Cancer Survival in California

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ACKNOWLEDGEMENTS AND DISCLAIMER

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Executive Summary

- Cancer survival in California has improved during the past two decades, due to better treatments and earlier detection. Individuals diagnosed with cancer between 1990 and 1994 had a five-year survival rate of 58 percent, while those diagnosed between 2006 and 2010 had a five-year survival rate of 65 percent. Improved survival was observed among all racial/ethnic groups.

- Stage of disease at the time of diagnosis is the single strongest prognostic factor for cancer survival; 90.8 percent of patients diagnosed at stage I (early, localized disease) were alive after five years and 86.1 percent at ten years. For those diagnosed at stage IV (advanced, metastatic disease), survival was 19.4 percent and 14.1 percent after five and ten years, respectively.

- For many cancers, survival has improved over the past two decades. Compared with cancers diagnosed in 1990-1994, five-year survival rates in California were higher for 22 types of cancers diagnosed in 2006-2010. For some cancers (kidney, acute and chronic lymphocytic leukemia, chronic myeloid leukemia, liver, multiple myeloma, and non-Hodgkin lymphoma), survival improved by over 10 percentage points. Survival for cervical, laryngeal, testicular, bladder and uterine cancers, however, did not improve during this time.

- Breast cancer survival was 89.9 percent after five years and 83.4 percent after ten years. However, disparities among population groups were observed, with African American females and women with the lowest socioeconomic status having the lowest survival. Survival among women with breast cancer has improved for all racial/ethnic groups, with the greatest improvement among African Americans and Latinas.

- Survival among persons with colorectal cancer was highly dependent on the stage of disease at diagnosis. Five years after the diagnosis, 91.1 percent of patients with stage I disease were alive, compared to 12 percent among those with stage IV disease. Survival was highest among Asian/Pacific Islanders, and lowest among African Americans, older patients, and those with the lowest socioeconomic status.

- Lung cancer survival was poor, with 44.2 percent of patients alive by the end of the first year after diagnosis but only 17.2 percent surviving at least five years. Survival has improved, rising from 13 percent among patients diagnosed between 1990 and 1994 to 17 percent among those diagnosed between 2006 and 2010. Survival improved in all racial/ethnic groups.

- Prostate cancer had the highest survival rate of any cancer, ranging from 99 percent at one year to 93.3 percent ten years after diagnosis. Prostate cancer survival rates were lowest among older males (75 years and older) and those diagnosed with stage IV disease.

- The prognosis for several cancers (including breast, Hodgkin lymphoma, chronic lymphocytic leukemia, melanoma, prostate, thyroid, and uterine cancer) was favorable, with over 80 percent survival after five years. In contrast, fewer than 20 percent of patients diagnosed with cancers of the esophagus, liver, lung and pancreas were alive after five years.

- Disparities in cancer survival were observed among racial/ethnic groups for 23 of the cancer sites examined. African Americans had the poorest five-year survival for 15 of the 23 cancer sites (65%), while Asian/Pacific Islanders had the highest five-year survival for 13 (56%) of them.

Introduction

Treatment and detection of cancer have materially improved in recent years due to advances in the knowledge of cancer biology and new methods of treatment. Concomitantly, cancer survival has improved. Today, an estimated three out of five Californians diagnosed with cancer will be alive five years after diagnosis.

Population-based cancer registries make it possible to evaluate and monitor cancer survival and the effectiveness of cancer care of the entire population and its many subgroups. Registry data are also essential to determine whether the benefits of advances in treatment and early detection extend equitably to all cancer patients.

This report examines survival and disparities in survival among California residents aged 20 years and older who were diagnosed with one of the 27 most commonly occurring types of cancer in California. Data for the report were obtained by the California Cancer Registry (CCR), which has collected information on all cancers diagnosed among California residents since 1988. Since July 2012, the California Department of Public Health has partnered with the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program within the University of California Davis, Institute for Population Health Improvement, to manage the day-to-day operations of the CCR.

Cancer surveillance in California

The CCR is California's statewide, population-based cancer surveillance system that monitors the occurrence of cancers in California. Data on cancer incidence, mortality, diagnosis, treatment and follow-up are gathered through a system of regional registries. CCR and the CalCARES Program conduct and collaborate with other researchers on special research projects concerning the etiology, treatment, risk factors, and prevention of specific cancers. In addition, the system allows public health officials and researchers 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.

Relative survival

The measure of cancer survival used in this report is relative survival, which represents survival in the absence of other causes of death. Studies have shown that relative survival estimates are very similar to cause-specific survival rates (which are calculated taking the cause of death into account). Relative survival is a net survival measure that estimates the probability of avoiding death due to a particular cancer. It is defined as the ratio of the observed survival rate among those who have cancer divided by the expected survival rate for people of the same sex, race/ethnicity, and age who do not have cancer, and is expressed as a percentage. Relative survival compares the survival of people who have the cancer with those that do not. A relative survival of 100 percent does not mean that everyone will survive the disease, but instead should be taken to mean that cancer patients in that specific group were just as likely to survive

during that time period as persons in the general population of the same sex, race/ethnicity, and age. Differences in life expectancy in certain populations can affect relative survival estimates in different ways. For example, patients diagnosed with cancer through screening tend to also seek medical care on a more routine basis and may have a higher life expectancy than the general population. In this case, the population life tables used in the calculation of relative survival underestimate their expected survival, resulting in a relative survival estimate that may be too high. Conversely, cancer patients who smoke may have other tobacco-related health problems, and the life tables may overestimate their life expectancy. This results in a relative survival estimate that may be lower than it would be if life tables based on smoking could be used.[1] Nevertheless, because relative survival is not affected by changes in mortality from other causes, it represents a useful measure to evaluate disparities in survival among different racial/ethnic groups and to track changes in survival over time.

Site-specific cancer survival by sex, race/ethnicity, age, and stage at diagnosis

Survival after a cancer diagnosis depends on many factors. Among other things, these include factors related to the individual patient, characteristics of the tumor, severity of the disease at the time of the diagnosis, and the treatment received. In this report, cancer survival estimates are presented by sex (male and female), age at diagnosis (years), race/ethnicity (non-Latino white, Latino, Asian/Pacific Islander, and African American), and American Joint Committee on Cancer (AJCC) tumor, node, metastasis (TNM) stage at diagnosis.[2,3]

For each of the 27 types of cancer (presented in alphabetical order), a brief description is presented followed by the main findings from the analysis. With the purpose of presenting more current and relevant data, survival estimates were based on cases diagnosed from 2004 to 2015. One-, three-, five-, eight- and ten-year relative survival estimates are presented by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status. Three sets of figures show five-year relative survival estimates by race/ethnicity, age at diagnosis, and socioeconomic status by stage at diagnosis. Another set of figures shows five-year relative survival at 12, 24, 36, 48, and 60 months post-diagnosis by sex and stage at diagnosis. An additional figure shows the difference in five-year relative survival between two time periods, i.e., 1990 to 1994 and 2006 to 2010, for all races combined and for each individual racial/ethnic group.

Overview

Between 2004 and 2015, inclusive, 1,409,218 cases of primary malignant cancer were diagnosed in California. Excluding cases that were ascertained via death certificate or autopsy, as well as those with no survival time, 94 percent of all cancers diagnosed in California were microscopically confirmed. Cancer cases were equally distributed among males (49.9%) and females (50.1%) (Table 1.1).

For each individual cancer, as well as for all cancers combined, relative survival decreased more after the first year post-diagnosis. For all cancers combined, relative survival decreased from 79.5 percent at one year to 64.8 percent at five years after diagnosis. Ten years after diagnosis, survival declined to 58.9 percent (Table 1.1). This pattern was evident for each individual cancer

(Figure 1.4). Compared to other population groups, males, African Americans, patients diagnosed at age 75 years or older, those diagnosed with advanced stage disease, and those with the lowest socioeconomic status had substantially lower survival (Table 1.1 and Figures 1.1, 1.2, 1.4, and 1.5).

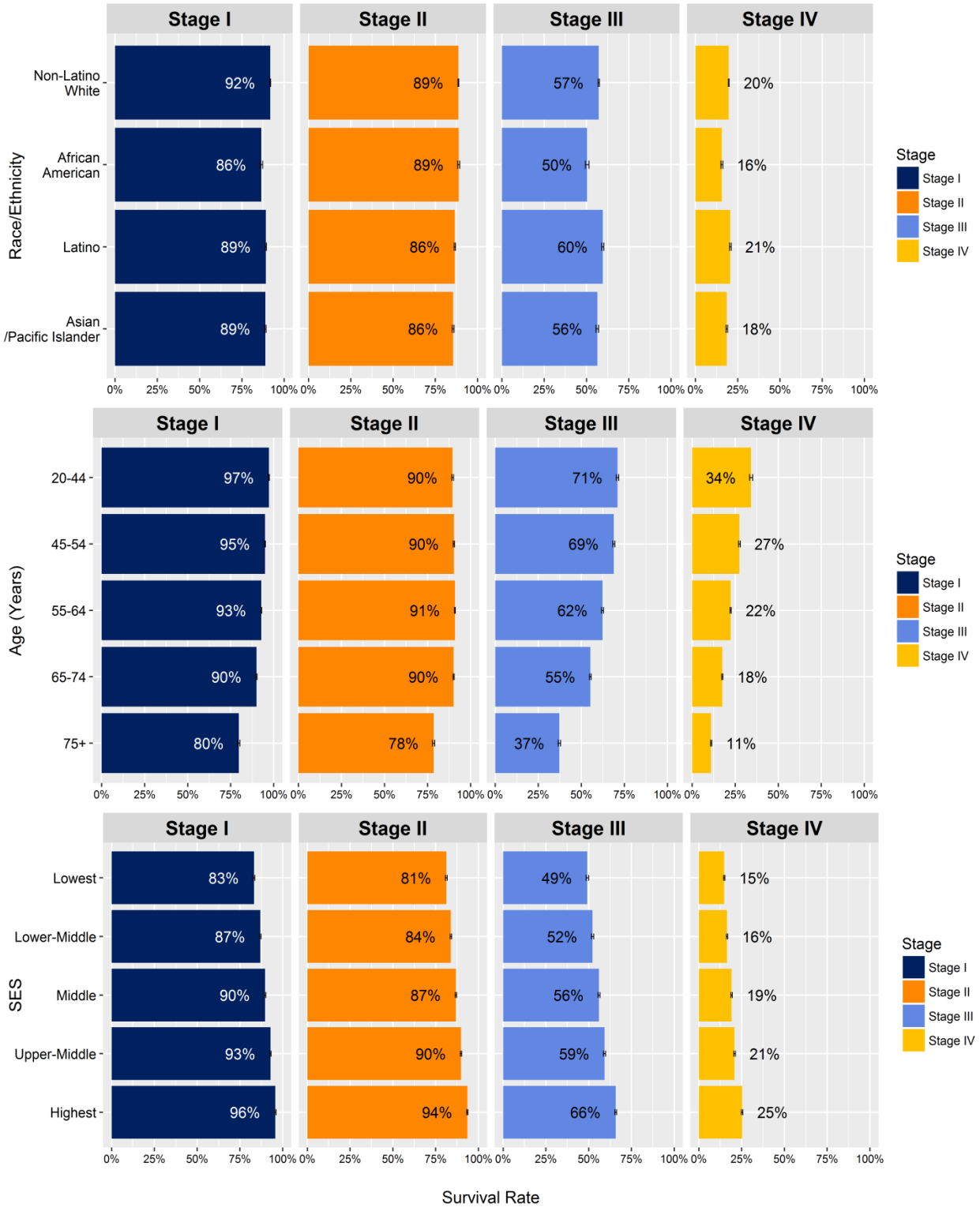
Over the last two decades, overall cancer survival in California has improved by seven percent. Patients diagnosed with cancer between 1990 and 1994 had a five-year relative survival rate of 58 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 65 percent. Improvement in survival was observed among all racial/ethnic groups (Figure 1.3).

Table 1.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: All Cancers

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	1,409,218	100	79.5	69.1	64.8	61.0	58.9
Sex							
Male	703,748	49.9	78.1	67.6	63.7	60.0	57.9
Female	705,470	50.1	80.9	70.6	66.0	62.0	59.8
Race/Ethnicity							
Non-Latino White	883,747	62.7	79.7	69.9	66.0	62.2	60.2
African American	97,639	6.9	76.7	64.5	59.8	55.4	53.4
Latino	268,254	19.0	79.5	68.6	64.2	60.1	57.8
Asian/Pacific Islander	159,578	11.3	79.6	67.8	62.7	58.5	56.4
Age at Diagnosis							
20-44	138,425	9.8	92.5	84.5	80.8	77.5	75.8
45-54	216,482	15.4	87.7	78.1	73.9	70.3	68.7
55-64	353,000	25.0	83.7	73.5	69.4	65.9	64.1
65-74	355,628	25.2	79.8	69.3	65.1	61.0	58.7
75+	345,683	24.5	64.2	52.1	47.2	42.1	38.8
Stage at Diagnosis (American Joint Committee on Cancer)							
I	399,345	28.3	96.5	93.0	90.8	87.9	86.1
II	333,432	23.7	95.5	90.5	87.9	85.1	83.1
III	188,724	13.4	81.4	64.5	57.1	50.7	47.7
IV	252,142	17.9	45.8	25.3	19.4	15.5	14.1
Unknown	235,575	16.7	62.5	48.6	43.0	37.8	35.4
Socioeconomic Status							
1 (Lowest)	210,453	14.9	72.5	59.8	54.4	49.2	46.4
2	264,984	18.8	75.8	64.0	59.1	54.4	51.6
3	293,725	20.8	78.5	67.8	63.4	59.1	56.9
4	314,034	22.3	81.6	71.9	68.0	64.5	62.5
5 (Highest)	326,022	23.1	85.6	77.6	74.4	71.9	70.7

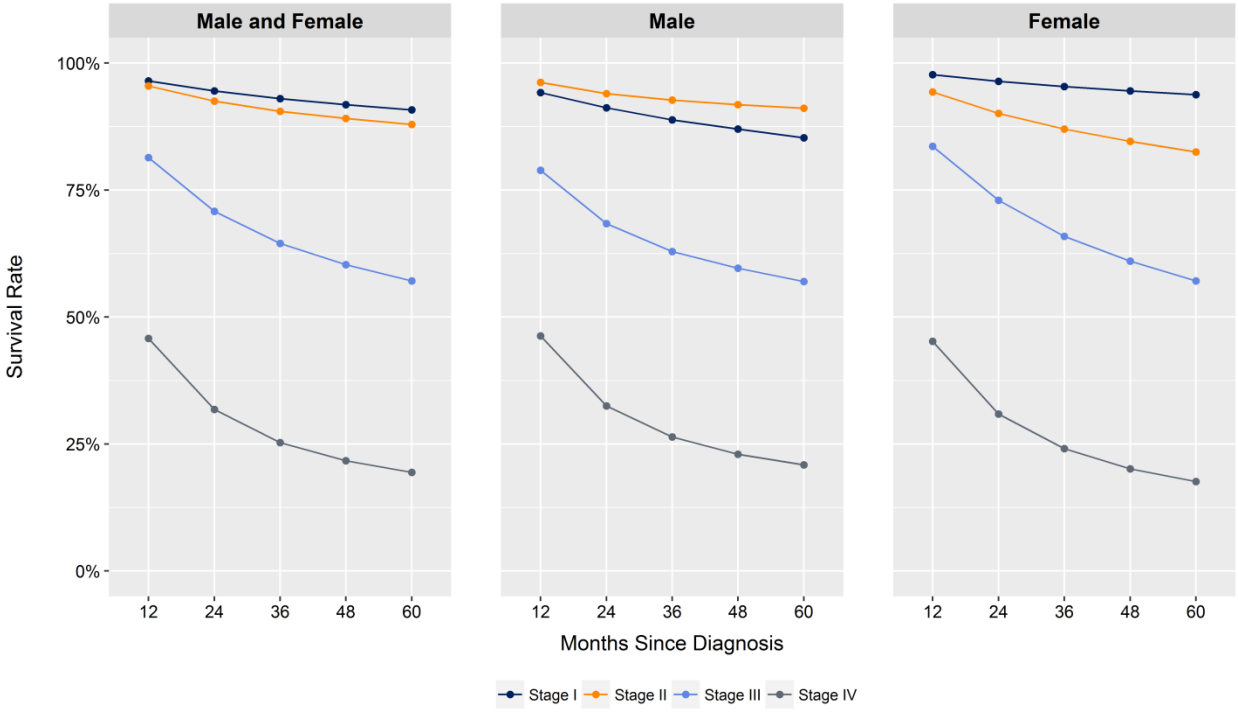
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 1.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: All Cancers



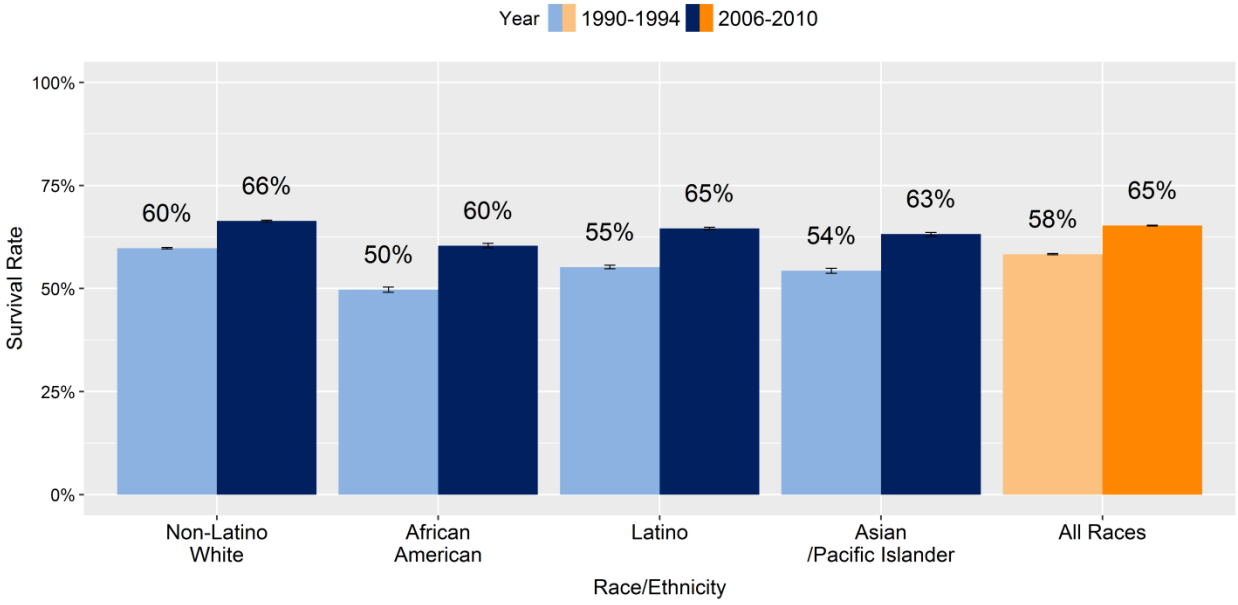
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 1.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: All Cancers



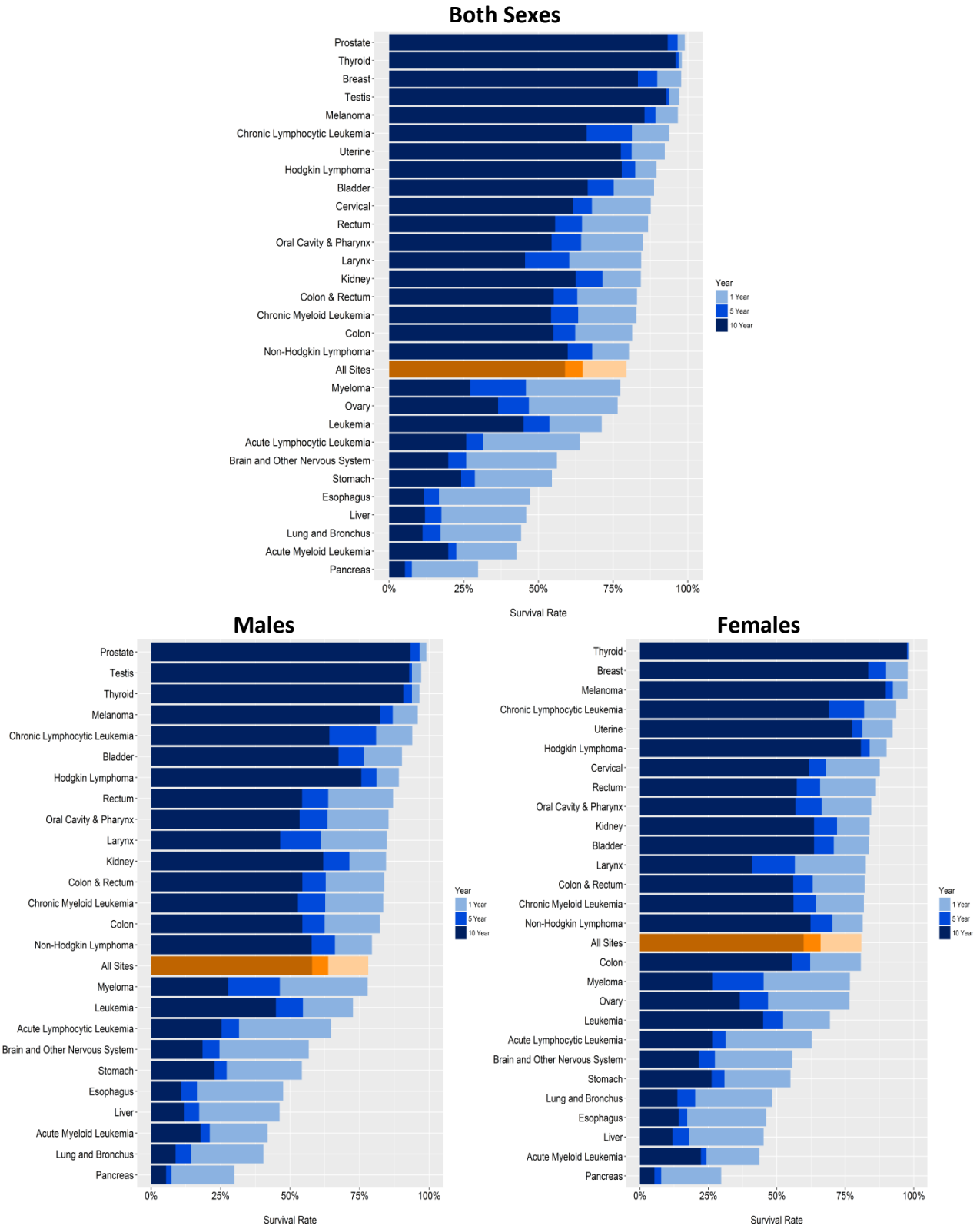
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 1.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: All Cancers



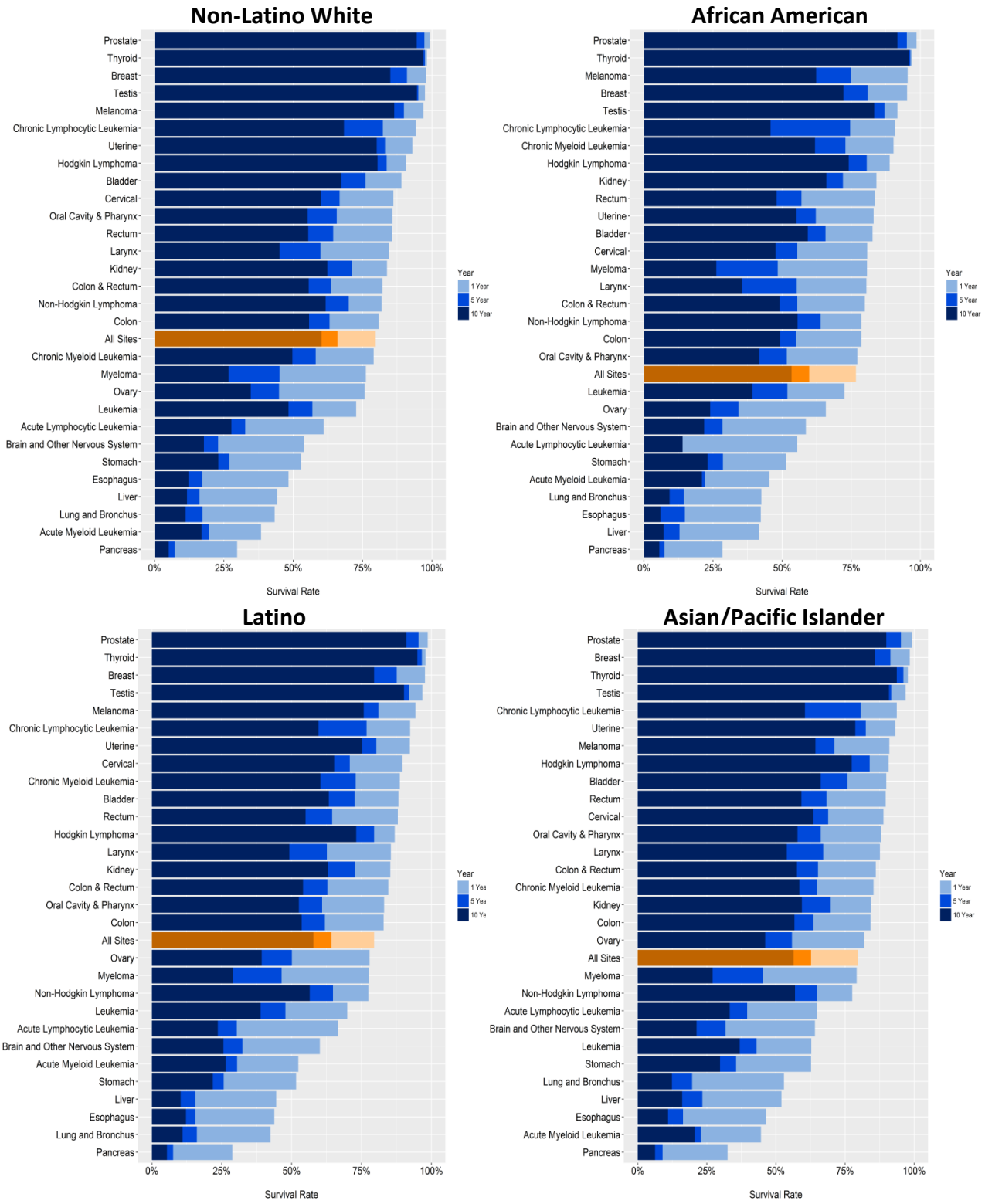
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 1.4: One-, Five-, and Ten-Year Relative Survival for the most commonly diagnosed Cancers among Adults 20 years and older in California, 2004-2015 by Sex: All Cancers



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 1.5: One-, Five-, and Ten-Year Relative Survival for the most commonly diagnosed Cancers among Adults 20 years and older in California, 2004-2015 by Race/Ethnicity: All Cancers



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Brain and Central Nervous System Cancer

Cancers of the brain and central nervous system (CNS) accounted for 2,363 (1.5%) of the 161,392 invasive cancers diagnosed in California in 2015. With 1,810 deaths attributed to these cancers in the same year, brain and CNS cancers were the sixth leading cause of cancer-related mortality. Incidence rates of brain and CNS tumor subtypes vary by sex and race/ethnicity. Brain tumors occur more often among non-Latino whites and males, although meningiomas are more common in females. There are no recommended screening tests for cancers of the brain and CNS. Survival depends most on the grade and histologic type of the tumor.

From 2004 to 2015, differences in one-, three-, five-, eight- and ten-year relative survival of brain and CNS cancers were observed by sex, race/ethnicity, age at diagnosis, and socioeconomic status (SES). Survival among females was approximately three percent higher than among males at each time interval post-diagnosis, with the exception of one-year survival. Non-Latino whites had the lowest survival rates for all time periods. Asian/Pacific Islanders had the highest survival at one and three years, and Latinos had the highest survival at five, eight, and ten years. Survival decreased dramatically with increasing age at each time period. Survival also decreased with decreasing SES at one year but showed little difference at other time periods (Table 2.1).

