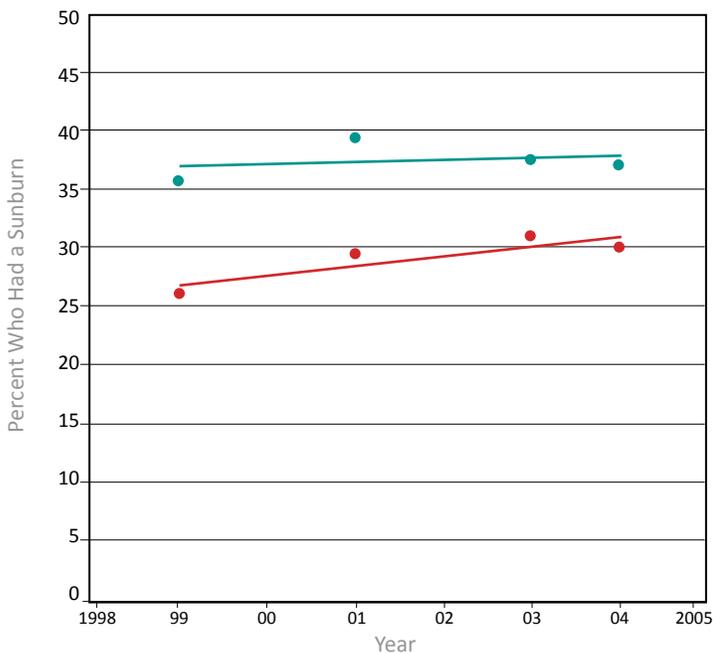
Prepared by the California Department of Public Health, Cancer Surveillance Section.

# TRENDS IN CANCER INCIDENCE, MORTALITY, RISK FACTORS, AND HEALTH BEHAVIORS IN CALIFORNIA

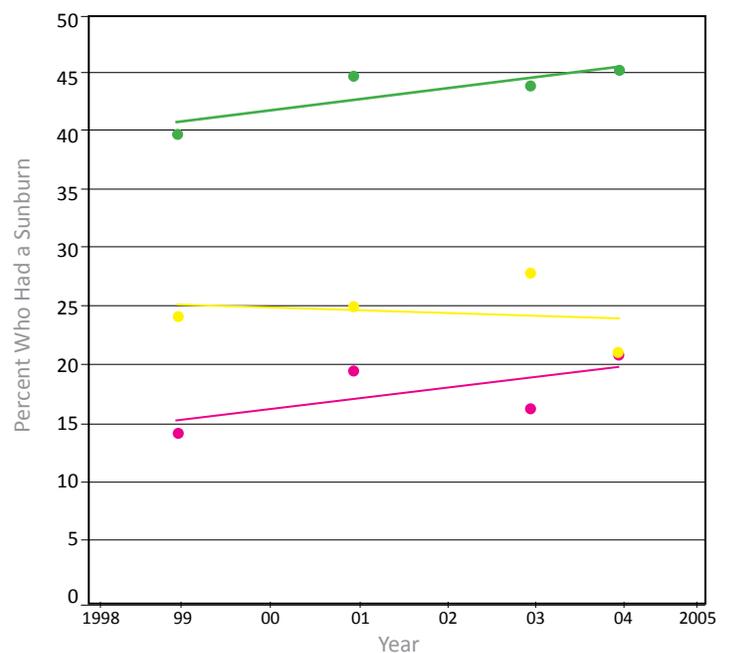
## SUNBURN

According to the California Behavioral Risk Factor Survey, between 1999 and 2004 there was a significant increase from 26.3 to 30.3 percent of females who had a sunburn in the past year. Although the increase was not significant for males, the rates for males were consistently higher than the rates for females. There was also a significantly increasing trend among whites from 39.9 percent in 1999 to 45.4 percent in 2004. However, among Latinos the percent reporting a sunburn significantly decreased from 24.6 to 21.5 percent in 2004. The trend among other races was not significant. It is good news that the percent of adults who had a sunburn in the past year has decreased among Latinos. Sunburns are known to increase the risk of [melanoma](#) and other types of cancer.

**Percent of California Adults Who Had a Sunburn in the Past Year by Sex: 1999-2004 CBRFS**



**Percent of California Adults Who Had a Sunburn in the Past Year by Race/Ethnicity: 1999-2004 CBRFS**



Note: Data are weighted to the 2000 California population.

Source: California Behavioral Risk Factor Survey.

Prepared by the California Department of Public Health, Cancer Surveillance Section.