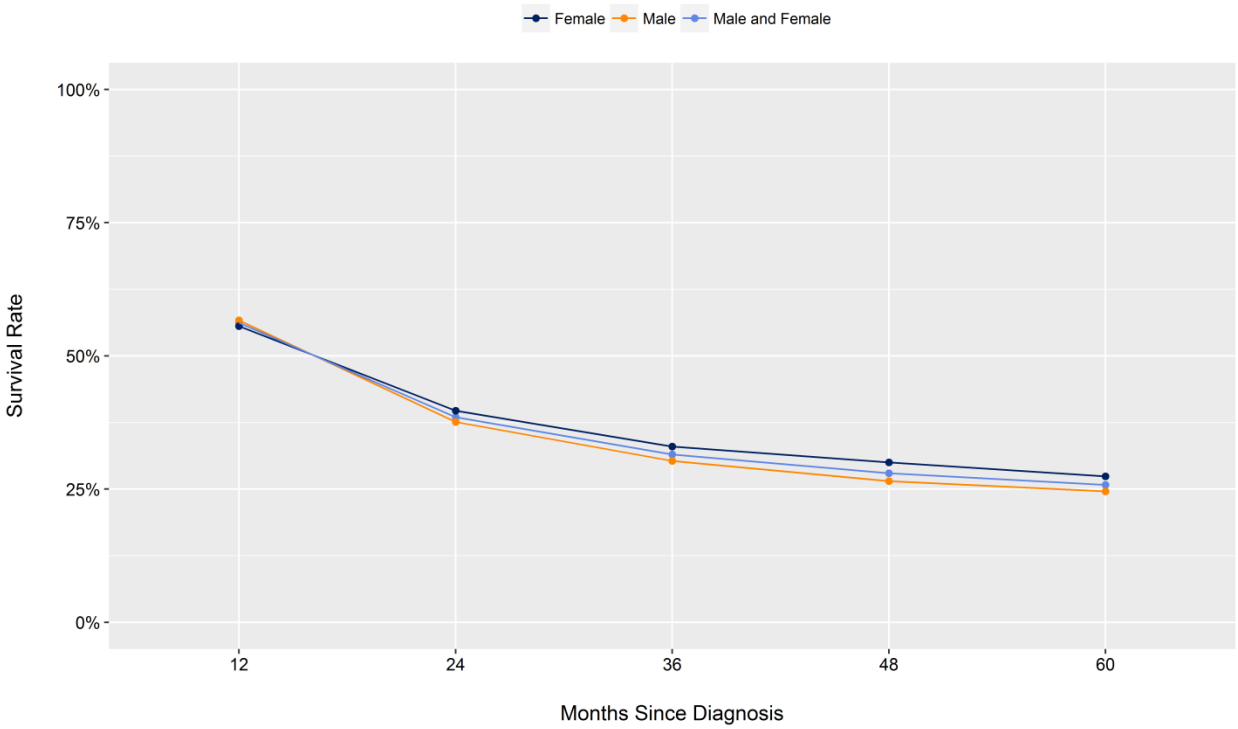
From 1990 to 2010, brain and CNS cancer survival in California slightly improved. Patients diagnosed with brain and CNS cancers between 1990 and 1994 had a five-year relative survival rate of 24 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 26 percent. Modest improvement in survival rates were observed in each racial/ethnic group except for Asian/Pacific Islander. Survival among Asian/Pacific Islander patients remained unchanged at 32 percent (Figure 2.3).

Table 2.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Brain and Central Nervous System Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	19,803	100.0	56.2	31.5	25.8	21.5	19.8
Sex							
Male	11,181	56.5	56.7	30.3	24.6	20.1	18.5
Female	8,622	43.5	55.6	33.0	27.4	23.3	21.5
Race/Ethnicity							
Non-Latino White	13,098	66.1	53.8	28.4	22.9	19.2	17.8
African American	793	4.0	58.6	33.8	28.4	23.7	21.8
Latino	4,181	21.1	60.1	38.1	32.4	27.2	25.6
Asian/Pacific Islander	1,731	8.7	64.1	39.3	31.8	24.3	21.3
Age at Diagnosis							
20-44	4,415	22.3	88.8	70.2	61.5	53.3	49.7
45-54	3,582	18.1	72.2	39.1	32.0	26.6	24.0
55-64	4,592	23.2	55.8	22.3	16.0	12.0	11.1
65-74	3,715	18.8	38.7	12.6	8.5	6.5	5.6
75+	3,499	17.7	16.9	5.7	3.6	1.6	1.6
Socioeconomic Status							
1 (Lowest)	2,804	14.2	51.6	32.1	26.2	23.1	21.7
2	3,487	17.6	53.0	31.1	26.2	21.9	19.9
3	4,070	20.6	53.5	30.8	25.5	20.8	18.8
4	4,608	23.3	58.3	32.8	26.7	22.2	20.6
5 (Highest)	4,834	24.4	61.4	30.8	24.6	20.2	19.0

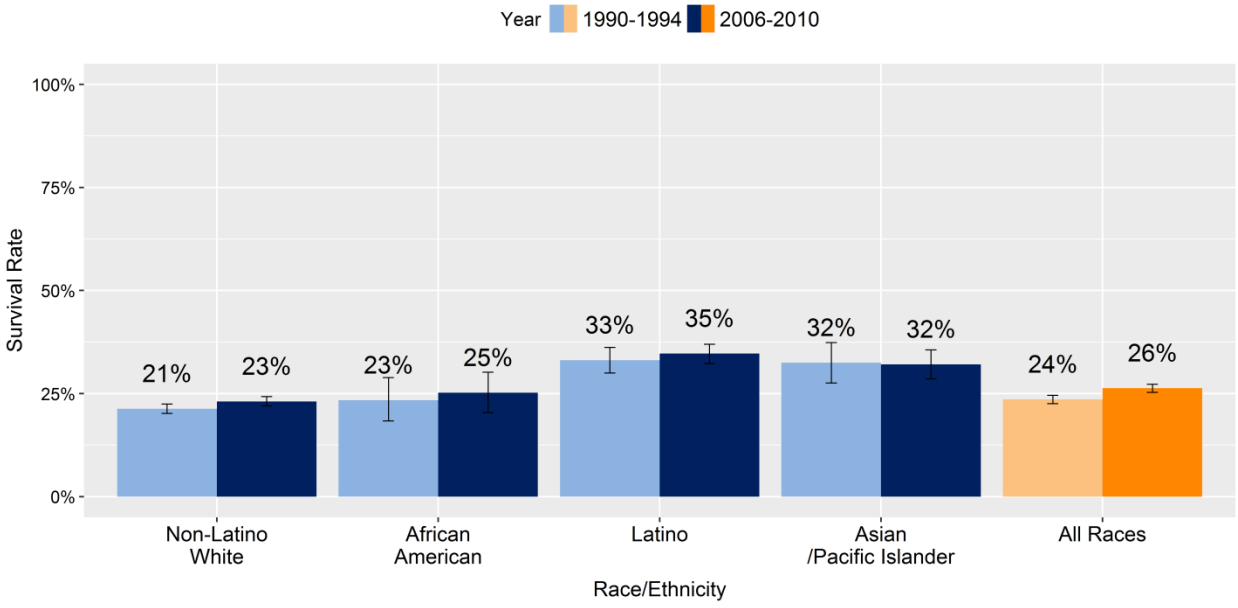
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 2.1: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Brain and Central Nervous System Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 2.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Brain and Central Nervous System Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Breast Cancer (Female)

Breast cancer is the most commonly occurring cancer among females, accounting for 32 percent of all cancers diagnosed in California women. In 2015, 26,514 invasive breast cancers were diagnosed and 4,441 women died of the disease. Breast cancer incidence and mortality rates vary by race/ethnicity – white females are more likely to develop breast cancer but African American females are more likely to die from it.

Screening through mammography can detect breast cancer at an early stage. The majority of breast cancers in California are now diagnosed at an early stage (stages 0 and I), and in only about five percent of newly diagnosed breast cancer cases has the disease already spread to other parts of the body.

From 2004 to 2015, one-, three-, five-, eight- and ten-year relative survival of breast cancer showed differences by race/ethnicity, stage at diagnosis, and socioeconomic status (SES). Survival among African American females was two to 13 percent lower than among females in other racial/ethnic groups at any time period. Although survival decreased with increasing stage at diagnosis, females with stage I disease had high survival rates (98.3%-100%) at all time periods. In contrast, persons diagnosed with stage IV disease experienced much lower survival at any time period (13.3%-69.7%). Females with the highest SES experienced the best survival within each stage at diagnosis. Differences by age group were relatively small but most apparent at stages III and IV for patients diagnosed at age 75 years or older (Table 3.1 and Figure 3.1).

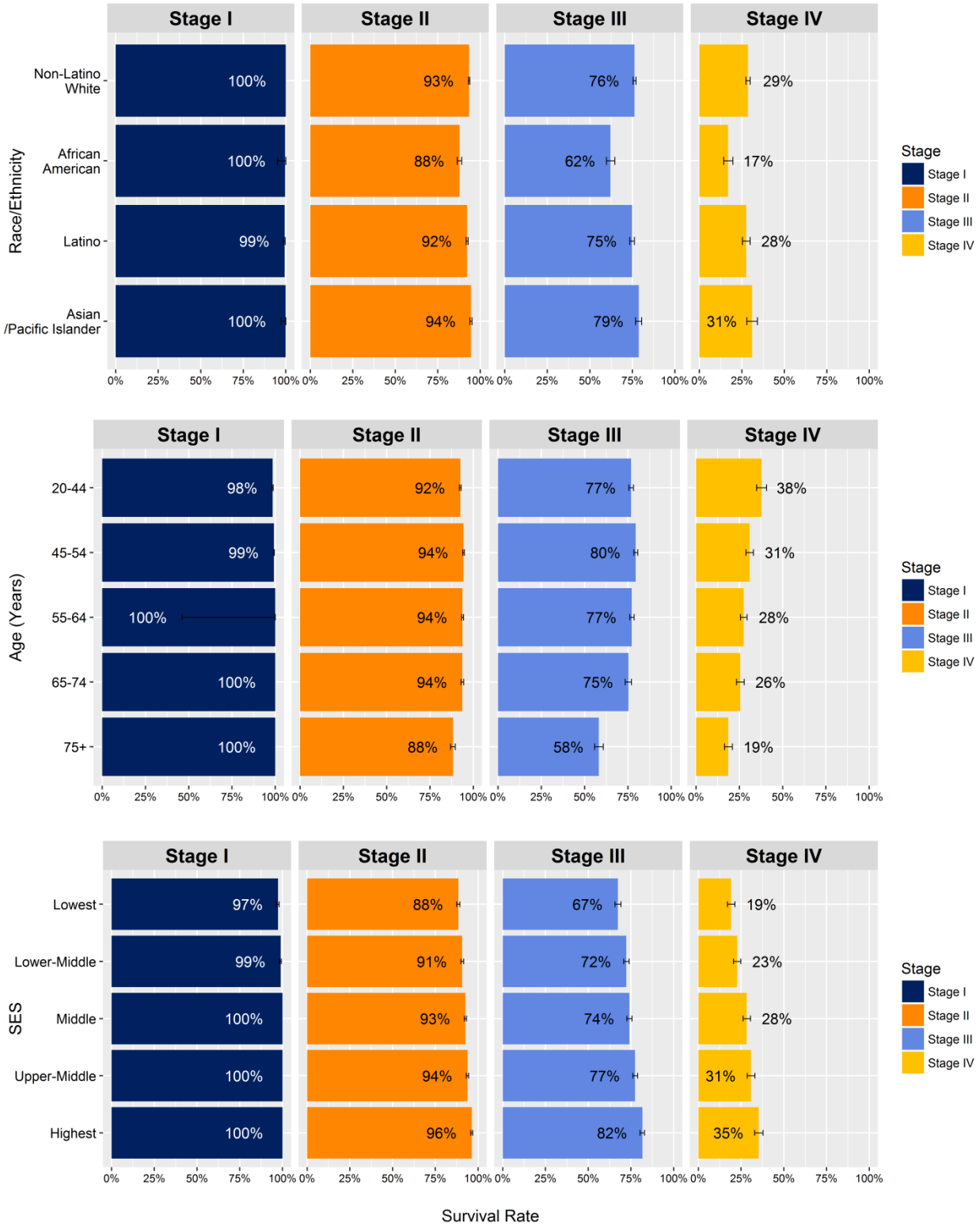
Female breast cancer survival improved in California from 1990 to 2010. Patients diagnosed with breast cancer between 1990 and 1994 had a five-year relative survival rate of 85 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 90 percent. Improved survival rates were observed in each racial/ethnic group and was greatest for African American females (8% increase), Latinas (8% increase), and Asian/Pacific Islander females (7% increase), compared to non-Latina white females (4% increase) (Figure 3.3).

Table 3.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Breast Cancer (Female)

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
Female	229,738	100.0	97.8	93.4	89.9	85.8	83.4
Race/Ethnicity							
Non-Latino White	141,339	61.5	97.9	94.2	91.1	87.4	85.0
African American	14,990	6.5	95.2	86.6	81.0	75.2	72.3
Latino	43,311	18.9	97.7	92.1	87.7	82.6	79.6
Asian/Pacific Islander	30,098	13.1	98.4	94.8	91.5	87.7	85.8
Age at Diagnosis							
20-44	29,757	13.0	98.5	92.5	88.1	83.0	80.2
45-54	54,099	23.5	98.5	94.4	90.9	87.2	85.4
55-64	59,219	25.8	98.0	94.0	90.7	87.1	85.3
65-74	48,057	20.9	98.1	94.7	91.6	87.7	85.2
75+	38,606	16.8	95.4	90.0	86.2	81.3	76.4
Stage at Diagnosis (American Joint Committee on Cancer)							
I	103,690	45.1	100.0	100.0	100.0	99.6	98.3
II	77,236	33.6	99.7	96.4	93.0	88.7	86.2
III	27,328	11.9	96.8	84.5	75.1	64.9	60.4
IV	11,499	5.0	69.7	42.5	27.5	16.7	13.3
Unknown	9,985	4.3	88.1	75.9	68.9	61.1	56.9
Socioeconomic Status							
1 (Lowest)	29,340	12.8	95.7	87.8	82.0	75.7	71.7
2	40,253	17.5	96.8	90.9	86.3	80.7	77.4
3	46,894	20.4	97.7	92.9	89.4	84.7	82.0
4	53,981	23.5	98.3	94.8	91.7	88.2	86.2
5 (Highest)	59,270	25.8	98.9	96.8	94.7	92.5	91.2

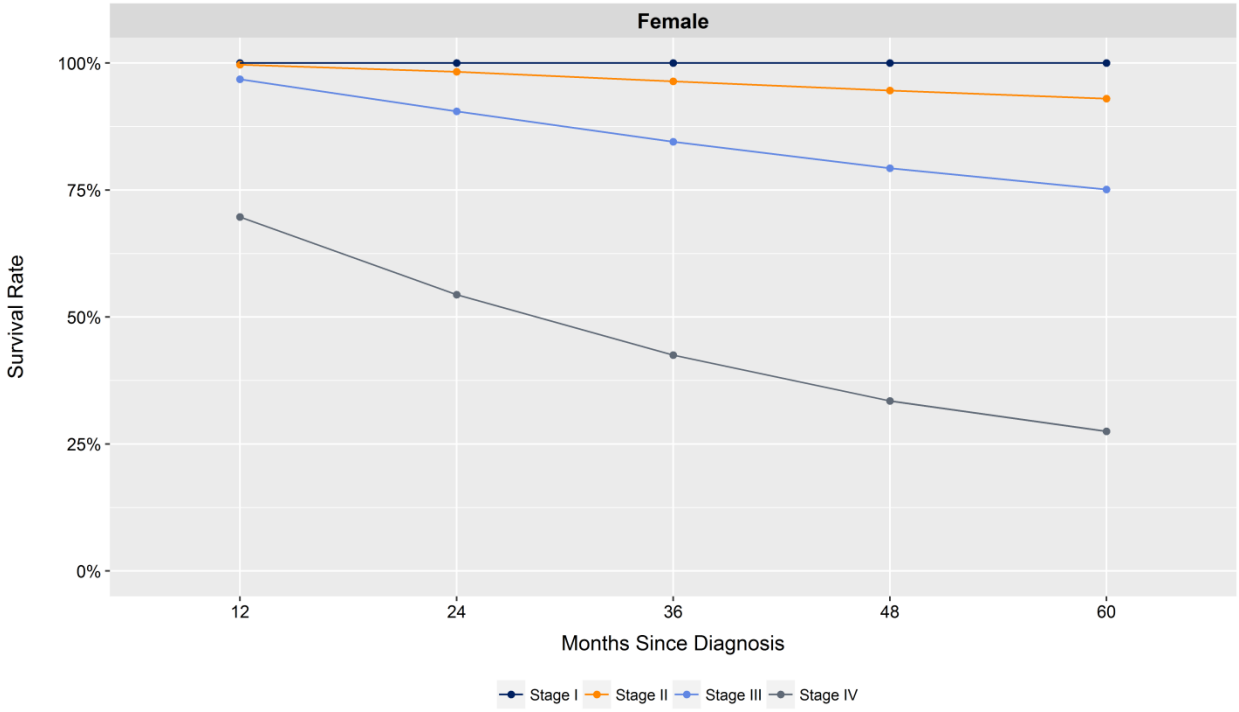
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 3.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Breast Cancer (Female)



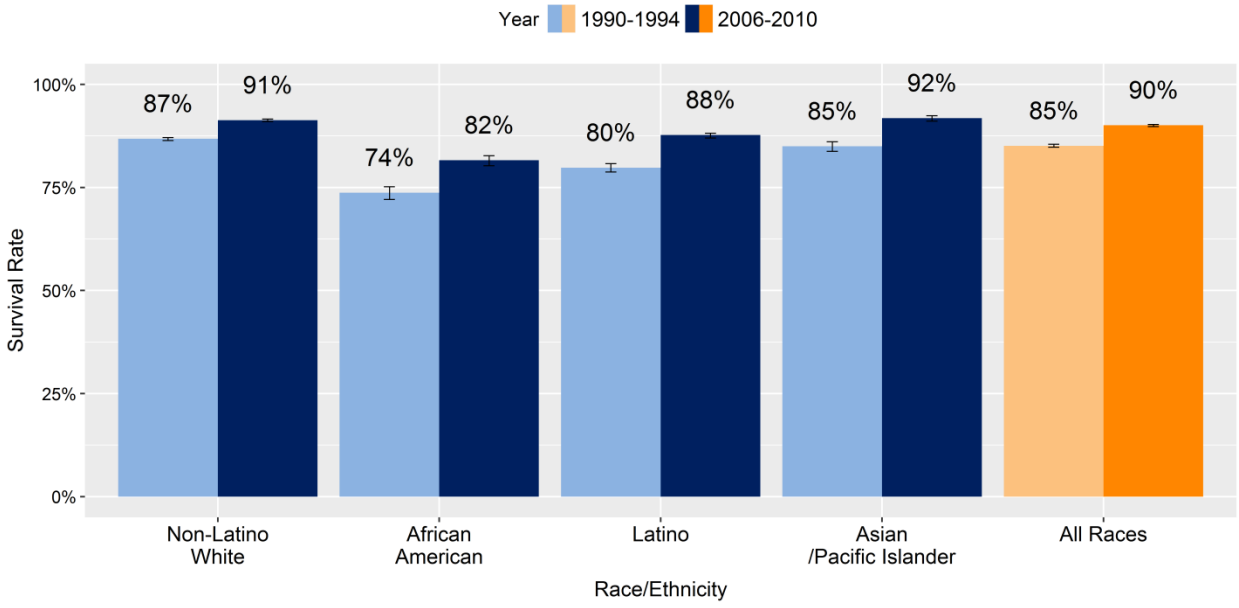
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 3.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Stage at Diagnosis: Breast Cancer (Female)



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 3.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Breast Cancer (Female)



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Cervical Cancer

In 2015, 1,417 females in California were diagnosed with cervical cancer and 498 died of the disease. Incidence rates of cervical cancer in California were highest among Latinas and lowest among non-Latina white females. Nearly all cases of cervical cancer are caused by the human papillomavirus (HPV), which is transmitted primarily through sexual intercourse. HPV vaccines are available and effective in preventing infection. Greater use of these vaccines could markedly reduce the burden of cervical cancer.

Cervical cancer is highly curable if detected early. Cervical cancer screening via regular gynecologic examinations and Pap smears, followed by treatment of precancerous abnormalities, has decreased the incidence and mortality rates of cervical cancer and improved survival.

From 2004 to 2015, one-, three-, five-, eight- and ten-year relative survival differences by race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES) were evident. Latinas had better survival than females in other racial/ethnic groups at every time period, while African American females had worse survival. Survival decreased with increasing age for all time periods but this survival disadvantage was greatest for females diagnosed at age 75 years or older. Survival was highly associated with stage of disease at diagnosis. Survival decreased with increasing stage, particularly for females diagnosed at stage IV. Women with stage IV disease experienced very poor survival across the entire course of the disease (52.8% at one year, 13.6% at ten years). Survival decreased with decreasing SES for all time periods (Table 4.1 and Figure 4.1).

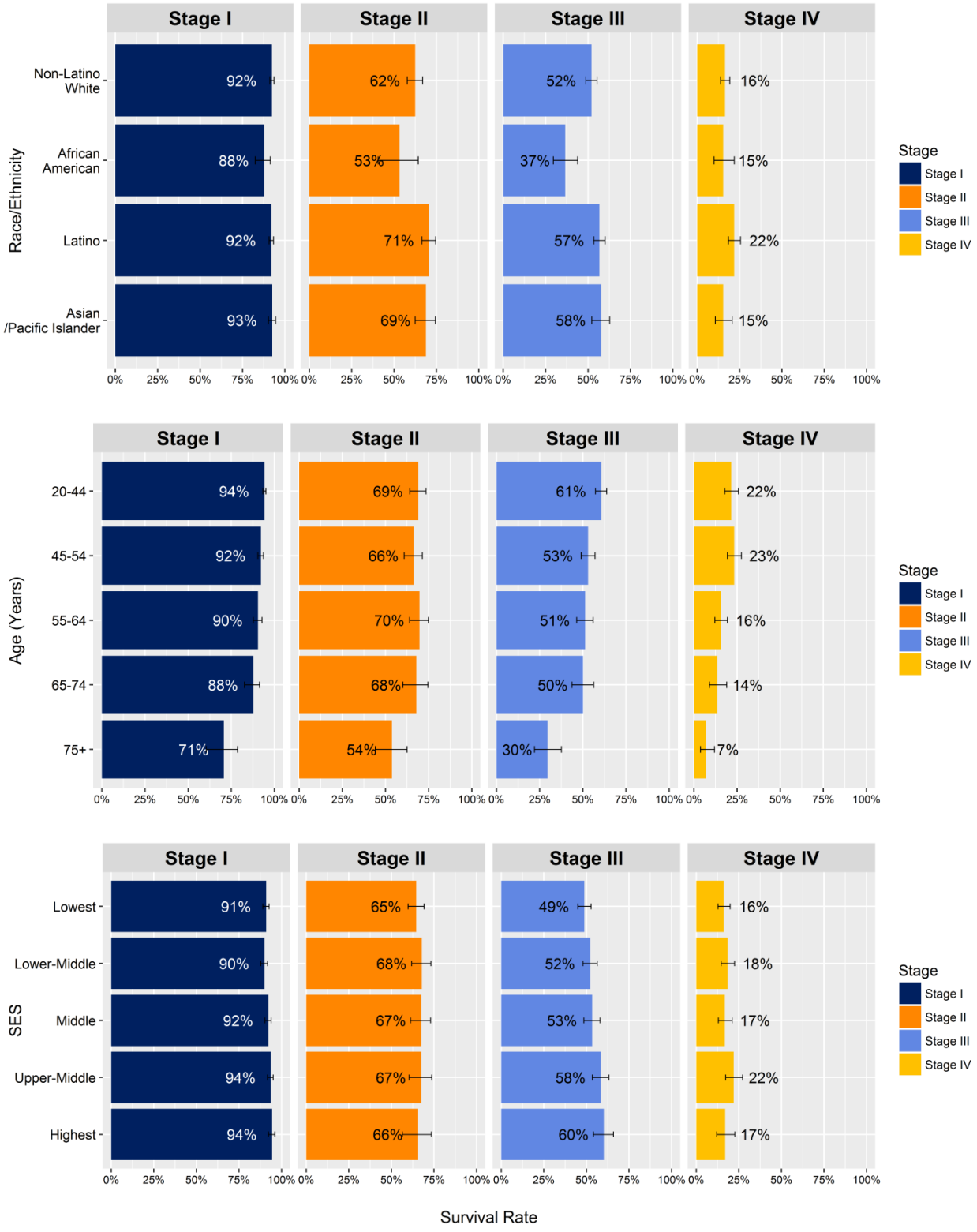
From 1990 to 2010, five-year relative survival of cervical cancer remained relatively unchanged. Patients diagnosed with cervical cancer between 1990 and 1994 had a five-year relative survival rate of 70 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 69 percent (Figure 4.3). Small decreases in survival of two to three percent were observed among females in each racial/ethnic group except for Latinas, whose survival rates did not notably change.

Table 4.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Cervical Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
Female	15,763	100.0	87.6	72.9	67.9	64.2	61.7
Race/Ethnicity							
Non-Latino White	6,349	40.3	86.1	71.8	66.7	63.1	60.0
African American	985	6.2	80.8	60.8	55.5	50.9	47.6
Latino	6,107	38.7	89.7	75.7	70.8	67.5	65.2
Asian/Pacific Islander	2,322	14.7	88.9	73.8	68.9	64.8	63.5
Age at Diagnosis							
20-44	6,443	40.9	93.9	82.7	78.6	76.5	75.0
45-54	3,785	24.0	89.7	73.5	68.2	63.7	60.9
55-64	2,789	17.7	83.8	67.1	60.5	56.1	51.9
65-74	1,589	10.1	80.7	63.3	56.8	50.5	47.0
75+	1,157	7.3	63.2	41.1	37.2	32.1	26.8
Stage at Diagnosis (American Joint Committee on Cancer)							
I	7,260	46.1	98.5	94.8	92.1	89.4	87.8
II	1,899	12.0	93.4	74.4	66.5	62.1	56.5
III	3,219	20.4	86.7	61.5	53.6	48.6	45.1
IV	2,204	14.0	52.8	23.2	17.9	14.6	13.6
Unknown	1,181	7.5	78.1	57.9	50.7	44.0	39.7
Socioeconomic Status							
1 (Lowest)	4,126	26.2	85.8	69.3	63.8	59.1	56.5
2	3,550	22.5	86.1	70.3	65.8	60.7	57.6
3	3,155	20.0	88.3	73.1	67.9	65.4	63.2
4	2,791	17.7	89.6	76.7	72.2	69.6	67.0
5 (Highest)	2,141	13.6	89.7	78.4	73.5	70.4	68.6

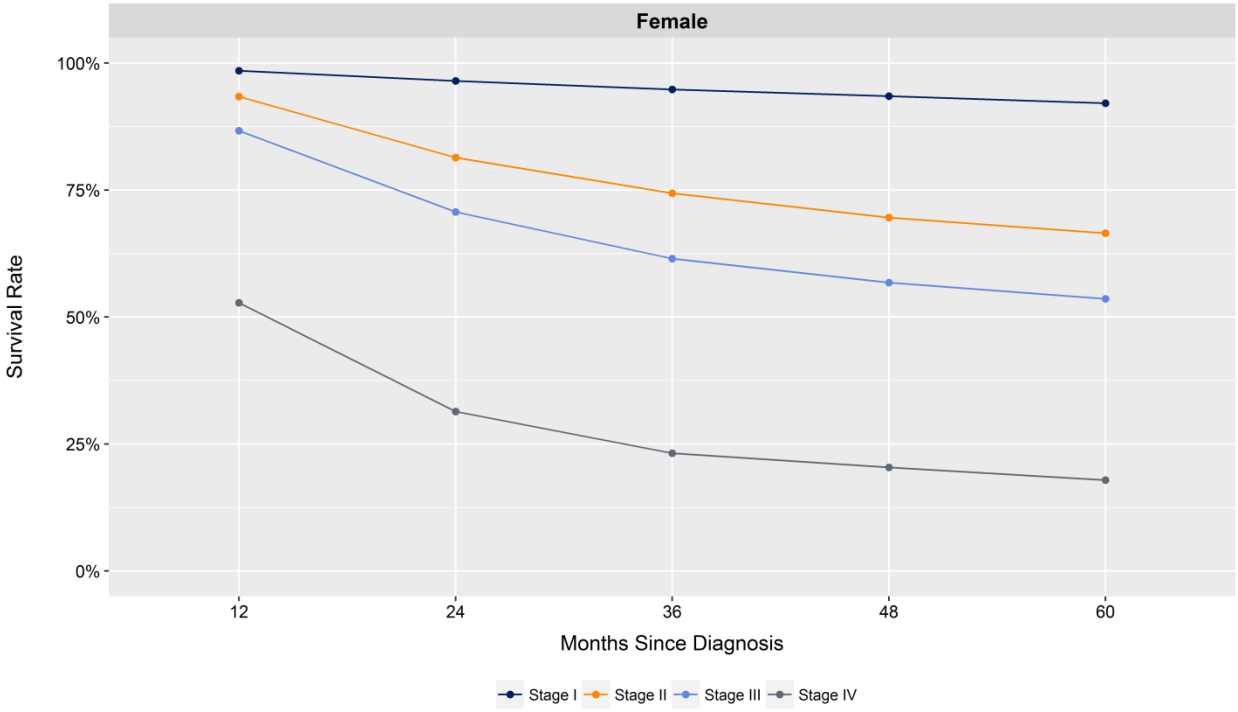
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 4.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Cervical Cancer



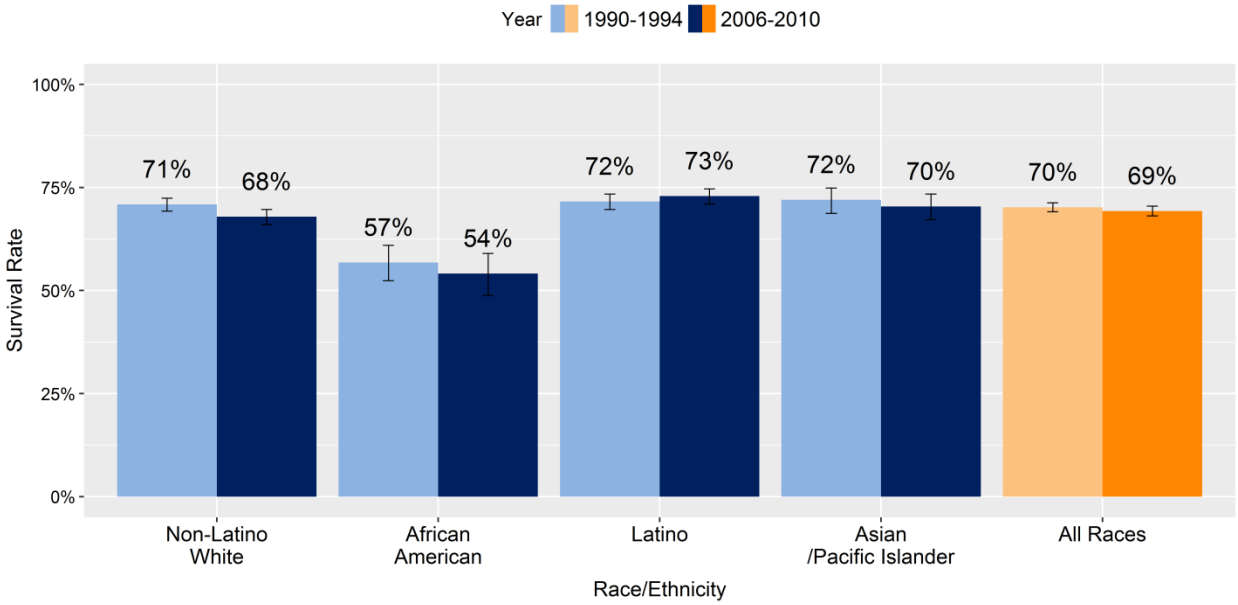
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 4.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Stage at Diagnosis: Cervical Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 4.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Cervical Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Colon and Rectum Cancer

For both males and females, cancer of the colon and rectum is the third most frequently diagnosed cancer in California and the third leading cause of cancer-related death. In 2015, 14,419 Californians were diagnosed with colorectal cancer and 5,419 died of the disease. The incidence of colorectal cancer is higher among males and African Americans. Colorectal cancer usually develops relatively late in life with half of all persons being age 68 years and older at time of diagnosis, and 80 percent of patients are diagnosed after age 55. Regular screening for colorectal cancer starting at age 50 can identify and remove precancerous polyps and prevent the disease. In addition, screening can detect tumors at early stages when treatments are more successful.

From 2004 to 2015, one-, three-, five-, eight- and ten-year relative survival for colorectal cancer showed little difference by sex but some differences by race/ethnicity, age at diagnosis, socioeconomic status (SES), and stage at diagnosis. Survival among African Americans was two to nine percent lower than among patients of other racial/ethnic groups at any time period, while survival among Asian/Pacific Islanders was consistently at least 1.5 percent higher. Survival did not markedly decrease with increasing age until age 75. Before age 75, there were few survival differences at any time period and, in fact, there were small increases in survival for persons aged 45 to 54 years and 55 to 64 years compared to those aged 20 to 44 years. Survival decreased with decreasing SES for all time periods (Table 5.1).

Survival is highly dependent on the stage of disease at the time of diagnosis. Persons diagnosed at later stages (particularly stage IV) experienced poorer survival during the entire course of the disease. For example, while relative survival for persons diagnosed with stage III colorectal cancer was 90.5 percent at one year and declined to 67.1 percent at five years post-diagnosis, estimated survival among those diagnosed with stage IV disease was 53.4 percent at one year and 12 percent at five years (Table 5.1). Within each stage at diagnosis, five-year survival was progressively poorer with increasing age and decreasing SES and was consistently lowest for African Americans (Figure 5.1).

Survival data for colon cancer and rectum cancer are shown separately in Tables 5.2 and 5.3 and in Figures 5.4 through 5.9. Survival patterns for colon cancer and rectum cancer were similar to the combined survival of colorectal cancer.

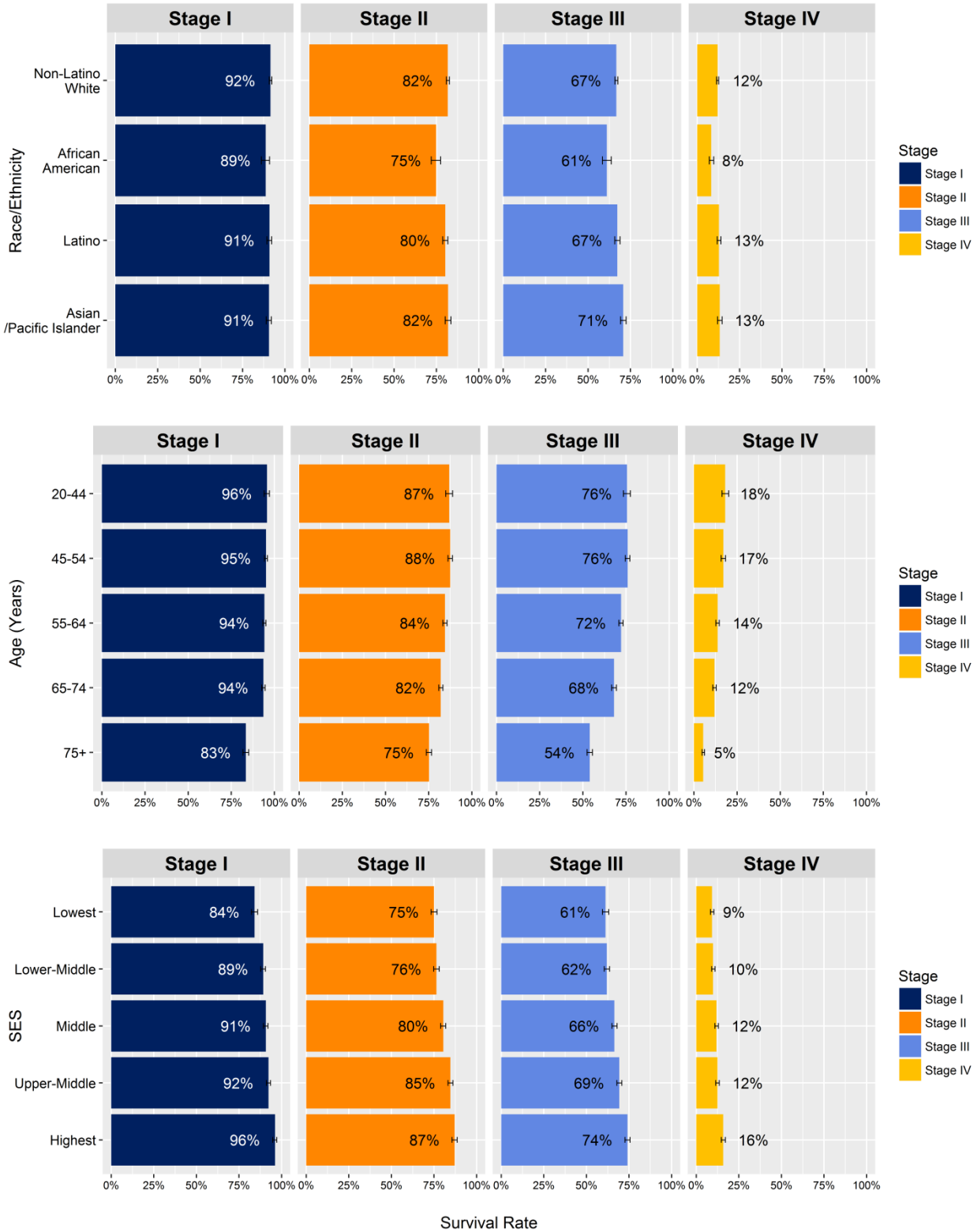
Colorectal cancer survival has improved in California over the past two decades. Patients diagnosed with colorectal cancer between 1990 and 1994 had a five-year relative survival rate of 60 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 64 percent. Improved survival rates were observed in each racial/ethnic group (Figure 5.3).

Table 5.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Colon and Rectum Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	131,558	100.0	83.0	69.6	63.0	57.5	55.1
Sex							
Male	68,152	51.8	83.9	69.9	62.8	56.9	54.4
Female	63,406	48.2	82.1	69.4	63.1	58.1	56.0
Race/Ethnicity							
Non-Latino White	77,437	58.9	82.2	69.6	63.5	58.1	55.6
African American	9,932	7.5	79.9	63.5	55.5	49.9	49.1
Latino	25,576	19.4	84.6	70.0	62.8	56.7	54.1
Asian/Pacific Islander	18,613	14.1	86.1	72.5	65.2	59.7	57.6
Age at Diagnosis							
20-44	8,458	6.4	90.9	74.2	65.9	60.9	58.8
45-54	20,916	15.9	91.1	77.1	69.7	64.1	62.4
55-64	29,769	22.6	87.9	73.9	66.5	61.1	58.7
65-74	30,969	23.5	85.6	72.8	66.4	60.4	57.9
75+	41,446	31.5	71.8	59.3	53.8	48.3	45.4
Stage at Diagnosis (American Joint Committee on Cancer)							
I	29,694	22.6	96.0	93.5	91.1	87.6	85.6
II	31,387	23.9	93.6	86.9	81.0	74.4	70.8
III	33,231	25.3	90.5	76.2	67.1	59.2	56.4
IV	26,914	20.5	53.4	21.6	12.0	7.7	6.9
Unknown	10,332	7.9	67.5	54.0	49.1	45.5	43.6
Socioeconomic Status							
1 (Lowest)	21,246	16.1	79.4	63.4	55.9	49.1	46.2
2	26,320	20.0	81.3	66.6	59.1	53.0	50.3
3	28,042	21.3	82.3	69.4	62.6	56.7	54.3
4	28,643	21.8	84.3	71.1	65.1	60.2	57.9
5 (Highest)	27,307	20.8	86.9	75.9	70.3	65.9	64.0

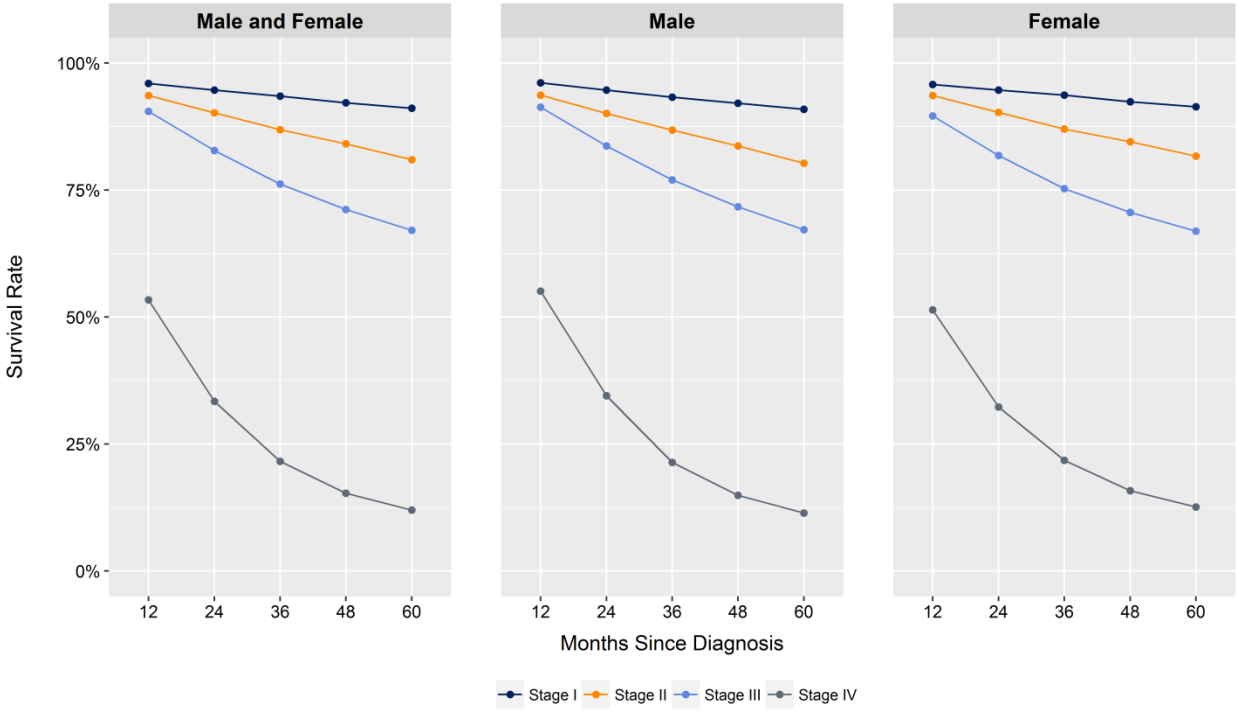
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Colon and Rectum Cancer



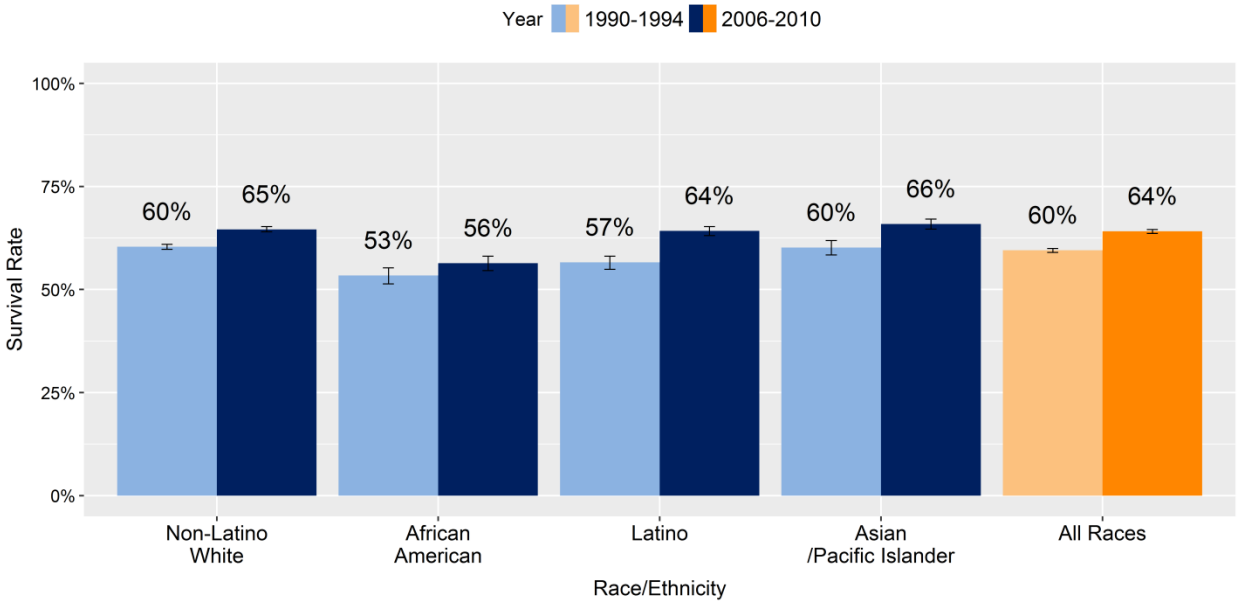
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Colon and Rectum Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Colon and Rectum Cancer



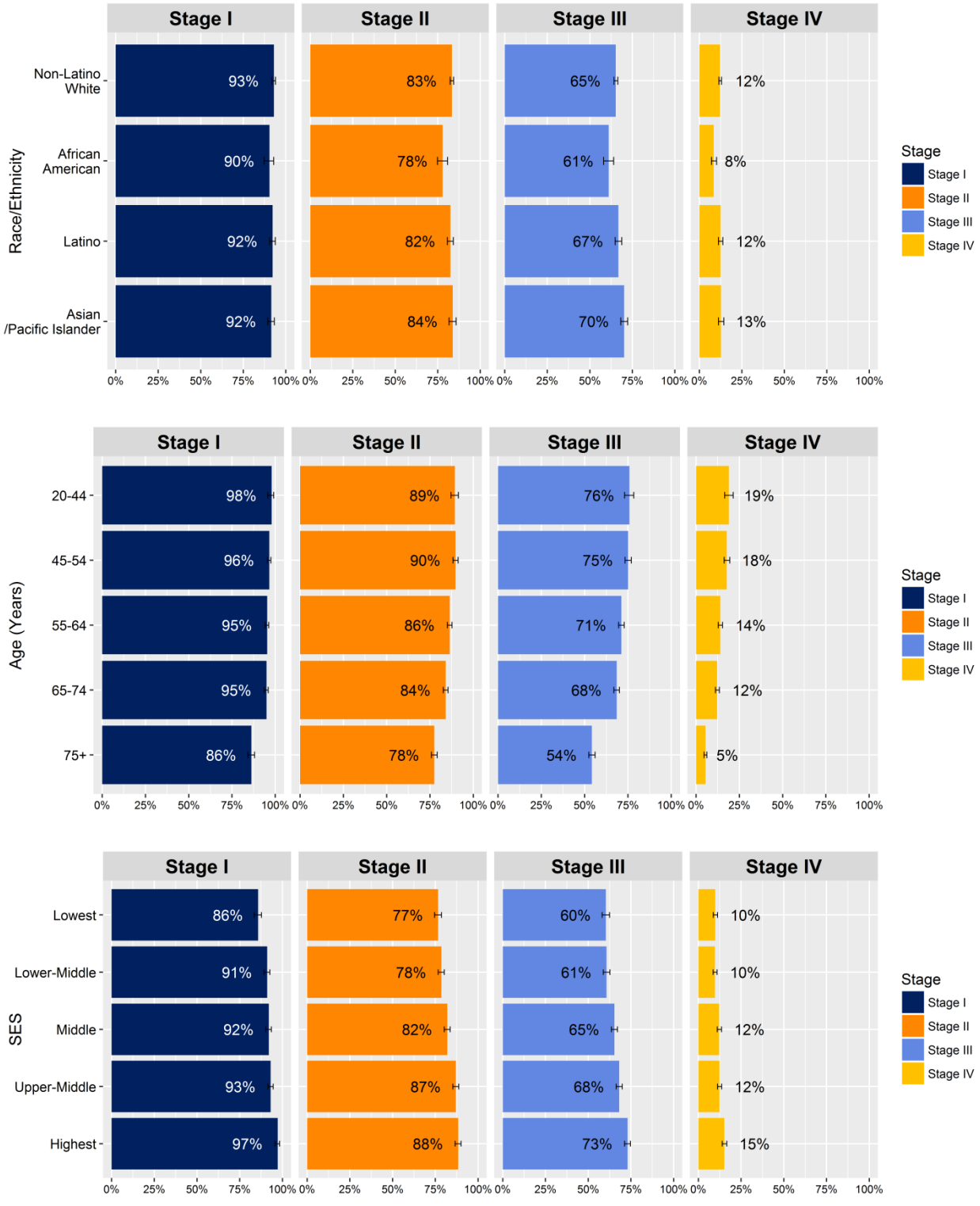
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Table 5.2: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Colon Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	91,484	100.0	81.4	68.4	62.3	57.1	55.0
Sex							
Male	45,045	49.2	82.2	68.8	62.4	56.7	54.4
Female	46,439	50.8	80.7	68.0	62.2	57.5	55.5
Race/Ethnicity							
Non-Latino White	54,972	60.1	80.8	68.7	63.1	58.1	55.7
African American	7,486	8.2	78.6	62.4	55.0	49.8	49.2
Latino	16,854	18.4	82.9	68.7	61.9	56.2	53.6
Asian/Pacific Islander	12,172	13.3	84.2	70.5	63.5	58.4	56.7
Age at Diagnosis							
20-44	5,125	5.6	89.8	73.0	65.1	60.5	58.9
45-54	12,347	13.5	89.6	74.8	67.8	62.5	60.7
55-64	19,258	21.1	86.7	72.4	65.5	60.4	58.4
65-74	22,070	24.1	85.0	72.6	66.6	60.9	58.6
75+	32,684	35.7	71.4	60.0	55.0	49.9	47.2
Stage at Diagnosis (American Joint Committee on Cancer)							
I	19,625	21.5	96.0	94.3	92.5	89.6	88.0
II	23,931	26.2	93.6	87.9	82.8	76.9	73.2
III	22,865	25.0	88.9	74.5	66.0	58.9	56.5
IV	19,661	21.5	51.0	20.7	12.0	7.8	7.2
Unknown	5,402	5.9	54.5	38.5	32.7	28.1	26.2
Socioeconomic Status							
1 (Lowest)	14,499	15.8	77.5	62.5	55.6	49.1	46.5
2	18,170	19.9	79.7	65.2	58.5	53.0	50.2
3	19,546	21.4	80.8	68.5	62.2	56.5	54.5
4	20,095	22.0	82.6	69.6	64.1	59.6	57.3
5 (Highest)	19,174	21.0	85.5	74.5	69.0	64.9	63.2

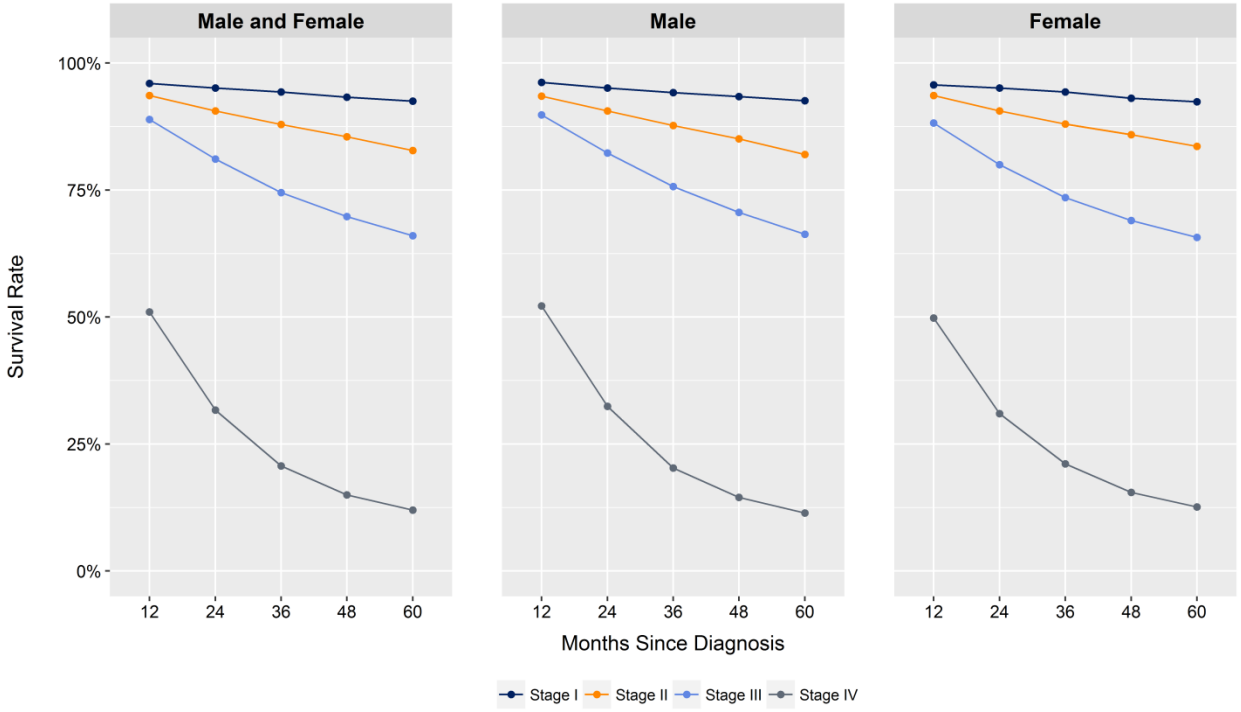
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.4: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Colon Cancer



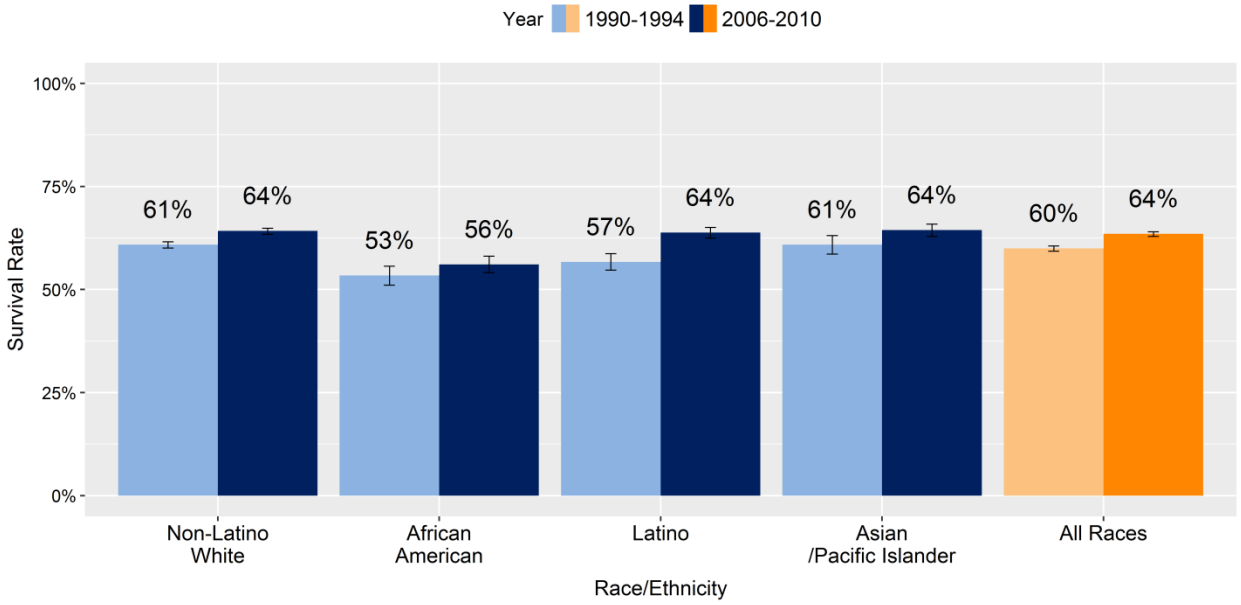
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.5: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Colon Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.6: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Colon Cancer



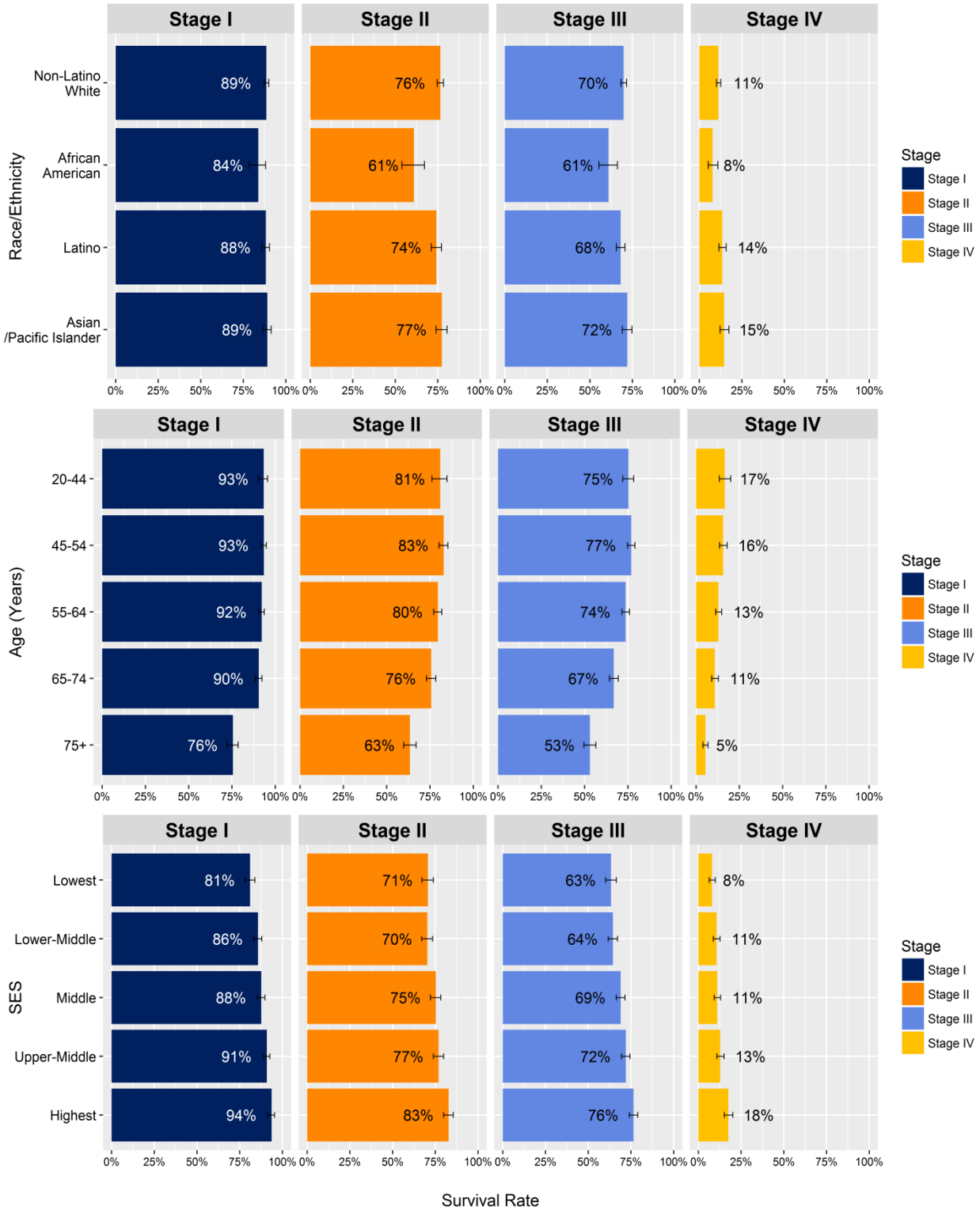
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Table 5.3: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Rectum Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	40,074	100.0	86.7	72.4	64.6	58.3	55.6
Sex							
Male	23,107	57.7	87.0	71.8	63.7	57.3	54.3
Female	16,967	42.3	86.2	73.2	65.8	59.6	57.3
Race/Ethnicity							
Non-Latino White	22,465	56.1	85.6	71.9	64.4	58.3	55.4
African American	2,446	6.1	83.6	66.9	57.0	50.0	48.0
Latino	8,722	21.8	88.0	72.5	64.5	57.5	55.0
Asian/Pacific Islander	6,441	16.1	89.7	76.0	68.3	62.2	59.2
Age at Diagnosis							
20-44	3,333	8.3	92.6	75.9	67.2	61.4	58.6
45-54	8,569	21.4	93.2	80.4	72.4	66.6	64.8
55-64	10,511	26.2	90.1	76.6	68.5	62.5	59.3
65-74	8,899	22.2	86.9	73.5	65.9	58.9	56.3
75+	8,762	21.9	73.4	56.6	49.3	42.4	38.5
Stage at Diagnosis (American Joint Committee on Cancer)							
I	10,069	25.1	95.9	91.9	88.4	83.7	80.8
II	7,456	18.6	93.8	84.0	75.4	66.8	63.4
III	10,366	25.9	93.9	79.9	69.5	59.7	56.0
IV	7,253	18.1	59.6	24.2	11.9	7.4	6.2
Unknown	4,930	12.3	81.7	70.7	66.7	64.2	62.0
Socioeconomic Status							
1 (Lowest)	6,747	16.8	83.4	65.5	56.5	48.9	45.5
2	8,150	20.3	84.9	69.7	60.6	52.9	50.6
3	8,496	21.2	85.9	71.5	63.4	57.3	54.1
4	8,548	21.3	88.2	74.7	67.5	61.8	59.4
5 (Highest)	8,133	20.3	90.2	79.2	73.2	68.1	65.6

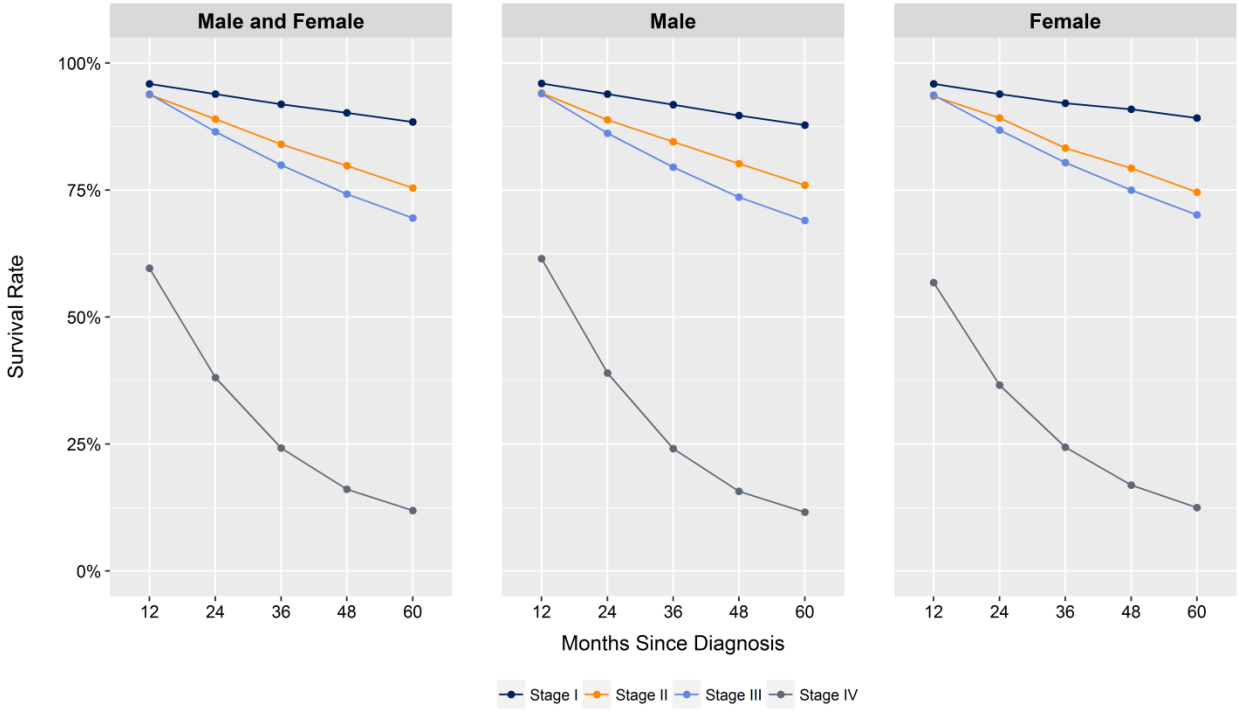
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.7: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Rectum Cancer



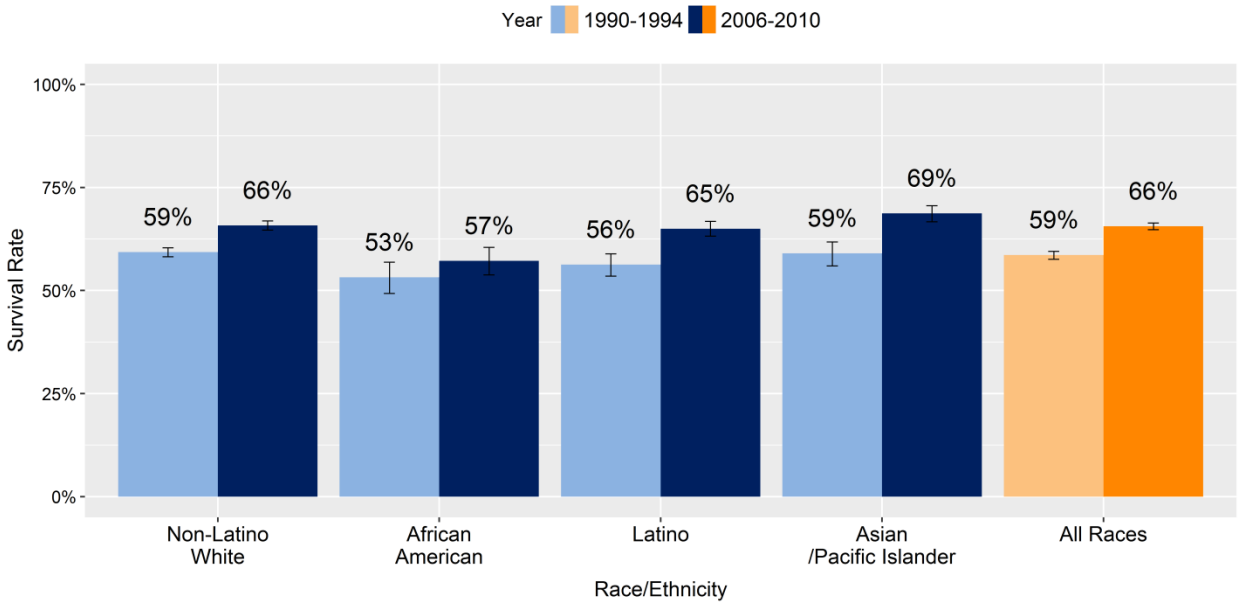
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.8: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Rectum Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 5.9: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Rectum Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Esophagus Cancer

Cancer of the esophagus is relatively uncommon, but it is a highly lethal disease. In 2015, 1,440 persons in California were diagnosed with esophageal cancer and 1,336 died of the disease. While cancer of the esophagus was not among the top ten most commonly diagnosed cancers for males or females in 2015, it was the eighth most common cause of cancer death among males in California. It did not rank among the top ten causes of cancer deaths for females.

Currently, routine screening for esophageal cancer in the general population is not recommended. People at higher risk, such as those with Barrett's esophagus, should be closely monitored for early signs of cancer.

From 2004 to 2015, one-, three-, five-, eight- and ten-year relative survival of esophageal cancer varied most by race/ethnicity, stage at diagnosis, and socioeconomic status (SES). Survival among African Americans was one to six percent lower than among persons of any other racial/ethnic group at any time period. Survival decreased with increasing stage at diagnosis, with the largest decreases observed among persons diagnosed with stage III or IV disease at any time period. Survival decreased with decreasing SES for all time periods. There were small survival differences by sex and age at diagnosis. Females had three percent better survival than males at ten years, but at other time periods the difference was one percent or less. Persons in all age groups experienced poor survival. At each time period, survival remained relatively constant among all age groups except for those diagnosed at age 75 years or older, who had a survival disadvantage at all time periods compared to other age groups (Table 6.1 and Figure 6.1).

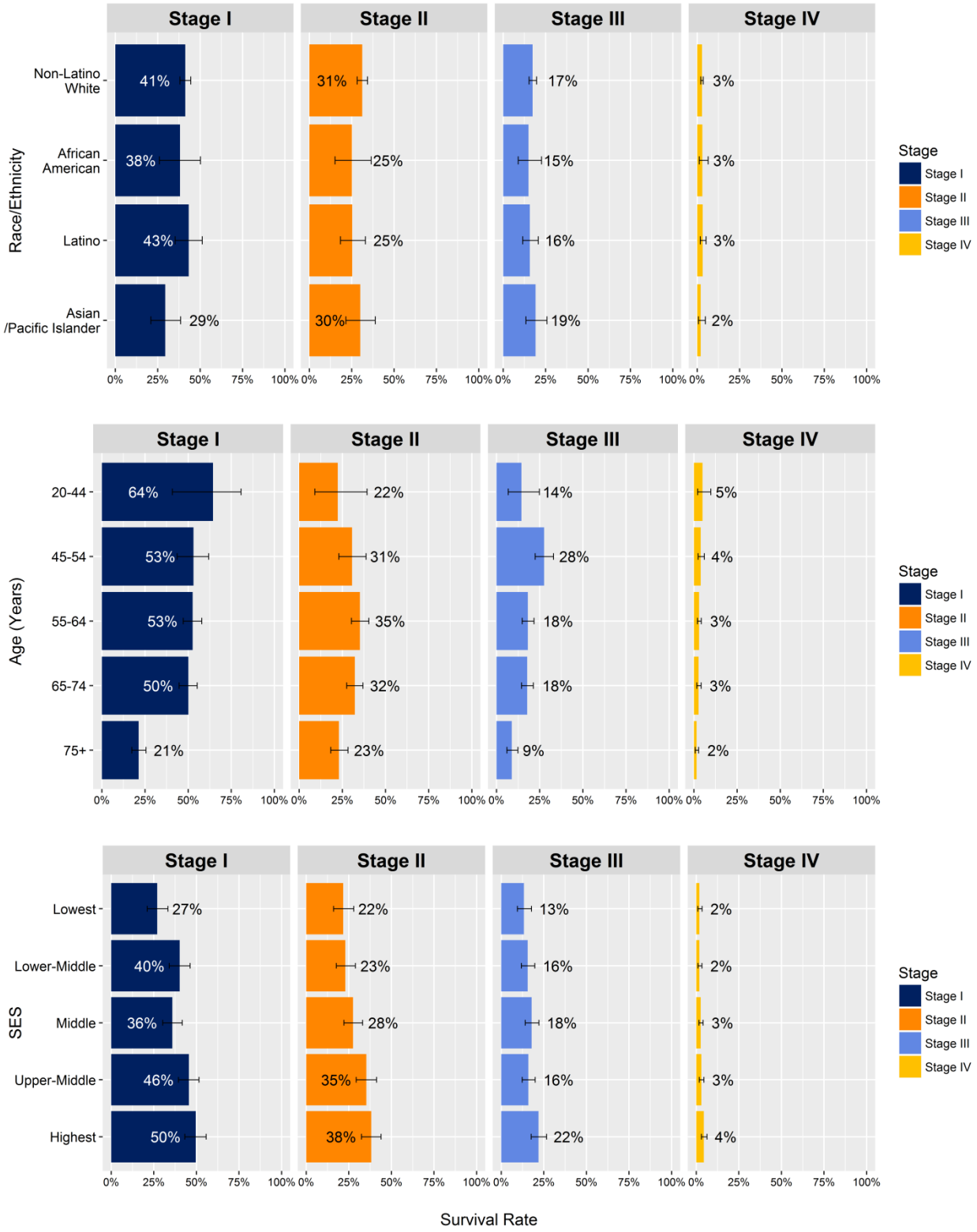
From 1990 to 2010, esophageal cancer survival improved in California but it remains one of the most lethal cancers. Patients diagnosed with esophageal cancer between 1990 and 1994 had a five-year relative survival rate of 12 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 17 percent. Improved survival rates were observed in each racial/ethnic group (Figure 6.3).

Table 6.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Esophagus Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	12,744	100.0	47.2	22.3	16.7	13.6	11.6
Sex							
Male	9,926	77.9	47.5	22.2	16.5	13.2	10.9
Female	2,818	22.1	46.1	22.6	17.3	14.8	14.2
Race/Ethnicity							
Non-Latino White	9,137	71.7	48.3	22.7	17.1	13.9	12.2
African American	700	5.5	42.3	19.4	14.8	11.1	6.0
Latino	1,895	14.9	43.8	20.9	15.5	13.1	12.2
Asian/Pacific Islander	1,012	7.9	46.4	23.4	16.4	13.7	11.0
Age at Diagnosis							
20-44	342	2.7	49.5	23.0	16.4	15.8	15.8
45-54	1,455	11.4	50.4	24.6	19.3	16.6	16.2
55-64	3,450	27.1	50.9	24.7	18.9	15.6	13.7
65-74	3,620	28.4	52.4	26.1	19.7	15.6	13.2
75+	3,877	30.4	37.4	15.4	10.5	7.9	4.2
Stage at Diagnosis (American Joint Committee on Cancer)							
I	1,943	15.2	69.0	47.8	40.5	35.1	30.5
II	1,850	14.5	69.8	40.3	30.1	24.2	20.1
III	2,673	21.0	59.0	24.9	17.1	12.9	11.1
IV	4,198	32.9	26.2	4.9	2.8	2.4	2.3
Unknown	2,080	16.3	34.1	14.5	10.1	7.4	6.1
Socioeconomic Status							
1 (Lowest)	2,098	16.5	38.9	15.5	11.7	9.2	7.5
2	2,515	19.7	44.4	21.0	15.0	12.2	10.2
3	2,806	22.0	45.6	20.9	15.3	13.0	10.9
4	2,755	21.6	51.6	24.4	17.9	14.3	12.4
5 (Highest)	2,570	20.2	53.6	28.2	22.5	18.4	16.3

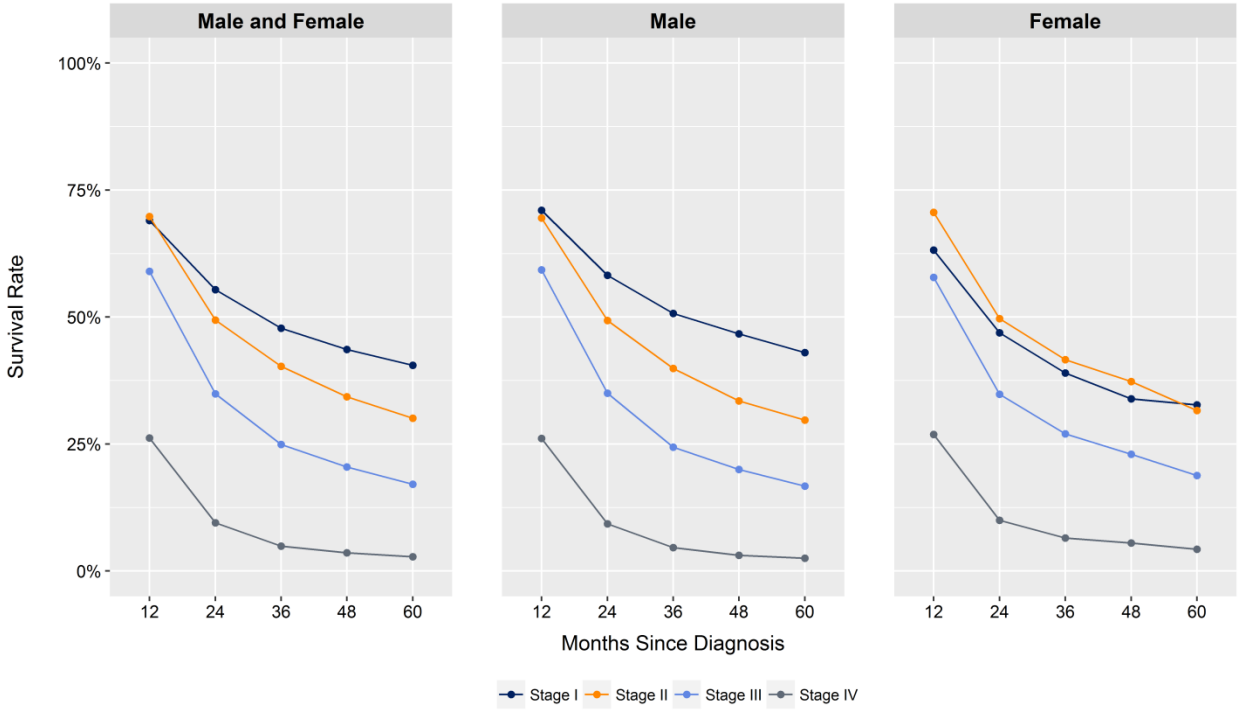
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 6.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Esophagus Cancer



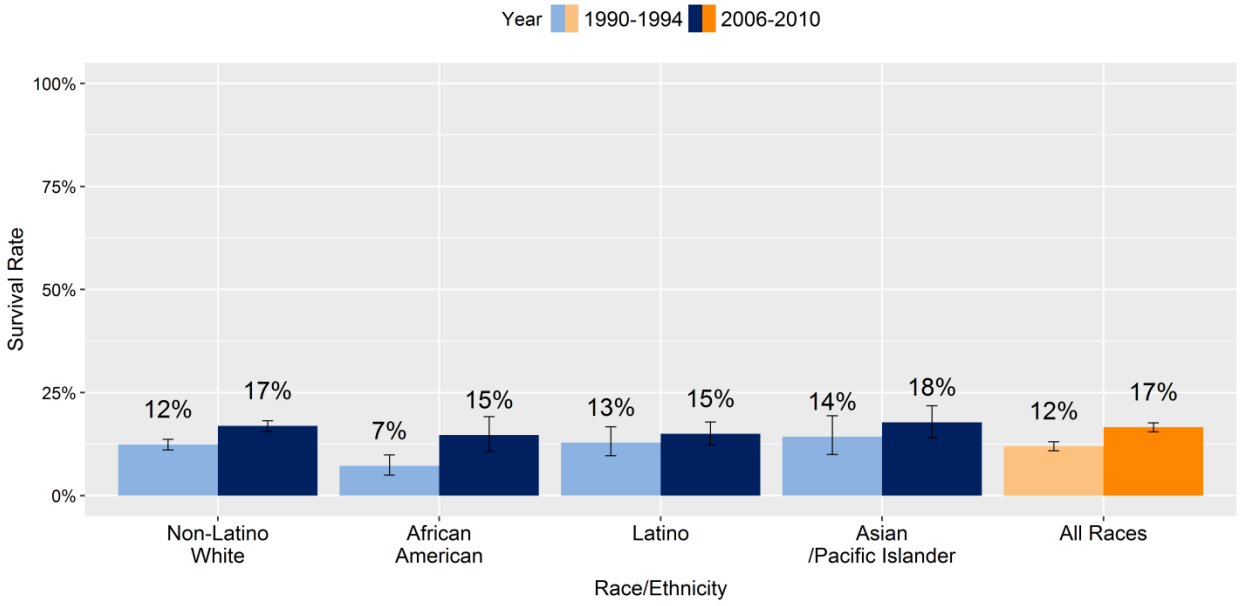
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 6.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Esophagus Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 6.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Esophagus Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Hodgkin Lymphoma

Hodgkin lymphoma starts in cells of the immune system and is characterized by the presence of a type of cell called the Reed-Sternberg cell. There are no routine screening tests for Hodgkin lymphoma. Signs and symptoms of the disease include enlarged lymph nodes, fever, night sweats, weight loss, and fatigue. Hodgkin lymphoma is relatively rare. In 2015, 832 Californians were diagnosed with Hodgkin lymphoma and 135 died of the disease.

From 2004 to 2015, differences in one-, three-, five-, eight- and ten-year relative survival of Hodgkin lymphoma by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES) were evident. At any time period, survival among females was one to five percent higher than for males. Survival among African Americans and Latinos was similar to each other but two to seven percent lower than among patients in other racial/ethnic groups at any time period. Survival decreased with increasing age and decreasing SES at any time period. Survival decreased with each successive increase in stage at diagnosis with the exception of stage II. Persons diagnosed with stage II disease experienced slightly better survival than persons diagnosed with stage I disease at any time period (Table 7.1 and Figure 7.1).

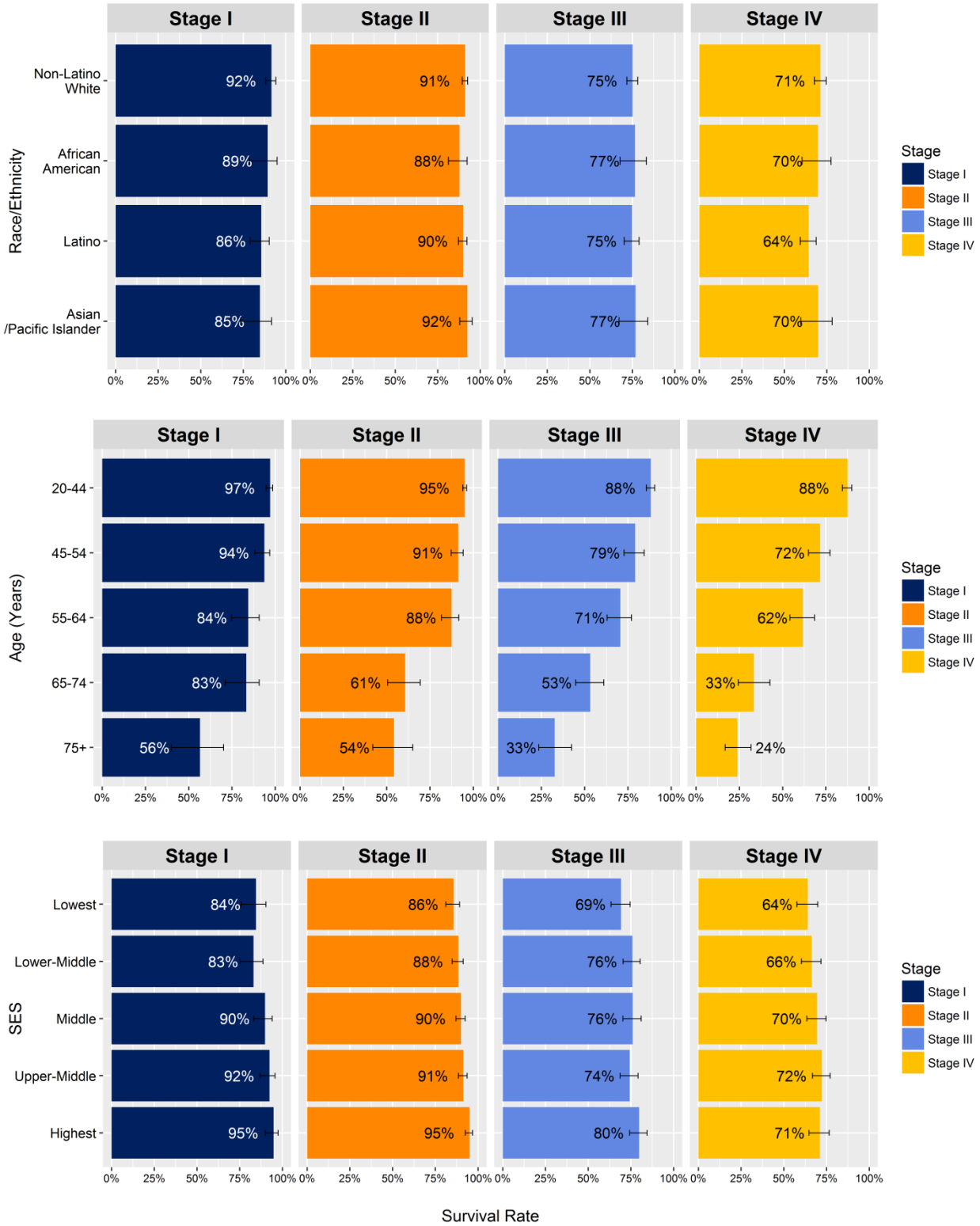
From 1990 to 2010, Hodgkin lymphoma survival improved in California. Patients diagnosed with this disease between 1990 and 1994 had a five-year relative survival rate of 78 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 83 percent. Improved survival rates were observed in each racial/ethnic group (Figure 7.3).

Table 7.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Hodgkin Lymphoma

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	8,280	100.0	89.5	84.9	82.4	79.0	77.9
Sex							
Male	4,576	55.3	89.1	83.9	81.1	76.8	75.6
Female	3,704	44.7	90.1	86.2	83.9	81.5	80.7
Race/Ethnicity							
Non-Latino White	4,715	56.9	90.7	86.1	83.7	81.1	80.4
African American	620	7.5	88.9	83.4	80.6	75.9	74.1
Latino	2,292	27.7	86.9	82.5	79.5	75.0	73.1
Asian/Pacific Islander	653	7.9	90.7	86.4	83.9	78.2	77.4
Age at Diagnosis							
20-44	4,750	57.4	98.1	94.9	92.8	90.9	90.3
45-54	1,191	14.4	91.5	86.7	84.9	81.3	79.4
55-64	969	11.7	83.7	78.1	75.2	68.7	66.7
65-74	695	8.4	73.2	62.6	56.6	51.1	50.4
75+	675	8.2	50.6	42.9	38.9	26.3	22.3
Stage at Diagnosis (American Joint Committee on Cancer)							
I	1,112	13.4	93.7	91.4	89.9	87.3	85.1
II	3,228	39.0	95.7	92.8	90.7	88.1	87.1
III	1,782	21.5	85.4	78.9	75.2	71.6	71.0
IV	1,659	20.0	79.7	72.2	68.9	64.0	63.4
Unknown	499	6.0	88.0	82.9	80.2	75.5	73.4
Socioeconomic Status							
1 (Lowest)	1,344	16.2	84.0	77.6	75.3	72.0	70.5
2	1,590	19.2	88.2	83.2	79.4	74.8	72.4
3	1,772	21.4	91.0	86.2	82.7	79.1	78.4
4	1,841	22.2	90.2	86.5	84.3	81.4	81.3
5 (Highest)	1,733	20.9	92.8	89.3	87.7	85.0	83.7

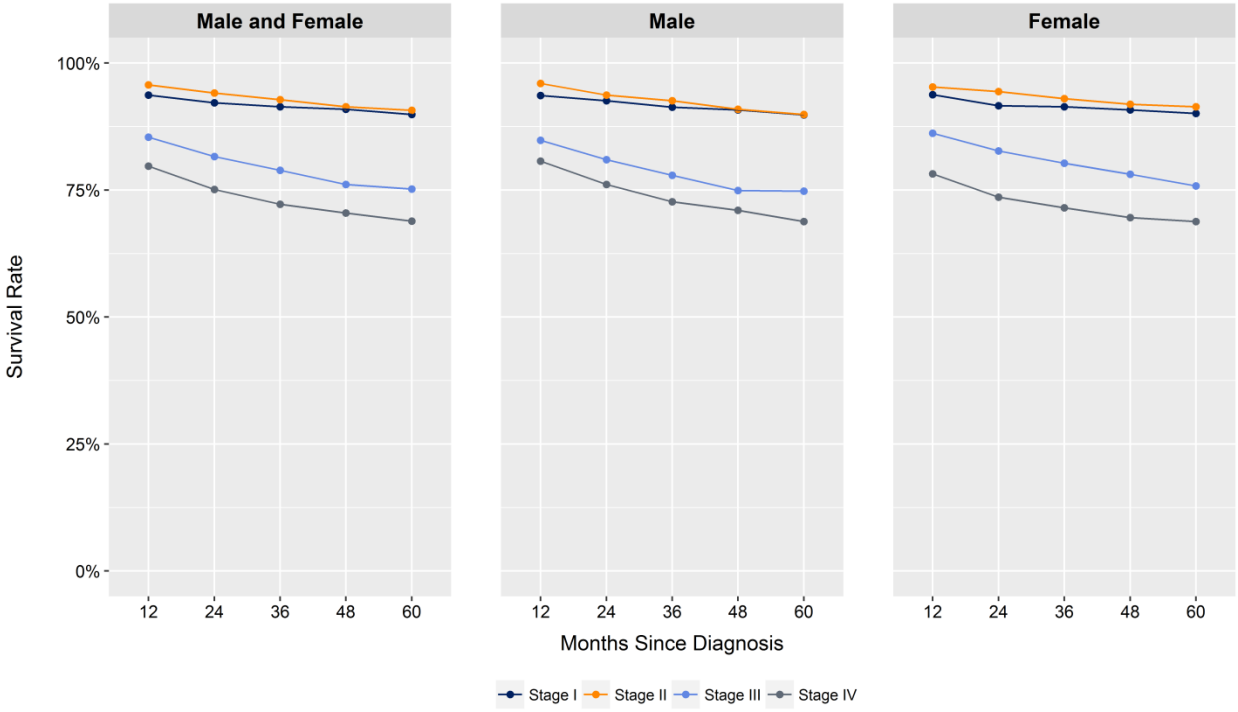
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 7.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Hodgkin Lymphoma



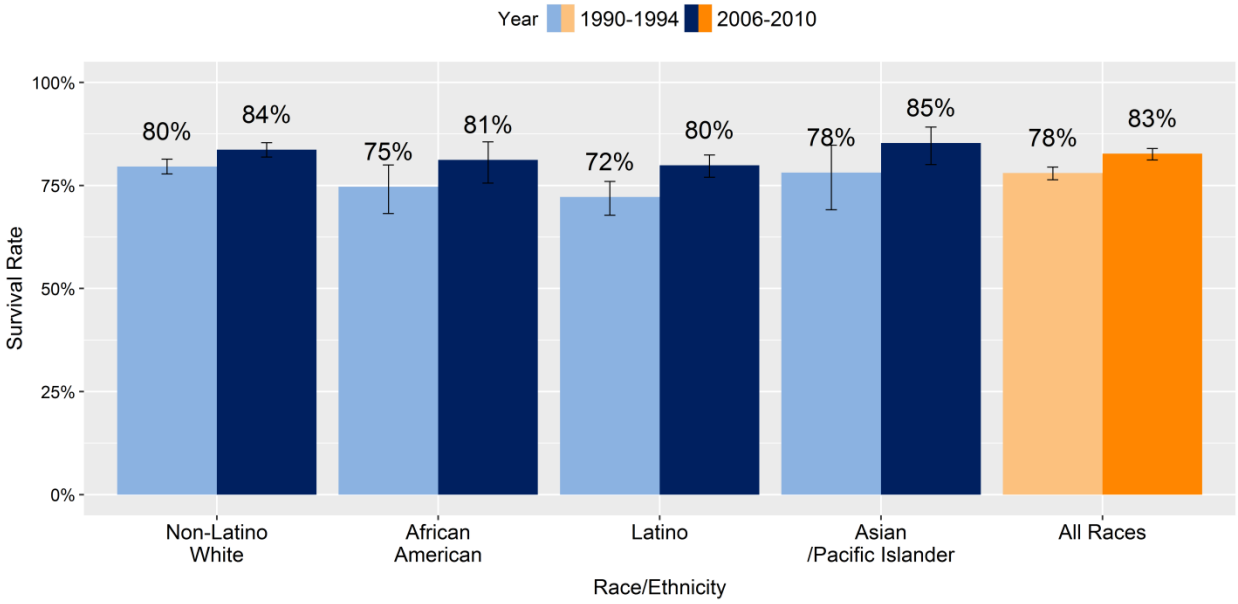
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 7.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Hodgkin Lymphoma



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 7.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Hodgkin Lymphoma



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Kidney and Renal Pelvis Cancer

In 2015, 6,131 Californians were diagnosed with kidney and renal pelvis cancer and 1,416 died of the disease, making it the sixth most commonly diagnosed cancer and the ninth leading cause of cancer death. Kidney and renal pelvis cancer is usually diagnosed after age 60. In California, incidence of the disease has increased among both males and females since 1988, but more sharply among males. Mortality rates, however, have not increased. Currently there is no recommendation for routine screening of the general population for kidney and renal pelvis cancer.

From 2004 to 2015, one-, three-, five-, eight- and ten-year relative survival of kidney and renal pelvis cancer varied most by age at diagnosis, stage at diagnosis, and socioeconomic status (SES). Survival decreased with increasing age at diagnosis, increasing stage at diagnosis, and decreasing SES at any time period. Decreases in survival were greatest for persons diagnosed with stage IV disease at any time period. There were few differences in survival by sex or race/ethnicity (Table 8.1 and Figure 8.1).

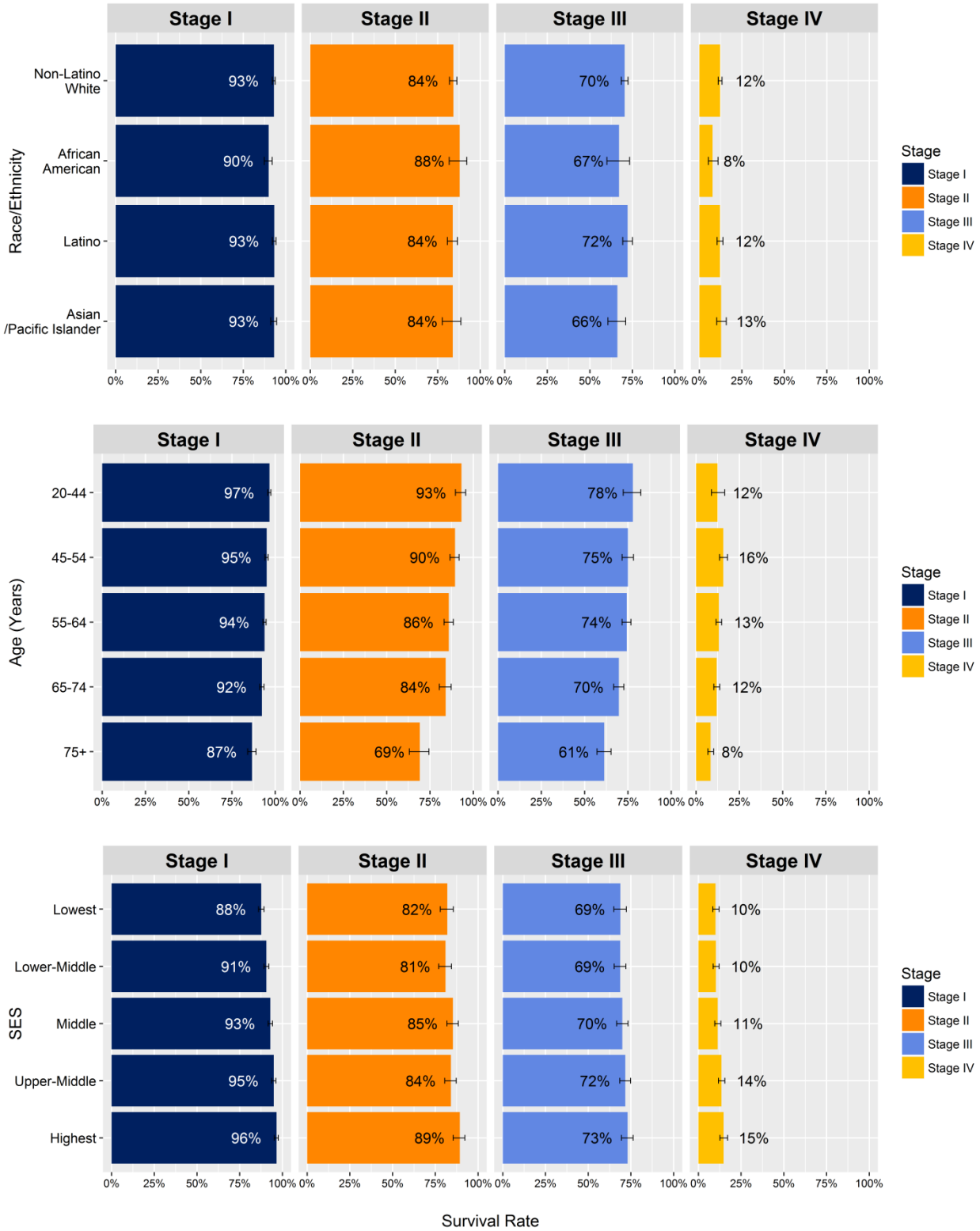
From 1990 to 2010, five-year relative survival of kidney and renal pelvis cancer in California improved by 15 percent. Patients diagnosed with kidney and renal pelvis cancer between 1990 and 1994 had a five-year relative survival rate of 57 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 72 percent. Improved survival rates were observed in each racial/ethnic group but were most pronounced among African Americans, who experienced a 21 percent increase in survival (Figure 8.3).

Table 8.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Kidney and Renal Pelvis Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	46,434	100.0	84.3	75.8	71.5	66.3	62.5
Sex							
Male	29,518	63.6	84.5	75.8	71.3	65.5	61.9
Female	16,916	36.4	83.9	75.8	72.0	67.5	63.6
Race/Ethnicity							
Non-Latino White	26,610	57.3	83.8	75.5	71.2	65.9	62.3
African American	3,348	7.2	84.1	76.0	72.0	68.1	66.0
Latino	12,473	26.9	85.3	77.1	72.7	67.1	63.0
Asian/Pacific Islander	4,003	8.6	84.4	74.2	69.8	64.3	59.4
Age at Diagnosis							
20-44	4,228	9.1	93.5	88.4	85.6	83.2	81.3
45-54	8,232	17.7	89.9	82.2	78.4	74.1	71.7
55-64	12,795	27.6	86.9	78.2	73.6	68.5	65.0
65-74	11,654	25.1	84.7	75.4	71.0	65.0	60.8
75+	9,525	20.5	71.1	61.8	56.5	48.8	41.4
Stage at Diagnosis (American Joint Committee on Cancer)							
I	24,491	52.7	97.7	95.2	92.8	88.1	85.0
II	4,349	9.4	95.8	89.3	84.4	77.0	73.2
III	6,619	14.3	90.9	77.9	70.5	62.2	54.9
IV	8,372	18.0	39.5	18.0	12.0	8.4	6.5
Unknown	2,603	5.6	66.2	52.7	46.0	42.4	37.8
Socioeconomic Status							
1 (Lowest)	7,949	17.1	81.3	71.4	66.3	58.8	54.0
2	9,450	20.4	83.4	74.1	68.7	63.1	58.4
3	9,926	21.4	83.5	75.4	71.0	65.0	62.0
4	9,998	21.5	85.2	77.0	73.4	68.5	64.4
5 (Highest)	9,111	19.6	87.5	80.5	77.3	74.3	71.7

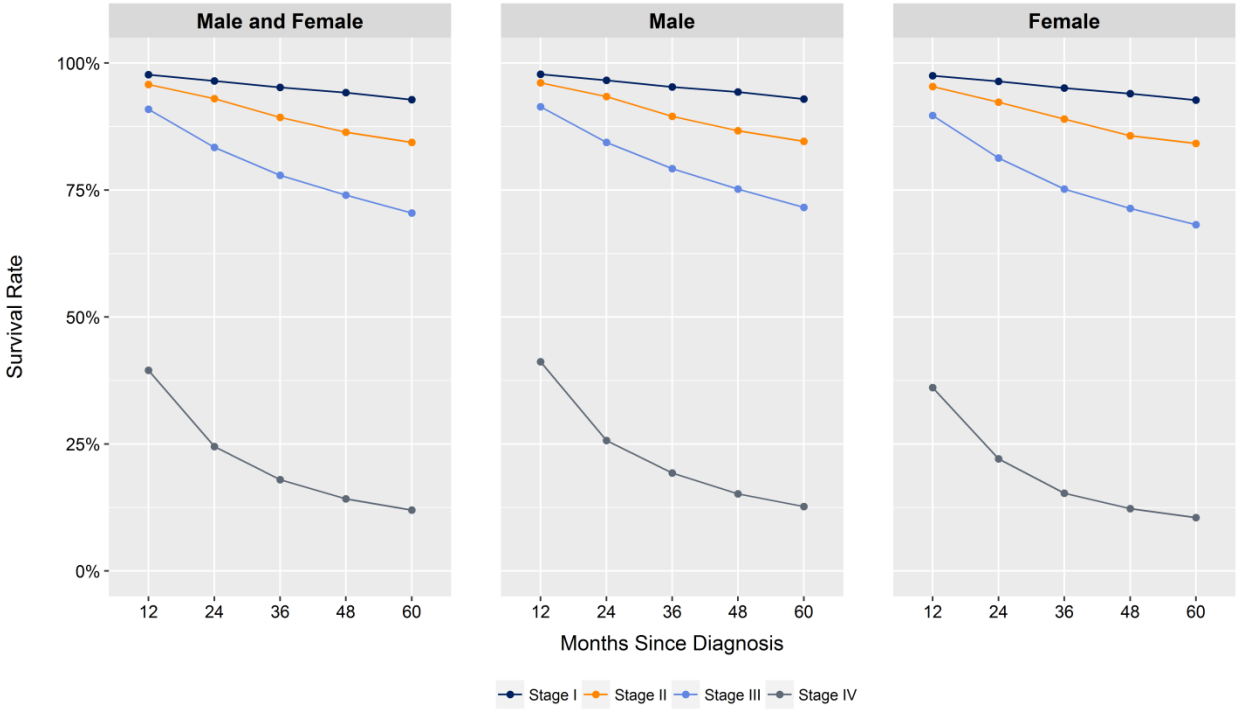
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 8.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Kidney and Renal Pelvis Cancer



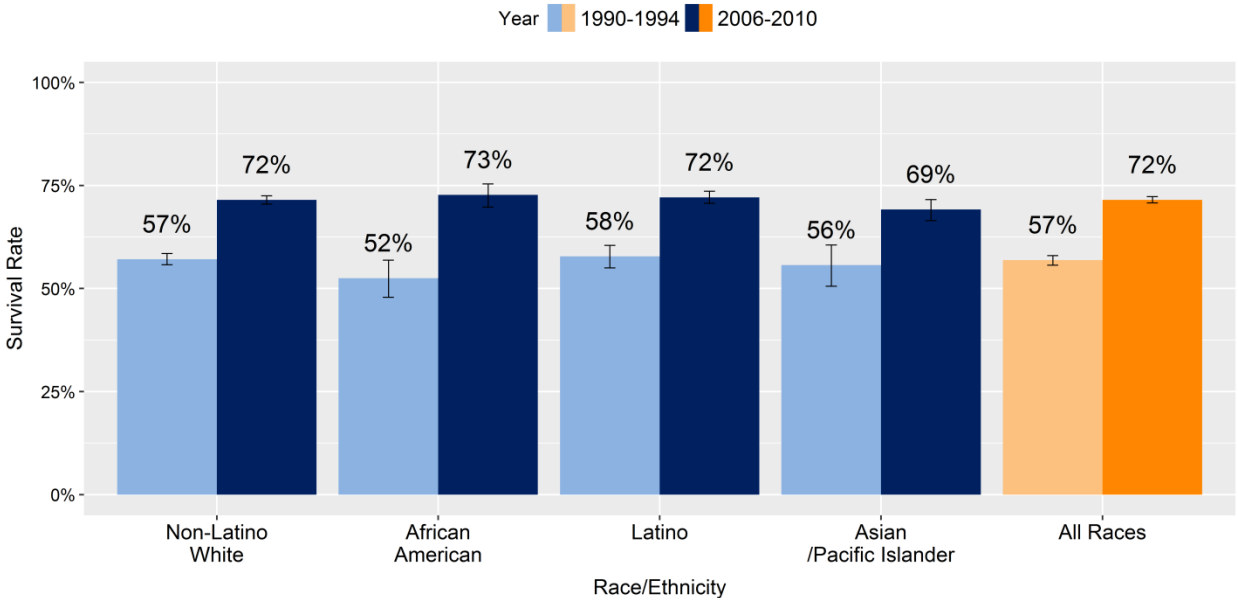
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 8.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Kidney and Renal Pelvis Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 8.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Kidney and Renal Pelvis Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Laryngeal Cancer

Cancer of the larynx ("voice box") is relatively rare and accounts for about one percent of cancers among males and 0.2 percent of cancers among females in California. In 2015, 810 Californians were diagnosed with cancer of the larynx and 275 died of the disease. Smoking is a major risk factor for laryngeal cancer. While there is no recommended routine screening test for laryngeal cancer, reporting symptoms such as voice changes to a physician can help detect the disease early.

From 2004 to 2015, differences in one-, three-, five-, eight- and ten-year relative survival of laryngeal cancer by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES) were evident. Survival among females was approximately two to five percent lower than among males at any time period. Survival among African Americans was four to 18 percent lower than in other racial/ethnic groups at any time period, while survival among Asian/Pacific Islanders was higher. Survival decreased with increasing age, increasing stage, and decreasing SES (Table 9.1 and Figure 9.1).

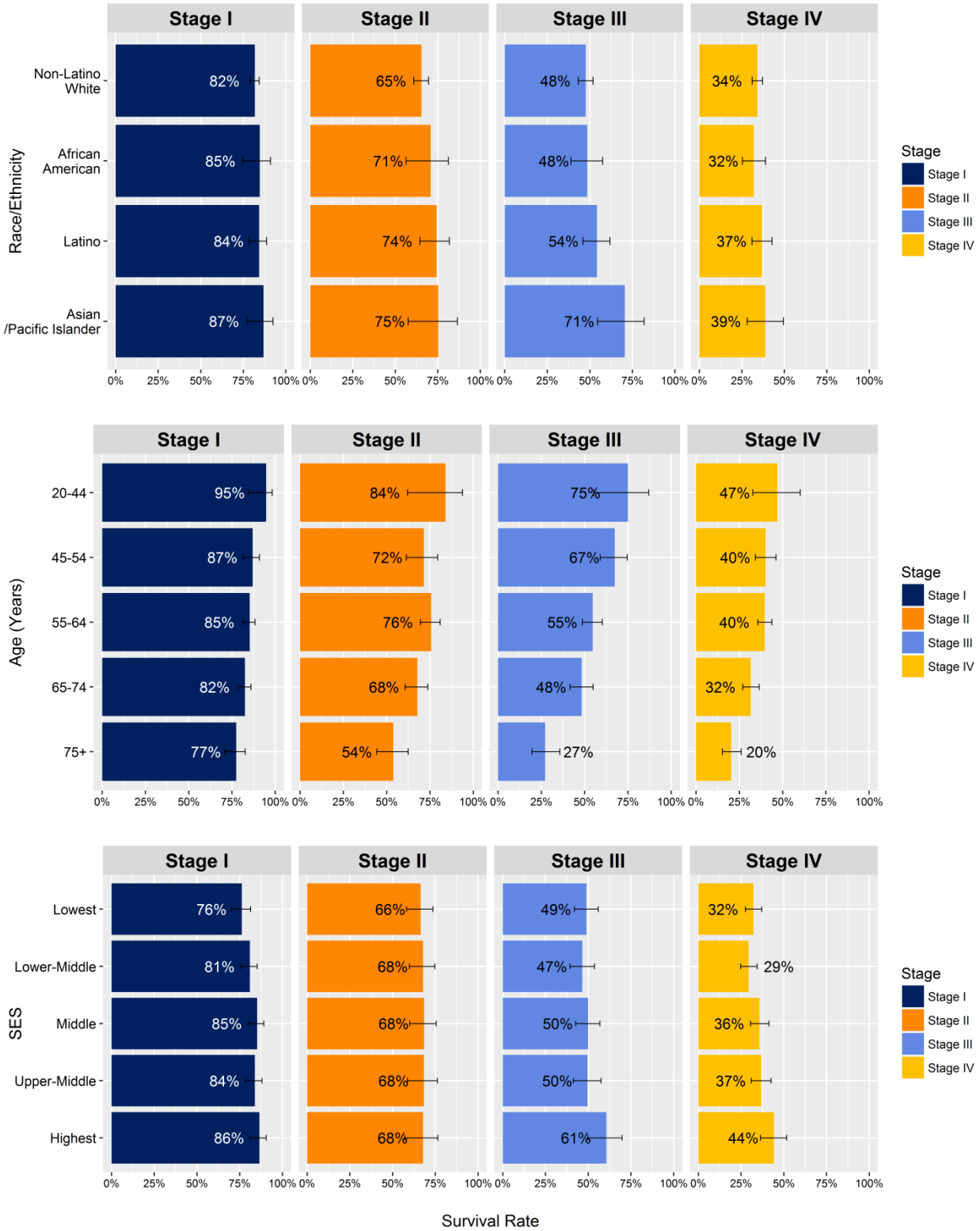
Survival of laryngeal cancer has not improved in California over the past two decades. Patients diagnosed with laryngeal cancer from 1990 to 1994 had a five-year relative survival rate of 64 percent, whereas patients diagnosed with laryngeal cancer from 2006 to 2010 had a five-year relative survival rate of 60 percent. A five percent decline in survival was observed for non-Latino whites; however, small increases in survival rates were observed for African Americans and Latinos (Figure 9.3).

Table 9.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Laryngeal Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	8,002	100.0	84.4	68.0	60.3	51.6	45.5
Sex							
Male	6,634	82.9	84.8	68.9	61.0	52.4	46.4
Female	1,368	17.1	82.5	63.8	56.6	47.8	41.0
Race/Ethnicity							
Non-Latino White	5,285	66.0	84.4	68.0	59.8	51.2	45.1
African American	770	9.6	80.5	61.0	55.3	41.6	35.5
Latino	1,454	18.2	85.5	70.3	62.6	56.2	49.2
Asian/Pacific Islander	493	6.2	87.6	72.3	67.1	58.2	53.9
Age at Diagnosis							
20-44	230	2.9	90.5	79.5	74.5	72.2	69.0
45-54	1,059	13.2	89.0	71.7	64.0	56.8	52.0
55-64	2,432	30.4	86.5	70.5	62.8	54.2	46.5
65-74	2,404	30.0	85.2	69.2	60.6	51.4	45.3
75+	1,877	23.5	77.0	59.4	52.1	40.7	34.8
Stage at Diagnosis (American Joint Committee on Cancer)							
I	2,847	35.6	96.8	88.5	82.9	74.0	67.3
II	1,175	14.7	90.9	77.6	67.9	58.0	50.3
III	1,251	15.6	79.7	58.6	50.2	40.7	34.5
IV	2,142	26.8	69.9	43.8	34.6	25.9	20.9
Unknown	587	7.3	74.0	57.4	50.1	44.7	40.1
Socioeconomic Status							
1 (Lowest)	1,685	21.1	79.8	61.1	53.4	42.9	36.5
2	1,843	23.0	82.4	64.2	55.8	47.0	38.8
3	1,744	21.8	85.4	69.5	62.0	53.8	48.2
4	1,508	18.8	86.9	71.1	63.6	55.4	50.2
5 (Highest)	1,222	15.3	89.4	77.4	69.7	62.1	56.4

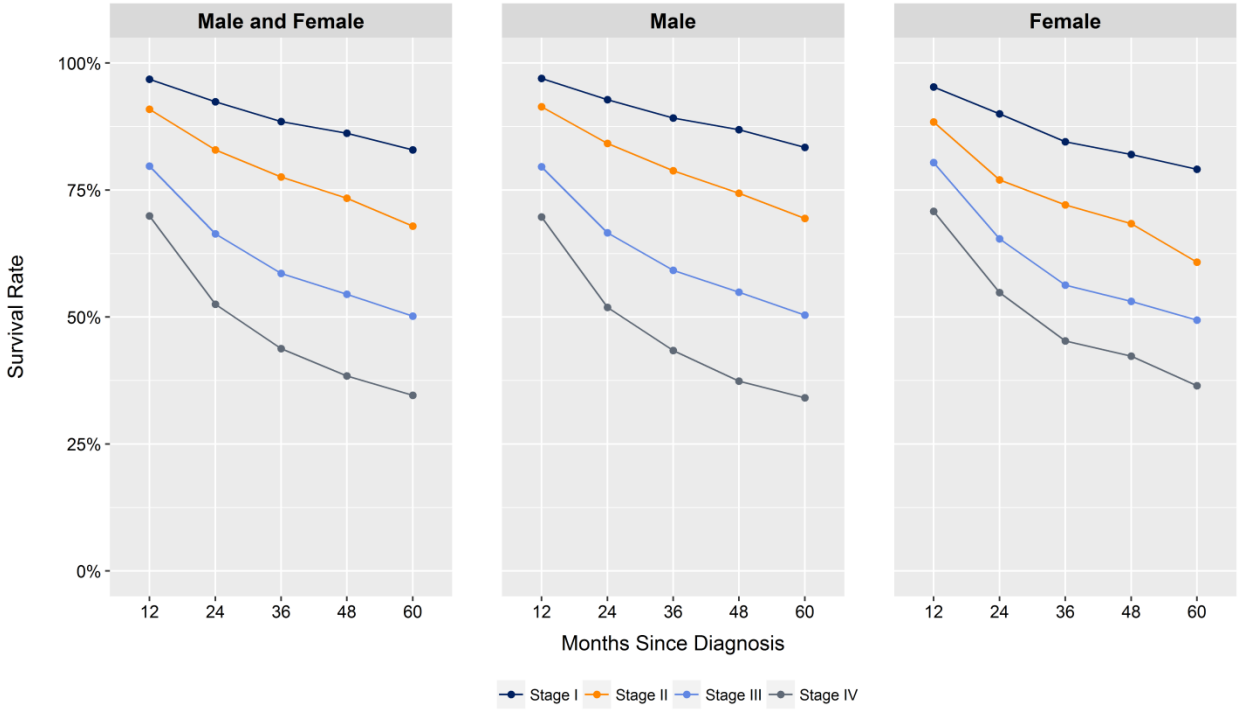
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 9.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Laryngeal Cancer



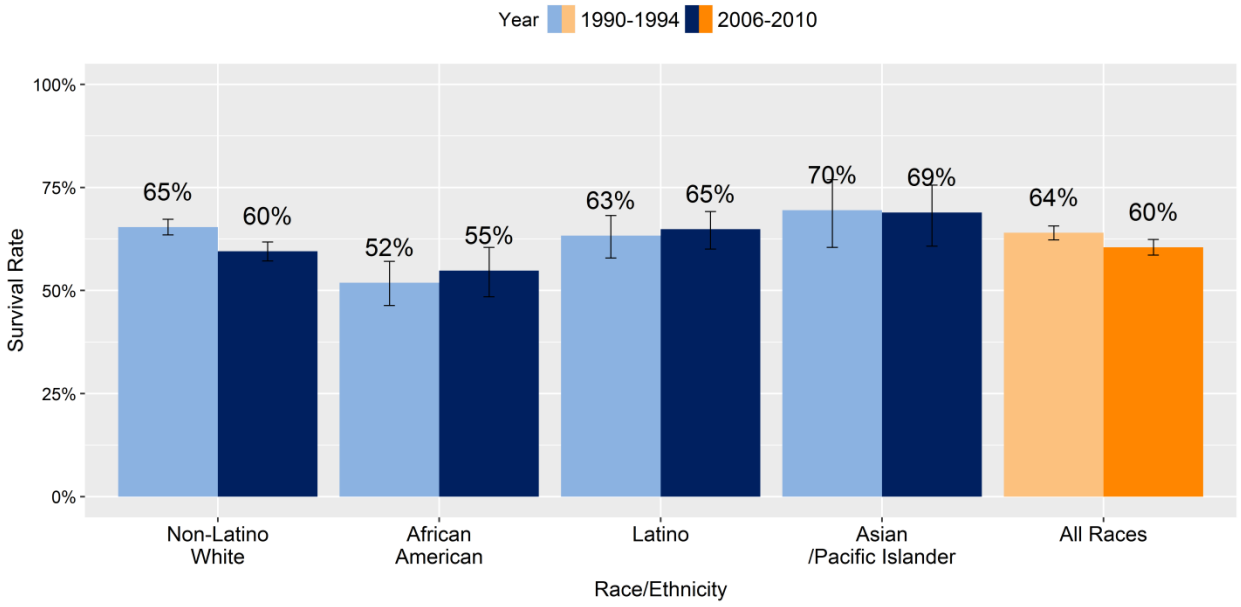
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 9.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Laryngeal Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 9.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Laryngeal Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Leukemia

In 2015, 4,702 Californians were diagnosed with leukemia and 2,338 died of the disease. Leukemia refers to a group of cancers that occur in blood cells. Leukemia is grouped into four major types based on how quickly the disease progresses and the type of blood cells involved: acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), acute myeloid leukemia (AML), and chronic myeloid leukemia (CML). Acute types of leukemia progress rapidly and can result in death in a matter of months if not treated. Chronic types progress slowly and often remain asymptomatic for several years. Currently, routine screening is not recommended for ALL, CLL, AML, or CML. However, CLL and CML are sometimes found by routine blood tests. Unlike cancers that form solid tumors, leukemia is not classified into stages. Instead, the prognosis for patients with leukemia depends on several factors, including subtype and age at diagnosis.

From 2004 to 2015, survival among persons with leukemia in California decreased from 71.2 percent at one year post diagnosis to 45 percent at ten years post-diagnosis. Males had a small survival advantage of two to three percent over females at one, three, and five years post-diagnosis. However, at eight and ten years, males and females had similar survival rates. At each time period, Asian/Pacific Islanders had the lowest survival rates compared to non-Latino whites, African Americans, and Latinos. Survival decreased as age at diagnosis increased and as socioeconomic status decreased for each time period (Table 10.1 and Figure 10.1).

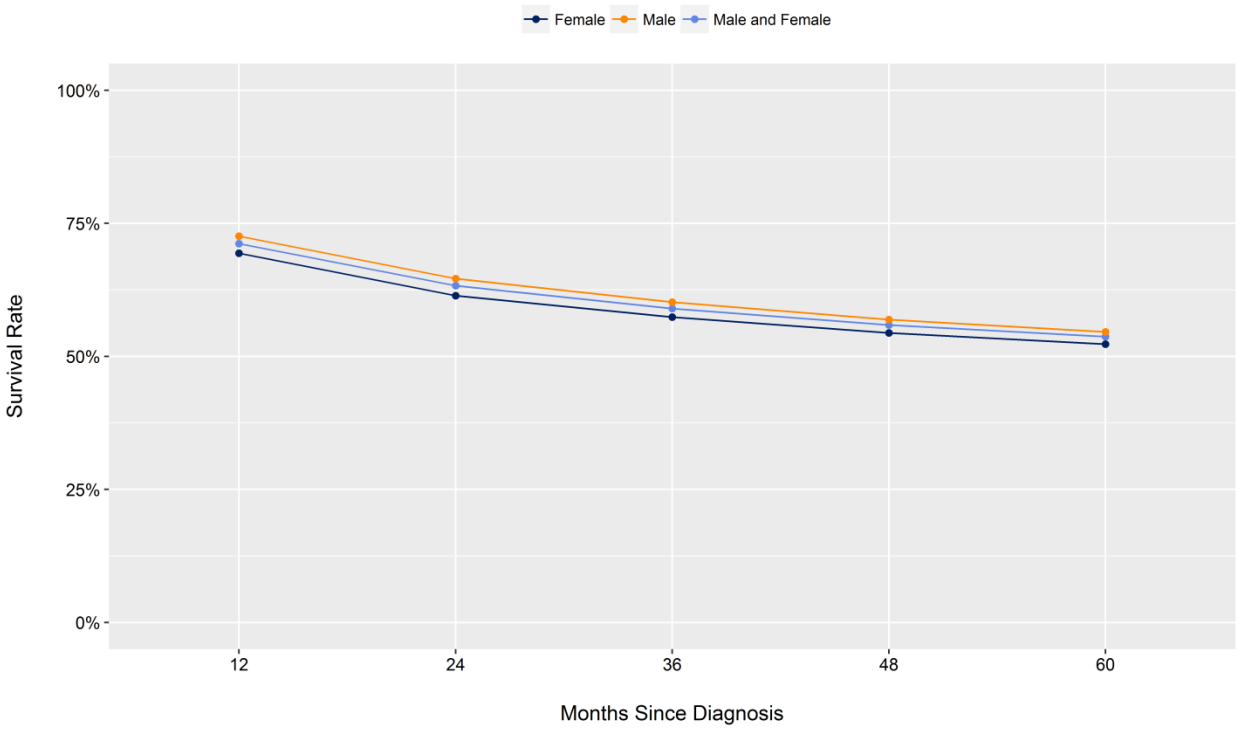
Survival among persons with leukemia in California improved substantially between 1990 and 2010. Persons diagnosed with leukemia between 1990 and 1994 had a five-year relative survival rate of 39 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 54 percent. Improved survival rates were observed in each racial/ethnic group (Figure 10.2).

Table 10.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Leukemia

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	34,824	100.0	71.2	59.0	53.7	48.1	45.0
Sex							
Male	20,338	58.4	72.6	60.2	54.6	48.4	44.9
Female	14,486	41.6	69.4	57.4	52.3	47.8	45.0
Race/Ethnicity							
Non-Latino White	22,971	66.0	72.7	62.3	56.9	51.4	48.3
African American	1,815	5.2	72.5	58.6	51.9	43.3	39.2
Latino	6,963	20.0	69.9	53.2	47.8	42.1	38.9
Asian/Pacific Islander	3,075	8.8	62.8	47.9	43.0	39.7	36.9
Age at Diagnosis							
20-44	5,174	14.9	82.2	65.5	61.1	57.5	56.5
45-54	4,599	13.2	80.9	69.9	65.9	62.2	60.0
55-64	6,869	19.7	79.9	69.0	64.3	58.4	55.1
65-74	7,643	21.9	71.7	60.3	54.6	47.2	42.9
75+	10,539	30.3	55.5	43.4	36.1	29.9	25.0
Socioeconomic Status							
1 (Lowest)	5,186	14.9	65.2	49.5	43.3	36.0	33.2
2	6,386	18.3	67.6	54.0	48.5	42.7	38.7
3	7,071	20.3	70.1	57.4	50.9	45.5	41.7
4	7,803	22.4	72.5	61.2	56.2	51.1	48.1
5 (Highest)	8,378	24.1	77.6	68.1	63.7	59.0	56.6

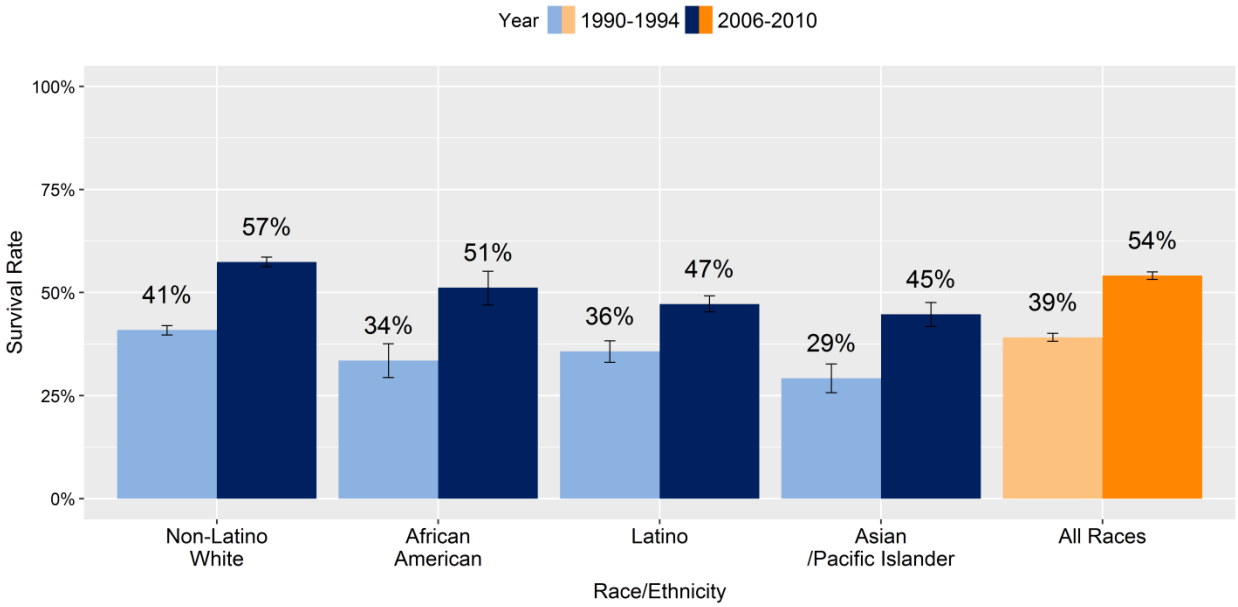
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.1: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.2: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Acute Lymphocytic Leukemia

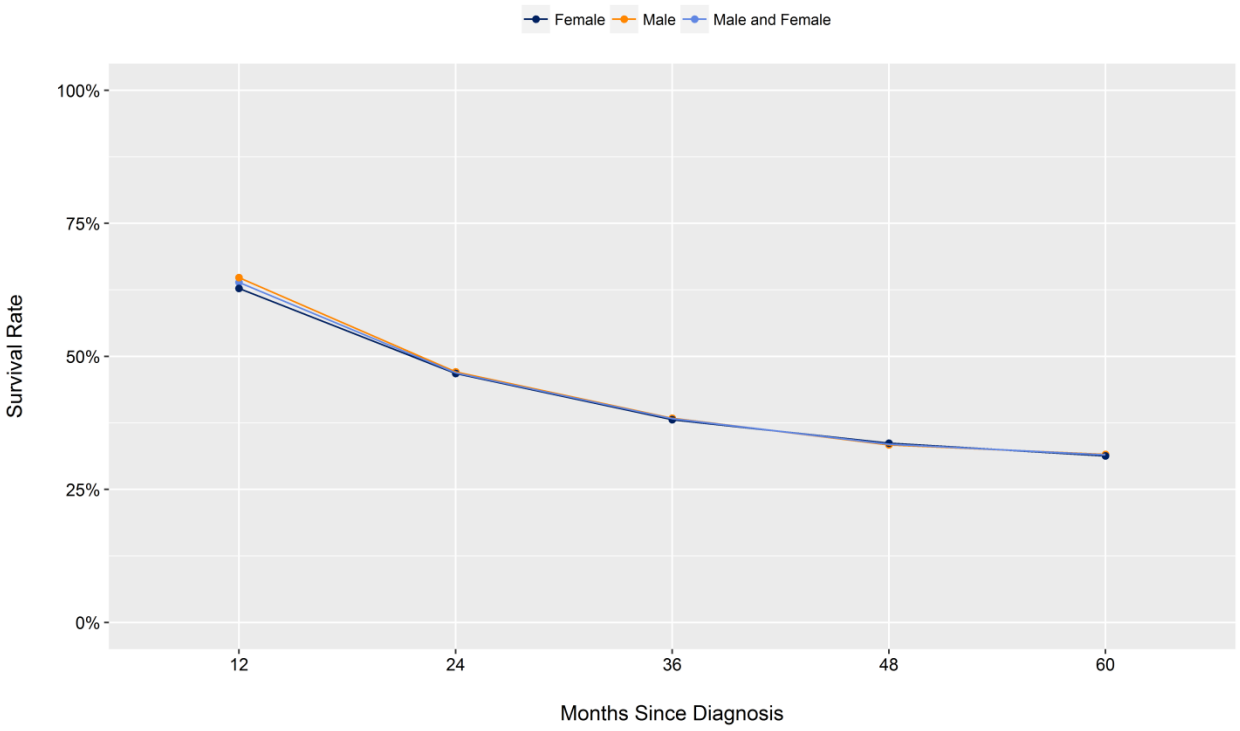
Acute lymphocytic leukemia (ALL) is quite rare. In 2015, 769 Californians were diagnosed with ALL and 233 died of the disease. Disparities in ALL survival were observed by race/ethnicity, age at diagnosis, and socioeconomic status (SES). African Americans had the lowest survival at each time interval post-diagnosis. The survival disparity between African Americans and non-Latino whites was greatest at five-years (14% versus 32.7%). ALL survival decreased with increasing age at diagnosis. Individuals with the lowest SES had poorer survival than those with the highest SES (Table 10.2). Between 1990 and 2010, ALL survival improved by 11 percent. Improved survival rates were observed among patients in each racial/ethnic group except African American. ALL survival among African Americans decreased from 20 to 12 percent (Figure 10.4).

Table 10.2: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Acute Lymphocytic Leukemia

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	2,984	100.0	63.9	38.3	31.5	27.0	25.8
Sex							
Male	1,694	56.8	64.8	38.4	31.6	27.0	25.3
Female	1,290	43.2	62.8	38.1	31.3	26.8	26.4
Race/Ethnicity							
Non-Latino White	1,092	36.6	61.0	38.7	32.7	27.7	27.7
African American	115	3.9	55.5	24.1	14.0	14.0	14.0
Latino	1,504	50.4	66.6	37.8	30.4	25.5	23.6
Asian/Pacific Islander	273	9.1	64.7	44.9	39.6	37.5	33.3
Age at Diagnosis							
20-44	1,436	48.1	76.6	49.5	41.9	37.7	36.3
45-54	509	17.1	65.1	39.1	32.6	26.7	25.0
55-64	449	15.0	58.5	29.4	20.9	14.7	14.7
65-74	313	10.5	47.9	22.3	17.0	10.1	8.1
75+	277	9.3	22.4	8.6	5.5	4.9	4.9
Socioeconomic Status							
1 (Lowest)	785	26.3	65.7	37.6	30.0	26.2	25.5
2	633	21.2	62.3	37.4	29.1	25.2	23.8
3	605	20.3	62.4	37.7	31.8	25.6	23.8
4	508	17.0	61.9	36.3	30.5	27.3	26.5
5 (Highest)	453	15.2	67.7	43.7	37.6	31.8	30.8

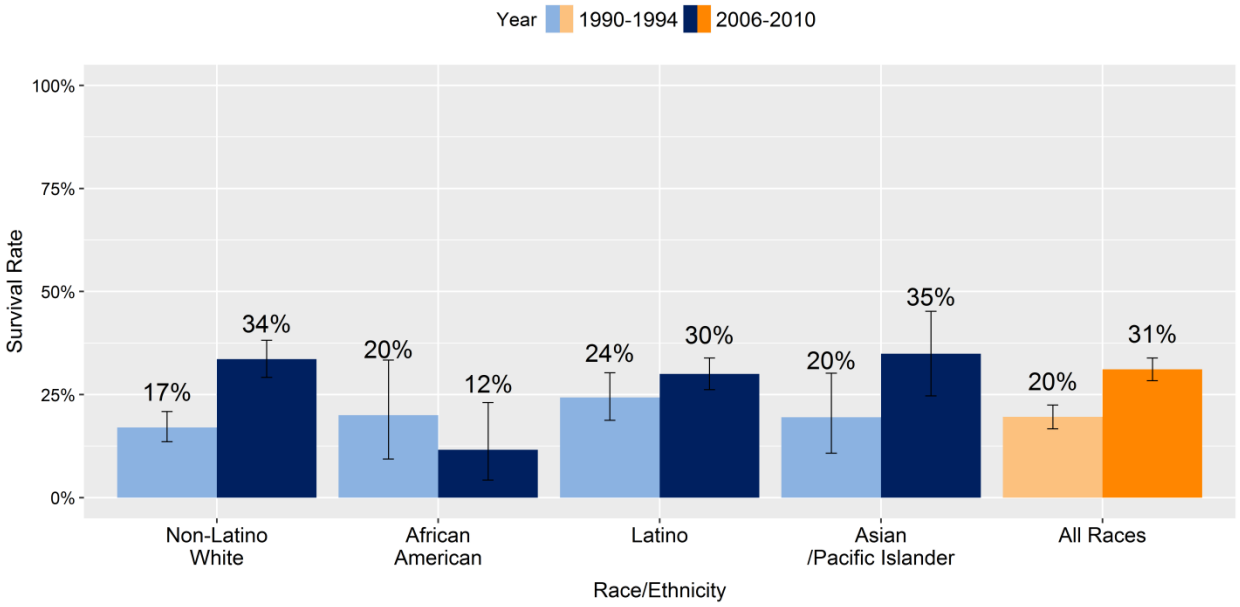
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.3: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Acute Lymphocytic Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.4: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Acute Lymphocytic Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Chronic Lymphocytic Leukemia

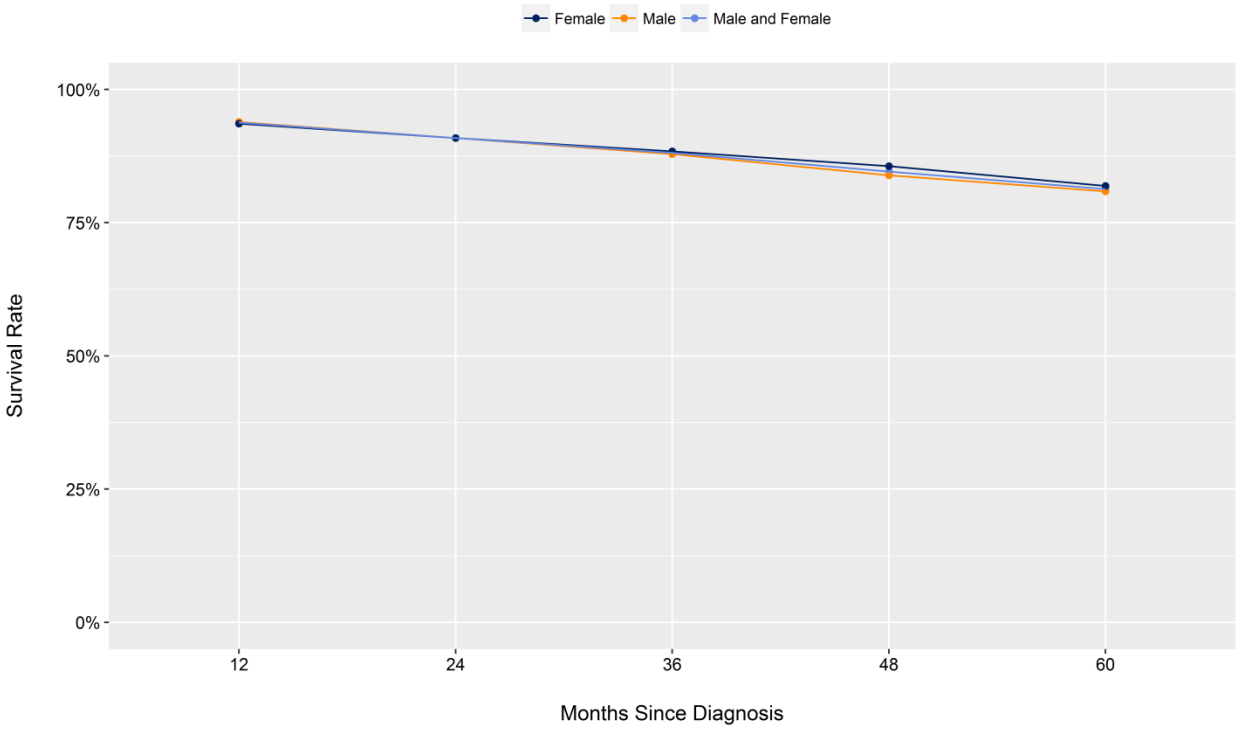
In 2015, 1,398 Californians were diagnosed with chronic lymphocytic leukemia (CLL) and 408 died of the disease. Of the four major types of leukemia, CLL had the highest survival rates, ranging from 93.8 percent at one year to 66.1 percent at ten years post-diagnosis. Disparities in CLL survival rates were observed by sex, race/ethnicity, age at diagnosis, and socioeconomic status (SES). Females had better survival than males at eight and ten years. African Americans had poorer survival at each time period compared to patients in the other racial/ethnic groups. At ten years, the survival rate for African Americans was 23 percent lower than that of non-Latino whites. Survival declined with advancing age at diagnosis. Persons with the lowest SES experienced poorer survival than those with the highest SES (Table 10.3). Overall, five-year survival of CLL increased by 12 percent between 1990 and 2010. Improved survival rates were observed in each racial/ethnic group (Figure 10.6).

Table 10.3: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Chronic Lymphocytic Leukemia

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	13,261	100.0	93.8	88.1	81.3	72.5	66.1
Sex							
Male	7,961	60.0	93.9	87.9	80.9	70.9	64.1
Female	5,300	40.0	93.6	88.4	81.9	74.8	69.0
Race/Ethnicity							
Non-Latino White	10,743	81.0	94.2	88.8	82.3	73.9	68.3
African American	681	5.1	90.9	83.7	74.6	57.0	45.8
Latino	1,306	9.8	92.4	84.7	76.8	67.8	59.6
Asian/Pacific Islander	531	4.0	93.7	87.9	80.7	72.2	60.5
Age at Diagnosis							
20-44	268	2.0	98.9	96.2	94.8	88.5	86.9
45-54	1,378	10.4	98.7	95.8	92.5	88.9	85.8
55-64	3,125	23.6	97.4	95.0	90.8	83.8	79.3
65-74	3,683	27.8	96.2	92.1	85.4	74.4	66.9
75+	4,807	36.2	87.8	77.4	66.8	55.9	45.8
Socioeconomic Status							
1 (Lowest)	1,380	10.4	89.1	80.4	71.2	56.9	49.9
2	2,201	16.6	91.6	83.0	75.1	64.9	56.1
3	2,668	20.1	92.7	86.2	77.0	68.0	60.5
4	3,164	23.9	94.2	89.5	83.5	75.5	68.4
5 (Highest)	3,848	29.0	97.1	93.9	89.5	82.8	79.2

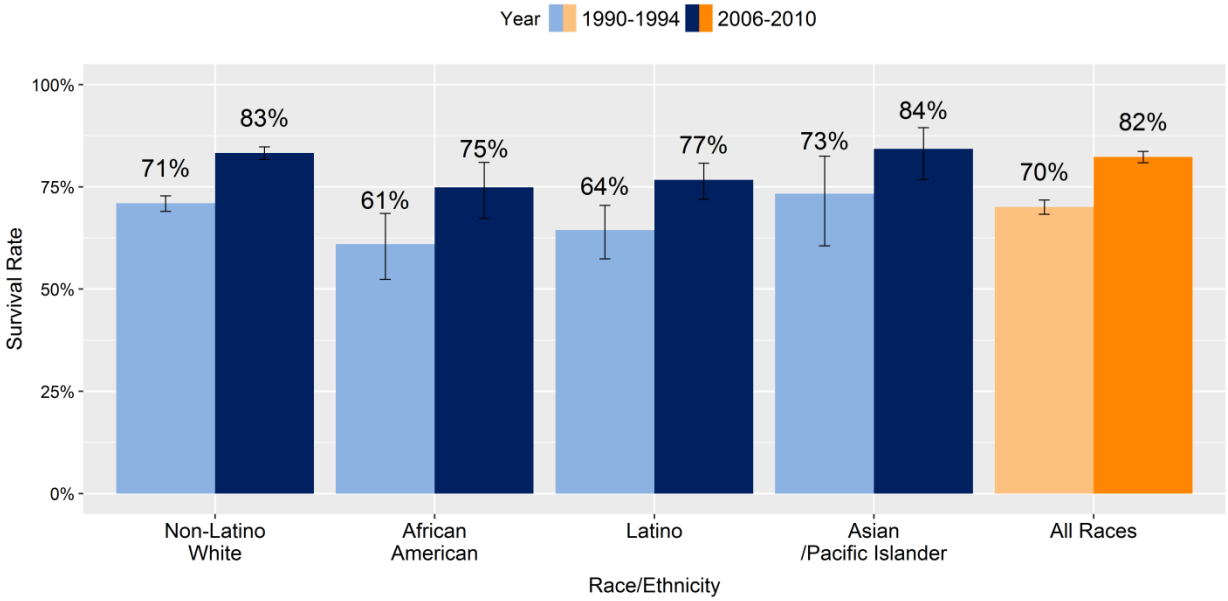
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.5: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Chronic Lymphocytic Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.6: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Chronic Lymphocytic Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Acute Myeloid Leukemia

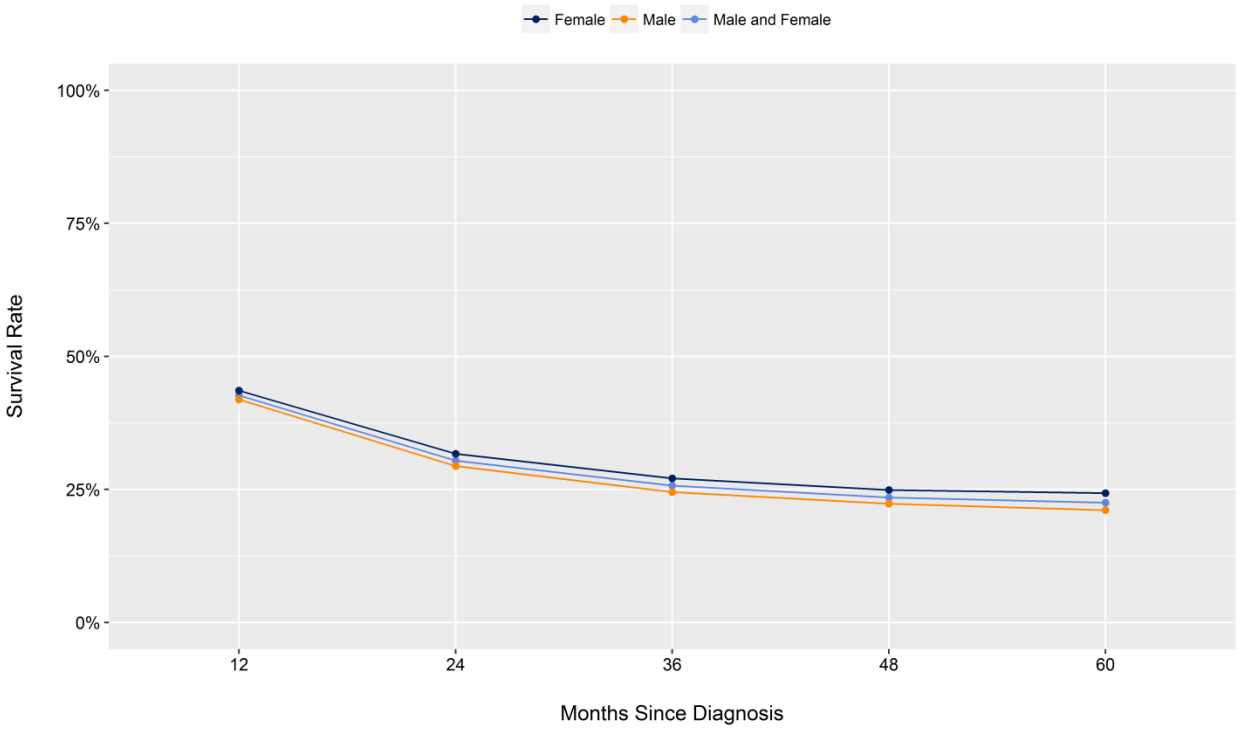
In 2015, 1,509 Californians were diagnosed with acute myeloid leukemia (AML) and 1,036 died of the disease. Of the four major types of leukemia covered in this report, AML had the lowest survival rates, ranging from 42.7 percent at one year to 19.8 percent at ten years post-diagnosis. Disparities in AML survival were observed by sex, race/ethnicity, age at diagnosis, and socioeconomic status (SES). Females had better survival rates than males at each time period post-diagnosis and the difference between female and male survival increased with time. Latinos had the highest survival rates at each time interval post-diagnosis and non-Latino whites had the lowest. Survival declined with advancing age at diagnosis. Persons with the lowest SES experienced poorer survival than those with the highest SES (Table 10.4, and Figure 10.7). Overall, five-year relative survival of AML increased by nine percent between 1990 and 2010. Improved survival rates were observed in each racial/ethnic group (Figure 10.8).

Table 10.4: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Acute Myeloid Leukemia

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	10,470	100.0	42.7	25.7	22.5	20.7	19.8
Sex							
Male	5,737	54.8	41.9	24.5	21.1	19.0	17.8
Female	4,733	45.2	43.6	27.1	24.3	22.8	22.3
Race/Ethnicity							
Non-Latino White	6,157	58.8	38.4	22.5	19.6	17.6	17.0
African American	559	5.3	45.4	25.0	22.0	21.0	21.0
Latino	2,338	22.3	52.4	34.2	30.5	28.7	26.4
Asian/Pacific Islander	1,416	13.5	44.6	26.4	22.9	21.4	20.6
Age at Diagnosis							
20-44	1,862	17.8	75.5	56.5	52.8	50.1	49.5
45-54	1,363	13.0	61.1	43.4	39.5	38.0	36.1
55-64	1,842	17.6	53.2	32.2	27.5	23.9	21.1
65-74	2,170	20.7	34.2	14.6	10.7	8.9	8.6
75+	3,233	30.9	15.3	3.6	2.4	1.5	1.2
Socioeconomic Status							
1 (Lowest)	1,761	16.8	41.6	24.3	20.8	19.2	18.2
2	2,012	19.2	39.6	24.1	21.1	19.0	17.9
3	2,148	20.5	42.6	24.9	21.4	20.3	19.3
4	2,298	21.9	43.8	26.3	23.4	21.1	20.1
5 (Highest)	2,251	21.5	45.3	28.4	25.3	23.2	22.7

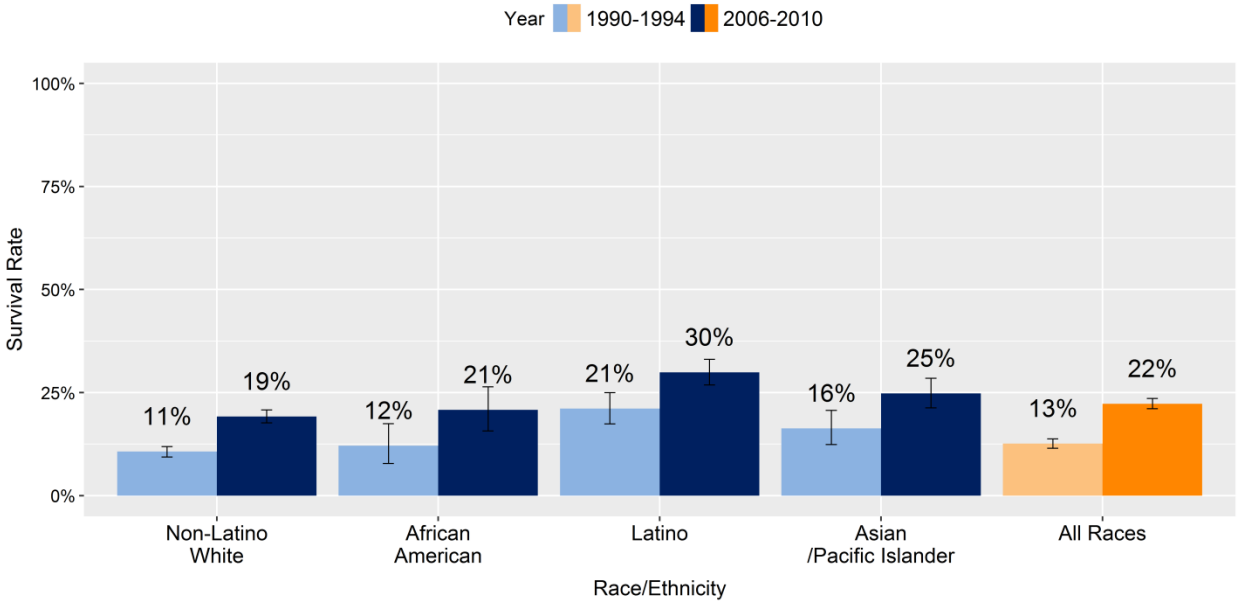
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.7: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Acute Myeloid Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.8: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Acute Myeloid Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Chronic Myeloid Leukemia

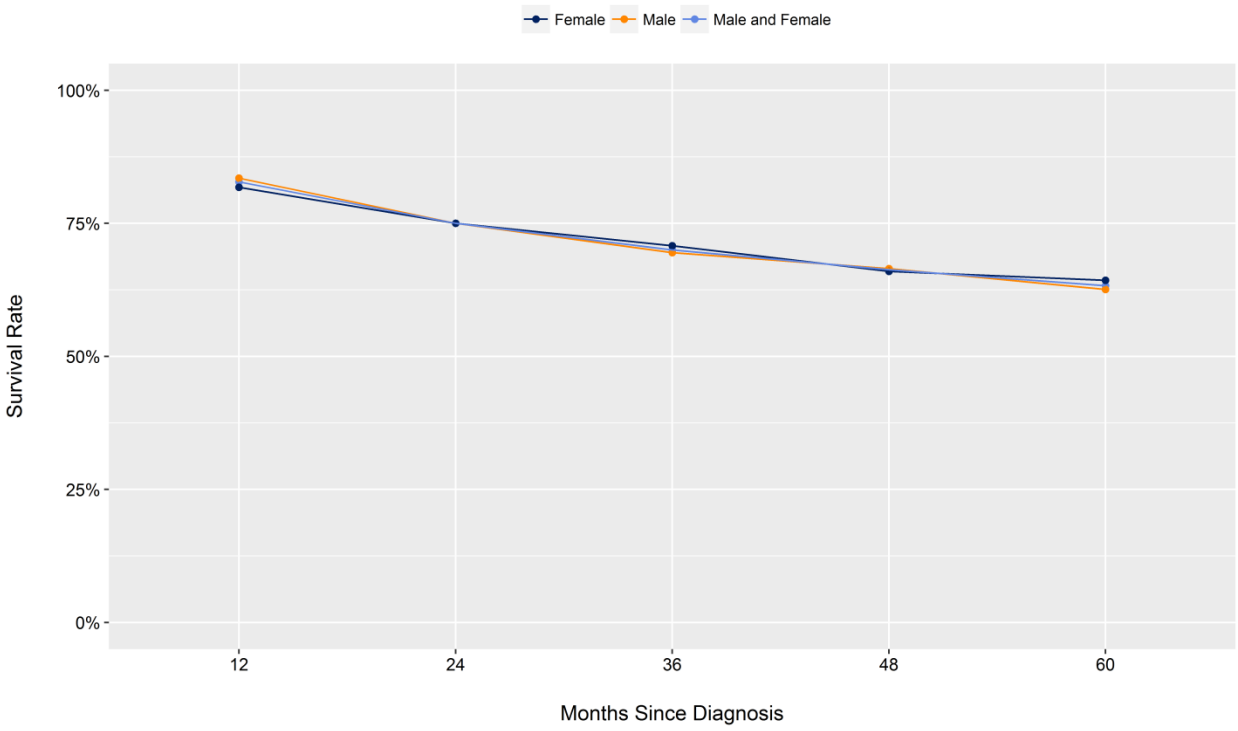
Chronic myeloid leukemia (CML) is quite rare. In 2015, 595 Californians were diagnosed with CML and 133 died of the disease. Disparities in CML survival were observed by sex, race/ethnicity, age at diagnosis, and socioeconomic status (SES). Females had two to three percent better survival rates than males at five, eight, and ten years post-diagnosis. African Americans had better survival at each time period compared to non-Latino whites, who had the lowest survival rates. Survival declined with advancing age at diagnosis. Persons with the lowest SES experienced poorer survival than those with the highest SES (Table 10.5 and Figure 10.9). Overall, five-year relative survival of CML increased nearly two-fold between 1990 and 2010. Patients diagnosed with CML between 1990 and 1994 had a five-year relative survival rate of 33 percent, whereas patients diagnosed between 2006 and 2010 had a five-year relative survival rate of 62 percent. Improved survival rates were observed in each racial/ethnic group (Figure 10.10).

Table 10.5: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Chronic Myeloid Leukemia

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	5,140	100.0	82.8	70.0	63.3	56.3	54.2
Sex							
Male	3,061	59.6	83.5	69.5	62.6	55.1	52.8
Female	2,079	40.4	81.8	70.8	64.3	57.9	56.1
Race/Ethnicity							
Non-Latino White	2,987	58.1	79.0	65.4	58.1	52.1	49.7
African American	342	6.7	90.3	80.1	72.9	63.5	61.9
Latino	1,230	23.9	88.7	78.0	72.9	62.4	60.3
Asian/Pacific Islander	581	11.3	85.3	71.0	64.8	60.0	58.5
Age at Diagnosis							
20-44	1,140	22.2	97.1	92.2	89.2	84.5	82.7
45-54	810	15.8	95.6	87.9	83.2	76.5	74.8
55-64	886	17.2	89.1	78.7	72.4	62.5	60.5
65-74	963	18.7	78.0	60.7	53.9	43.7	39.9
75+	1,341	26.1	61.8	39.9	26.9	20.1	17.9
Socioeconomic Status							
1 (Lowest)	832	16.2	82.9	69.3	61.3	48.5	44.8
2	1,004	19.5	83.0	67.4	61.7	55.9	54.2
3	1,034	20.1	81.6	68.7	62.9	56.2	52.9
4	1,148	22.3	81.3	70.4	63.6	57.6	57.6
5 (Highest)	1,122	21.8	85.1	73.7	66.3	61.0	58.0

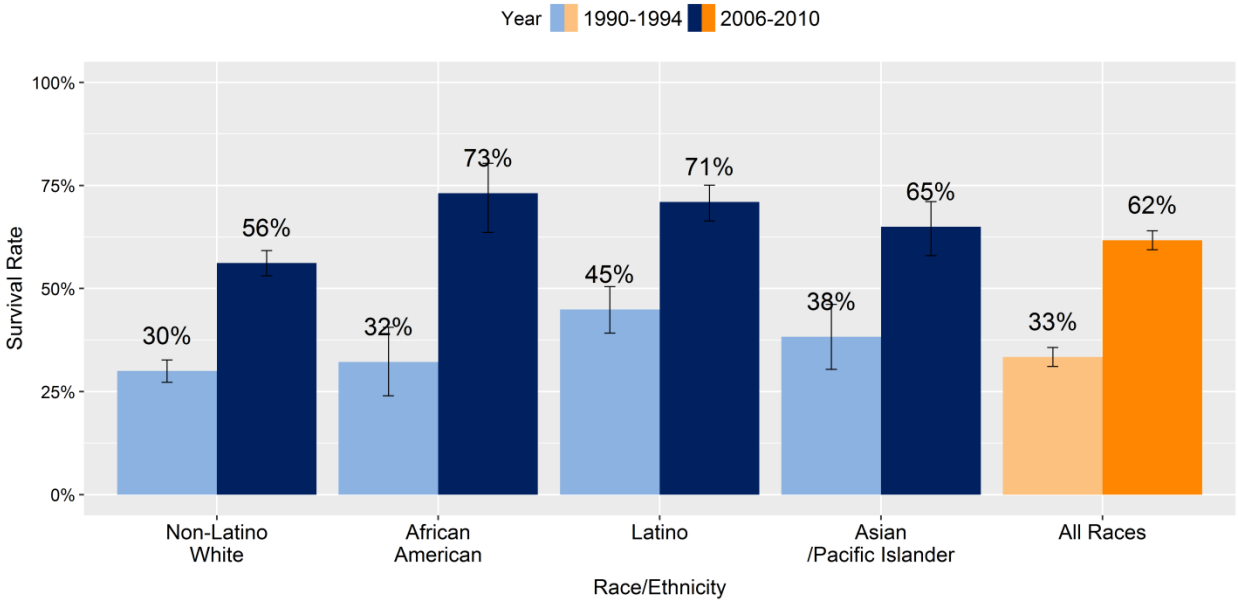
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.9: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Chronic Myeloid Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 10.10: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Chronic Myeloid Leukemia



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Liver and Intrahepatic Bile Duct Cancer

Liver and intrahepatic bile duct (IBD) cancer is one of the most commonly diagnosed cancers in the world, although it occurs less commonly in the United States than in many other regions. Among Californians, liver and IBD cancer was the tenth most commonly diagnosed cancer and the fourth most common cause of cancer death in 2015, with 4,185 Californians diagnosed with and 3,342 dying of the disease.

The major risk factors for liver cancer are chronic infection with the hepatitis B or hepatitis C virus and cirrhosis of the liver. Hepatitis B vaccination is recommended for all children to protect against infection, but there is no vaccine for hepatitis C. There are no widely recommended liver cancer screening tests. It can be difficult to diagnose liver cancer early because signs and symptoms do not appear until the disease is advanced.

From 2004 to 2015, liver and IBD cancer survival rates were relatively low for all time periods (45.9% at one year, 12% at ten years). There were differences in one-, three-, five-, eight- and ten-year relative survival by race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES). At any time period, survival among African Americans was lower than for other racial/ethnic groups, ranging from two to 10 percent lower, while survival among Asian/Pacific Islanders was higher. Survival decreased with increasing age, increasing stage, and decreasing SES. Low survival was particularly apparent for patients diagnosed with stage III or IV disease and for those with the lowest SES (Table11.1 and Figures 11.1-11.2).

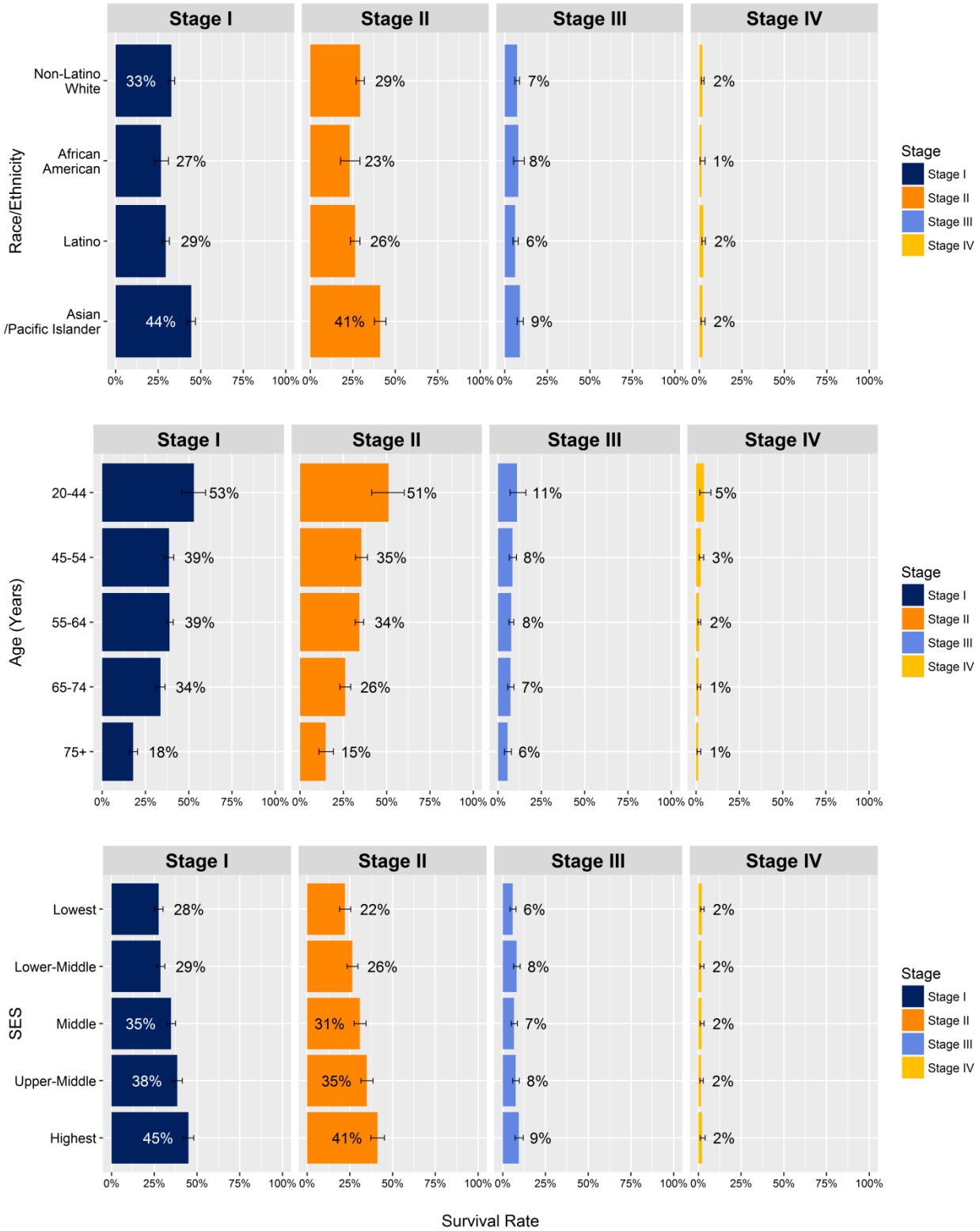
Survival of liver and IBD cancer has improved in California over the past two decades by 11 percent. Patients diagnosed with liver and IBD cancer from 1990 to 1994 had a five-year relative survival rate of six percent, whereas patients diagnosed with liver and IBD cancer from 2006 to 2010 had a five-year relative survival rate of 17 percent. Increased survival rates were observed in all racial/ethnic groups (Figure 11.3).

Table 11.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Liver and Intrahepatic Bile Duct Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	35,111	100.0	45.9	24.6	17.5	13.6	12.0
Sex							
Male	25,357	72.2	46.2	24.6	17.3	13.7	12.0
Female	9,754	27.8	45.2	24.6	18.0	13.5	11.9
Race/Ethnicity							
Non-Latino White	13,901	39.6	44.3	22.8	16.2	12.9	11.7
African American	2,676	7.6	41.6	20.9	12.9	8.5	7.2
Latino	10,363	29.5	44.5	22.5	15.5	12.0	10.3
Asian/Pacific Islander	8,171	23.3	52.0	31.6	23.4	18.4	16.1
Age at Diagnosis							
20-44	1,171	3.3	51.4	32.5	26.7	23.9	23.1
45-54	5,787	16.5	49.4	28.2	21.0	17.7	15.6
55-64	12,425	35.4	49.7	27.7	20.4	16.2	14.5
65-74	8,581	24.4	47.5	24.6	16.7	11.9	9.8
75+	7,147	20.4	33.5	14.6	8.1	4.2	3.3
Stage at Diagnosis (American Joint Committee on Cancer)							
I	10,015	28.5	69.4	45.3	34.3	26.8	23.2
II	5,235	14.9	72.1	42.0	30.9	25.3	24.1
III	5,372	15.3	36.0	13.2	7.4	5.0	4.0
IV	5,921	16.9	18.2	4.3	1.9	1.4	1.4
Unknown	8,568	24.4	27.9	11.4	7.0	5.2	4.3
Socioeconomic Status							
1 (Lowest)	7,652	21.8	40.4	19.9	13.2	9.7	8.3
2	8,019	22.8	43.6	22.4	15.2	11.4	9.4
3	7,467	21.3	45.8	24.4	17.2	13.4	11.8
4	6,718	19.1	49.1	27.2	19.9	15.2	14.0
5 (Highest)	5,255	15.0	53.5	31.8	24.2	20.5	18.2

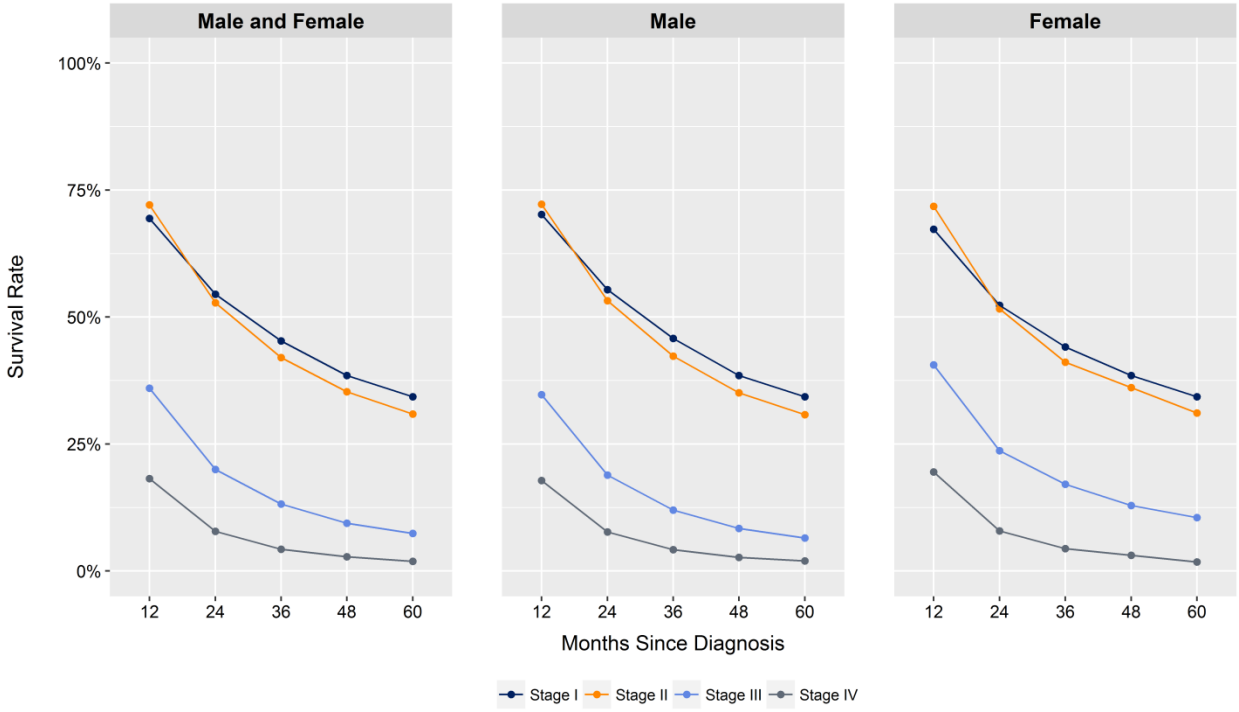
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 11.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Liver and Intrahepatic Bile Duct Cancer



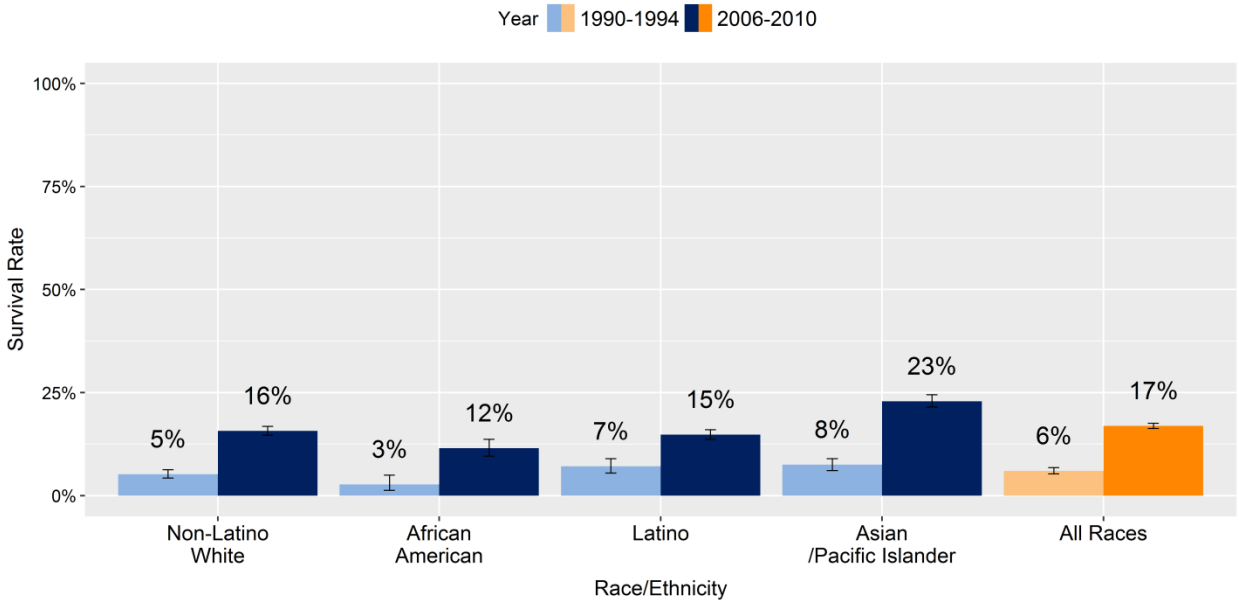
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 11.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Liver and Intrahepatic Bile Duct Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 11.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Liver and Intrahepatic Bile Duct Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Lung and Bronchus Cancer

In 2015, 16,645 individuals were diagnosed with lung and bronchus cancer and 12,307 died of the disease, making lung and bronchus cancer the second most commonly diagnosed cancer and the leading cause of cancer death in California.

Smoking is the biggest risk factor for lung and bronchus cancer. Incidence and mortality rates have decreased for both males and females in California but the decrease has been greater for males. Lung cancer is typically diagnosed after it becomes symptomatic and has already progressed to an advanced, non-curable stage. Screening with low dose computerized tomography (also called a CT or CAT scan) is recommended for adults aged 55 to 80 years who have a 30 pack-year smoking history and either currently smoke or quit within the last 15 years. Many new treatments, including targeted therapy and immunotherapy, are now being used in patients with advanced-stage disease and have shown promise in extending survival.

From 2004 to 2015, survival was relatively low for lung and bronchus cancer at any time period (44.2% at one year, 11.2% at ten years). There were differences in one-, three-, five-, eight- and ten-year relative survival by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES). At any time period, survival among females was higher than among males, ranging from five to eight percent higher. Survival among African Americans was generally one to 10 percent lower than persons of other racial/ethnic groups, while survival among Asian/Pacific Islanders was higher at any time period. Survival decreased with increasing age and decreasing SES. Survival dramatically decreased with each successive increase in stage at diagnosis (Table 12.1 and Figures 12.1-12.2).

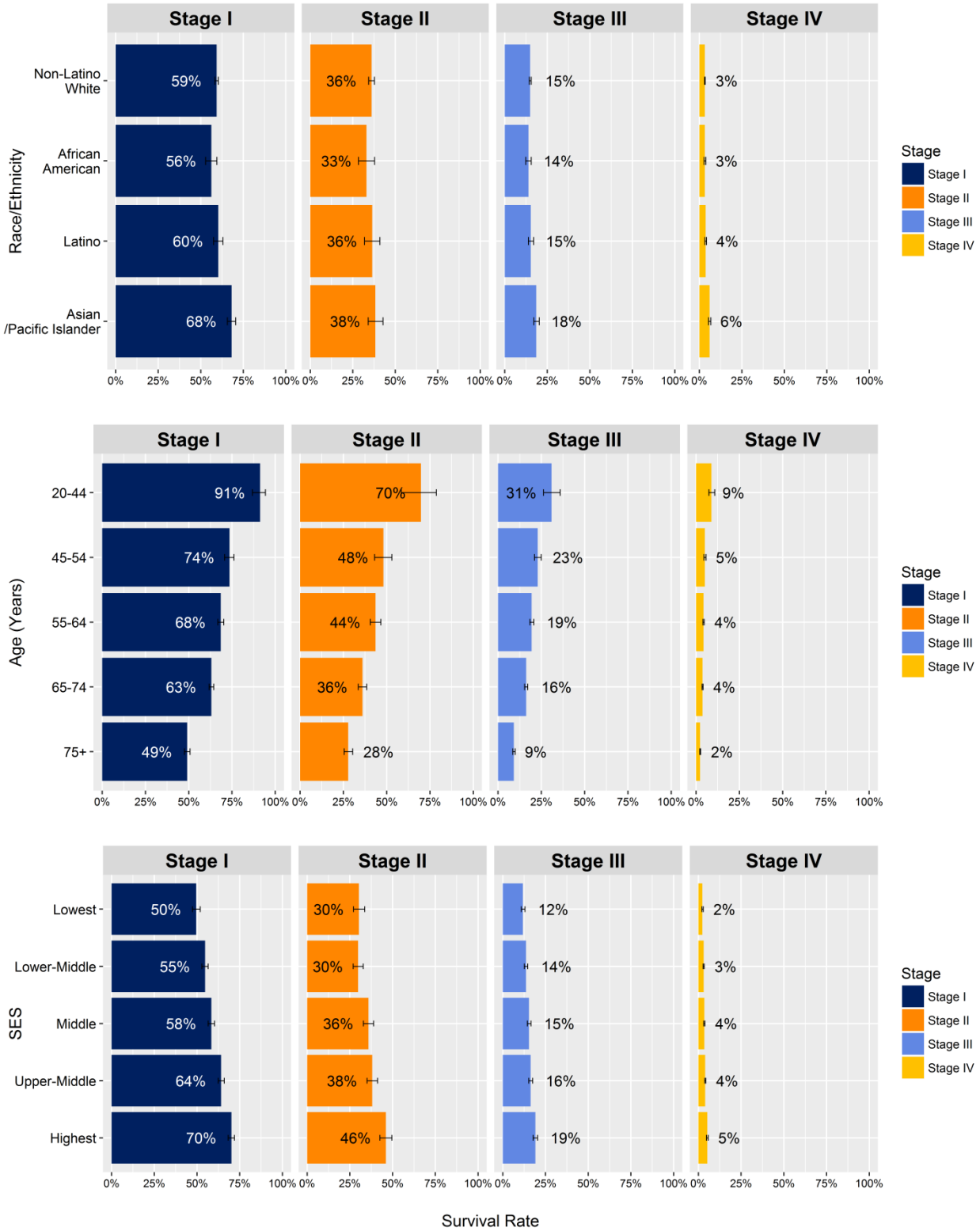
Five-year relative survival for lung and bronchus cancer improved between 1990 and 2010. Patients diagnosed with lung and bronchus cancer between 1990 and 1994 had a five-year relative survival rate of 13 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 17 percent. Increased survival rates were observed in each racial/ethnic group (Figure 12.3).

Table 12.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Lung and Bronchus Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	151,931	100.0	44.2	23.1	17.2	13.1	11.2
Sex							
Male	78,308	51.5	40.4	19.6	14.4	10.7	8.8
Female	73,623	48.5	48.3	26.9	20.2	15.7	13.7
Race/Ethnicity							
Non-Latino White	104,310	68.7	43.3	22.9	17.3	13.2	11.2
African American	12,101	8.0	42.5	20.0	14.5	11.1	9.3
Latino	17,283	11.4	42.4	21.4	16.1	12.6	11.0
Asian/Pacific Islander	18,237	12.0	52.9	28.0	19.7	14.7	12.4
Age at Diagnosis							
20-44	2,716	1.8	63.1	39.1	31.9	28.4	25.7
45-54	12,191	8.0	52.4	26.8	20.4	16.8	15.1
55-64	32,051	21.1	48.7	25.5	19.4	15.1	13.0
65-74	48,244	31.8	47.4	25.5	19.1	14.2	12.1
75+	56,729	37.3	36.2	18.2	12.8	9.1	7.1
Stage at Diagnosis (American Joint Committee on Cancer)							
I	23,796	15.7	87.4	70.2	60.1	49.0	42.8
II	7,785	5.1	73.5	46.6	36.1	27.0	23.1
III	29,840	19.6	51.4	23.0	15.2	10.4	8.2
IV	74,115	48.8	26.2	7.2	3.6	2.1	1.5
Unknown	16,395	10.8	37.2	17.9	13.2	10.7	9.8
Socioeconomic Status							
1 (Lowest)	26,246	17.3	37.5	17.5	12.4	8.7	6.9
2	32,834	21.6	41.9	20.5	14.8	11.0	8.9
3	33,573	22.1	43.6	22.8	16.9	12.6	11.0
4	31,847	21.0	46.3	25.0	18.9	14.7	12.8
5 (Highest)	27,431	18.1	51.9	30.0	23.3	18.7	16.4

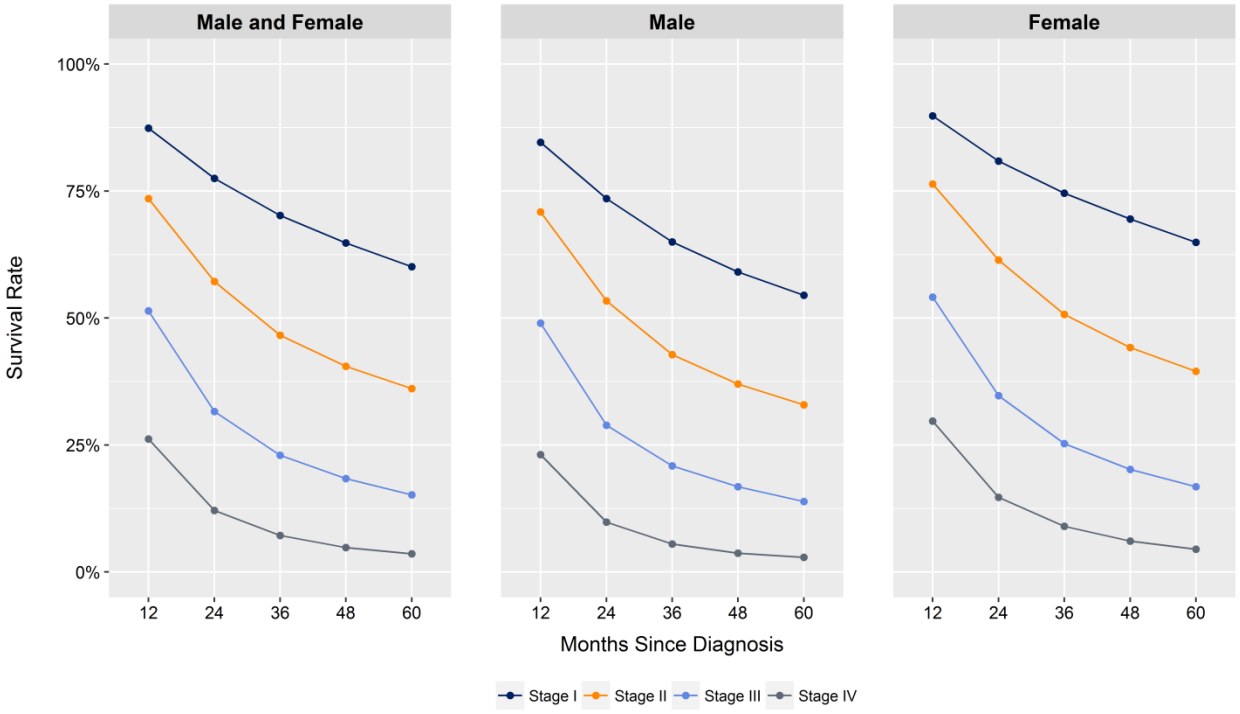
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 12.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Lung and Bronchus Cancer



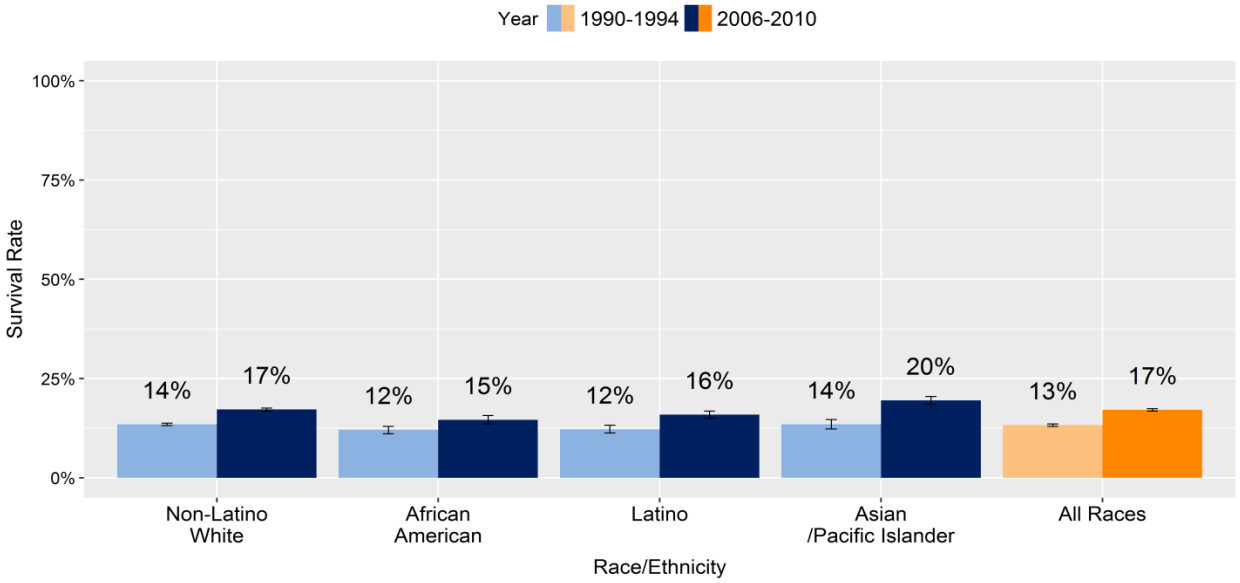
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 12.2: Change in Five-Year Relative Survival and 95% Confidence Intervals by Race/Ethnicity, among Adults 20 years and older in California, from 1990-1994 to 2006-2010: Lung and Bronchus Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 12.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Lung and Bronchus Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Melanoma of the Skin

Melanoma is the most serious and aggressive type of skin cancer. Melanoma can occur on any skin surface. In males, it is often found on the skin of the head, neck, or trunk, while in females it is often found on the skin of the arms and lower legs.

Rates of new melanoma cases have increased over the past ten years, but death rates have decreased. In 2015, 9,336 Californians were diagnosed with melanoma and 930 died of the disease, making melanoma the third most commonly diagnosed cancer and the fourteenth leading cause of cancer death. Melanoma can be found early through regular skin examinations.

From 2004 to 2015, overall survival from melanoma was high, ranging from 96.7 percent at one year to 85.5 percent at ten years. Differences in one-, three-, five-, eight-, and ten-year relative survival by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic (SES) were evident. Survival among females ranged from two to seven percent higher than among males, depending upon the time period. Survival among non-Latino whites was higher than survival among persons of other racial/ethnic groups at every time period. Survival decreased with increasing age, increasing stage, and decreasing SES at any time period. Throughout the time periods, persons diagnosed with stage I disease experienced very high survival (97.8%-100%) while persons diagnosed with stage IV disease had poor survival (13.9%-41.4%) (Table 13.1 and Figures 13.1-13.2).

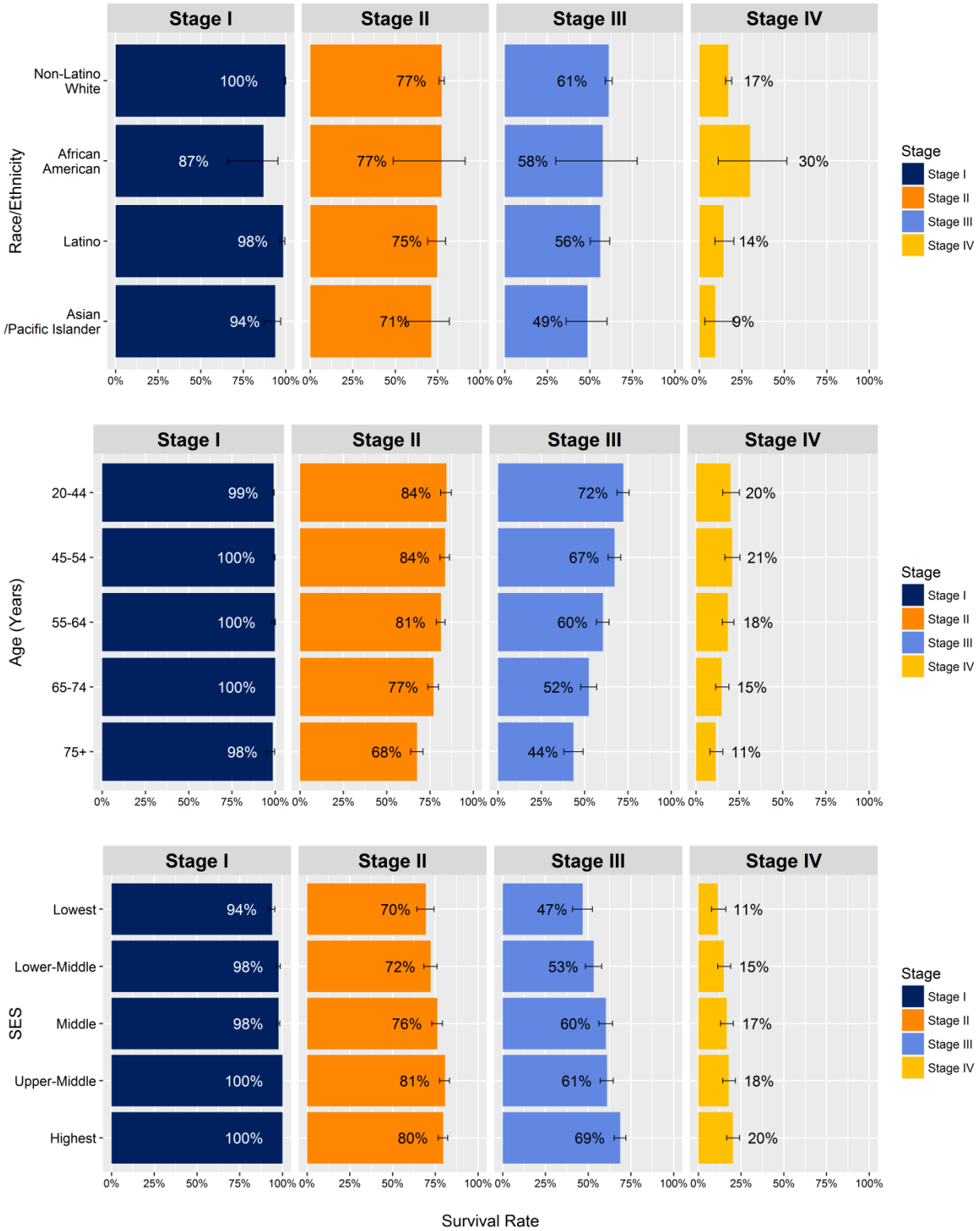
Five-year relative survival for melanoma improved in California between 1990 and 2010. Patients diagnosed with melanoma between 1990 and 1994 had a five-year relative survival rate of 85 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 89 percent. Improved survival rates were observed in each racial/ethnic group (Figure 13.3).

Table 13.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Melanoma of the Skin

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	62,157	100.0	96.7	92.0	89.2	86.8	85.5
Sex							
Male	36,041	58.0	95.9	90.4	86.9	83.8	82.4
Female	26,116	42.0	97.7	94.2	92.4	90.9	89.8
Race/Ethnicity							
Non-Latino White	57,539	92.6	96.9	92.6	89.9	87.7	86.4
African American	189	0.3	95.4	76.8	74.8	67.4	62.3
Latino	3,812	6.1	94.3	85.5	81.1	78.1	75.8
Asian/Pacific Islander	617	1.0	91.0	80.3	71.1	65.9	64.3
Age at Diagnosis							
20-44	10,603	17.1	97.9	95.0	93.0	91.5	90.7
45-54	11,912	19.2	97.4	94.0	92.0	90.7	89.8
55-64	14,767	23.8	96.5	92.1	90.0	88.6	87.5
65-74	12,314	19.8	96.9	92.2	88.8	85.7	84.8
75+	12,561	20.2	94.9	86.7	81.2	74.7	69.9
Stage at Diagnosis (American Joint Committee on Cancer)							
I	42,309	68.1	100.0	100.0	99.6	98.6	97.8
II	7,612	12.2	97.7	85.5	77.0	69.7	66.1
III	4,398	7.1	93.1	70.3	60.3	54.4	51.7
IV	2,648	4.3	41.4	21.3	16.8	14.2	13.9
Unknown	5,190	8.3	94.0	86.9	82.6	78.4	76.3
Socioeconomic Status							
1 (Lowest)	4,377	7.0	92.2	81.6	75.6	70.7	67.9
2	8,303	13.4	94.7	87.2	83.2	78.6	77.0
3	12,270	19.7	95.7	90.2	86.9	84.6	82.9
4	16,128	25.9	97.3	93.3	91.0	88.8	87.1
5 (Highest)	21,079	33.9	98.4	96.1	94.3	93.1	92.8

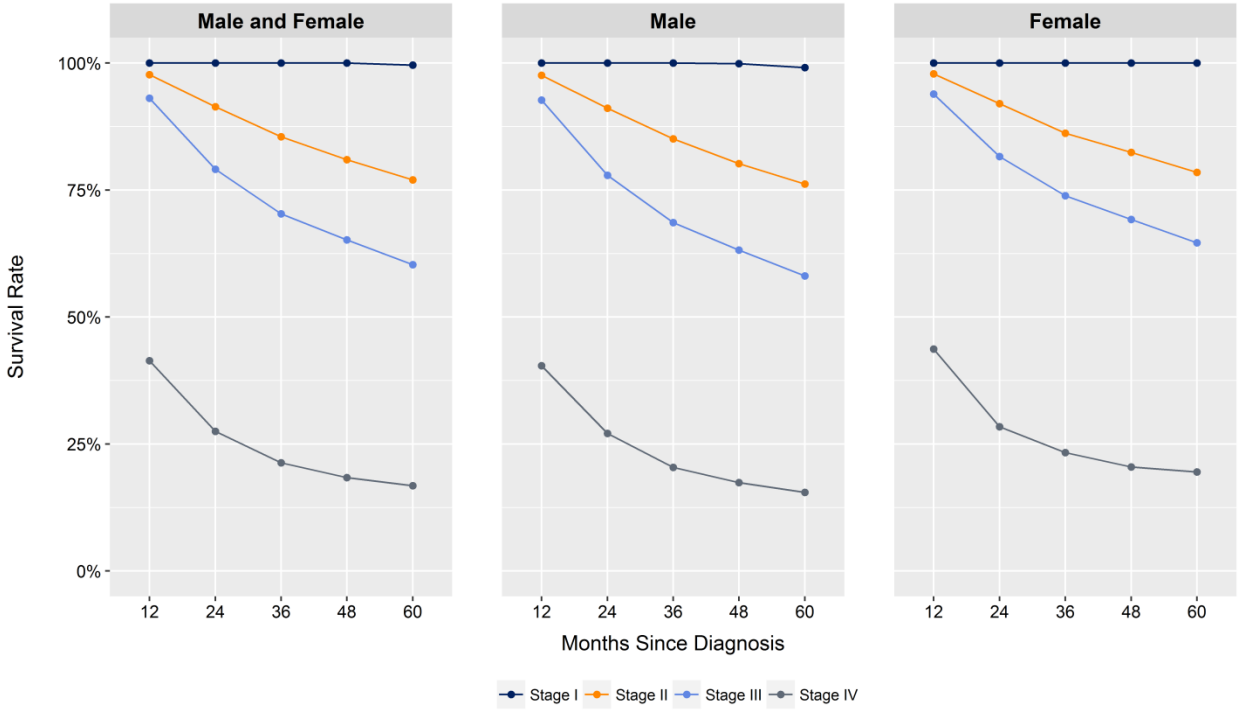
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 13.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Melanoma of the Skin



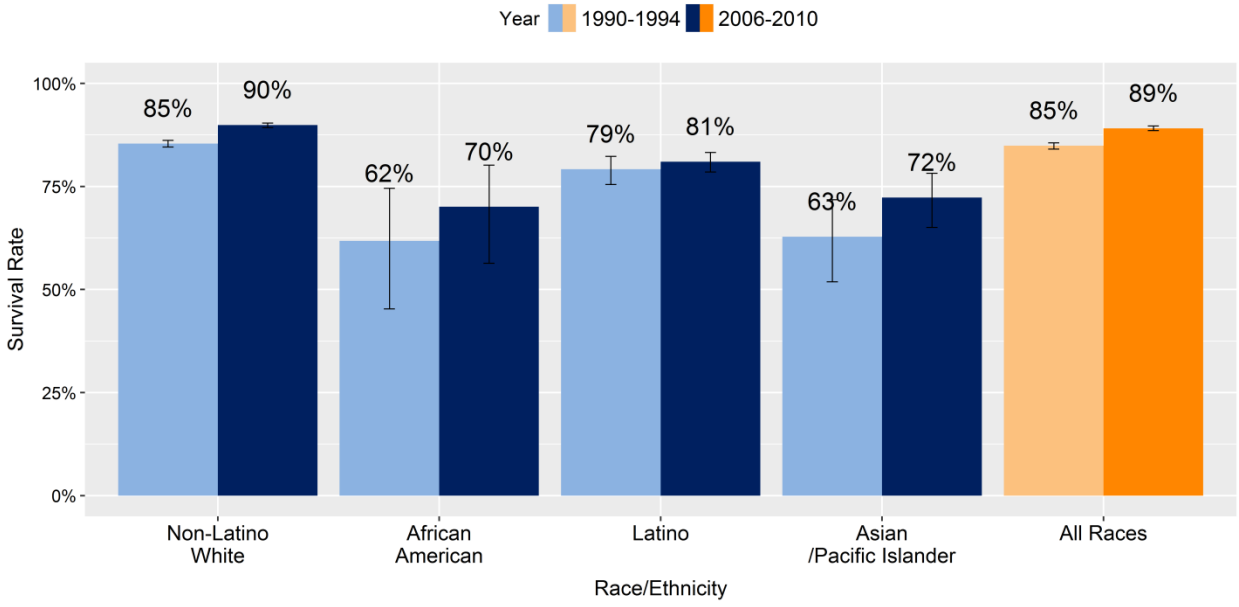
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 13.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Melanoma of the Skin



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 13.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Melanoma of the Skin



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Multiple Myeloma

In 2015, 2,364 Californians were diagnosed with multiple myeloma and 1,265 died of the disease. Multiple myeloma is a cancer of plasma cells. Plasma cells are an important part of the immune system and are responsible for producing antibodies. Multiple myeloma often causes no symptoms at early stages. There is currently no routine screening test for multiple myeloma. However, people with monoclonal gammopathy of unknown significance (MGUS) or solitary plasmacytoma are at higher risk of developing multiple myeloma and should have regular blood tests to check for it. Multiple myeloma may be found early in people who do not have MGUS or solitary plasmacytoma through routine blood tests. Multiple myeloma is not staged like solid tumors; its prognosis is determined by four factors: the amount of albumin, beta-2-microgloculin, and lactate dehydrogenase in the blood, as well as specific genetic abnormalities.

From 2004 to 2015, multiple myeloma survival ranged from 77.4 percent at one year to 27.1 percent at ten years post-diagnosis. Survival did not vary by sex. Small differences in survival by race/ethnicity were observed. African Americans had two to five percent higher survival rates than non-Latino whites and Latinos at one, three, and five years post-diagnosis. Survival decreased with advancing age at diagnosis and with decreasing socioeconomic status (Table 14.1 and Figure 14.1).

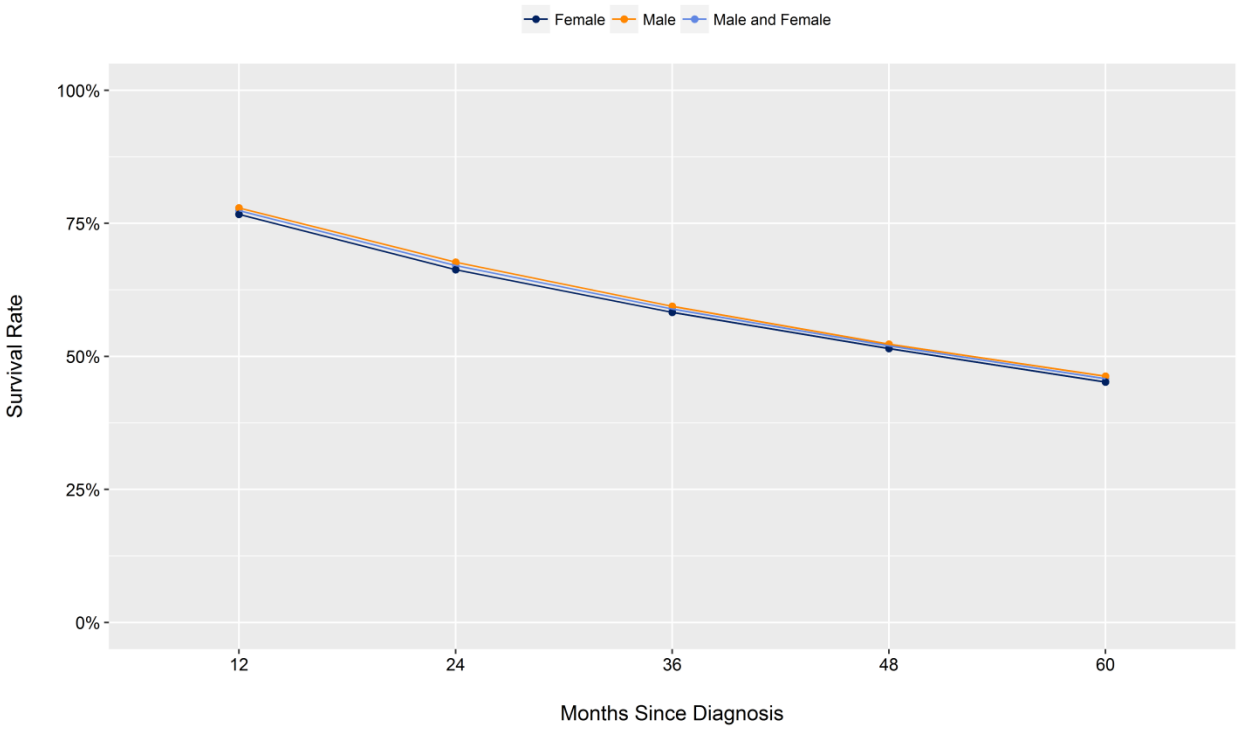
Multiple myeloma survival in California increased from 1990 to 2010 by 18 percent. Patients diagnosed with multiple myeloma between 1990 and 1994 had a five-year relative survival rate of 28 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 46 percent. Improved survival rates were observed in each racial/ethnic group (Figure 14.2).

Table 14.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Multiple Myeloma

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	20,239	100.0	77.4	58.9	45.8	32.6	27.1
Sex							
Male	11,388	56.3	77.9	59.4	46.3	32.7	27.7
Female	8,851	43.7	76.7	58.3	45.2	32.5	26.4
Race/Ethnicity							
Non-Latino White	11,350	56.1	76.2	58.1	45.1	31.7	26.7
African American	2,586	12.8	80.7	61.4	48.4	33.9	26.2
Latino	4,402	21.8	77.6	59.4	46.4	33.6	29.0
Asian/Pacific Islander	1,901	9.4	79.2	59.3	45.3	34.4	27.1
Age at Diagnosis							
20-44	816	4.0	91.3	79.9	70.0	57.0	51.5
45-54	2,630	13.0	87.7	72.7	62.0	50.5	44.3
55-64	4,996	24.7	84.8	68.3	55.1	40.6	32.4
65-74	5,625	27.8	78.9	59.0	45.4	29.8	24.3
75+	6,172	30.5	63.6	41.5	26.8	14.6	11.2
Socioeconomic Status							
1 (Lowest)	3,227	15.9	71.9	52.6	39.1	27.3	21.3
2	3,794	18.7	74.0	55.8	43.0	28.6	23.0
3	4,148	20.5	75.6	56.6	43.8	31.2	26.9
4	4,471	22.1	80.1	61.8	47.4	34.5	28.6
5 (Highest)	4,599	22.7	82.9	65.1	53.1	39.1	33.1

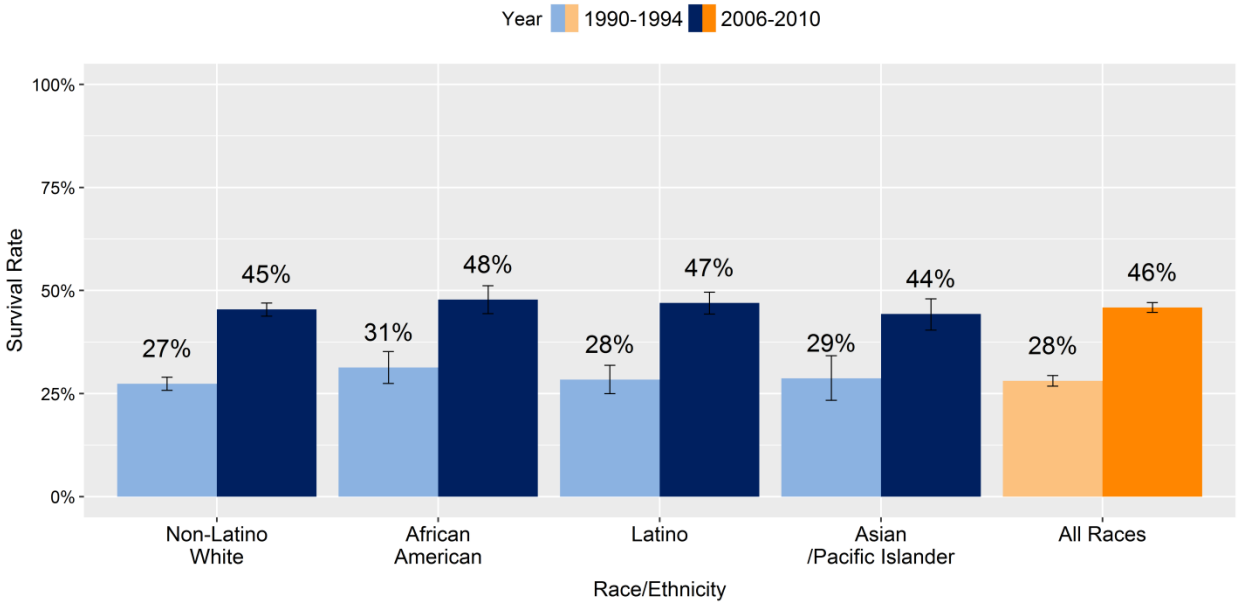
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 14.1: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex: Multiple Myeloma



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 14.2: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Multiple Myeloma



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Non-Hodgkin Lymphoma

Non-Hodgkin lymphoma (NHL) is a cancer that starts in cells of the immune system and includes a varied group of cancers that form from different types of white blood cells (B cells, T cells, and NK cells). Signs and symptoms of the disease include enlarged lymph nodes, fever, night sweats, weight loss, and fatigue. There is currently no routine screening test for NHL.

In 2015, 7,329 Californians were diagnosed with NHL and 2,157 died of the disease, making NHL the fourth most commonly diagnosed cancer and the fifth leading cause of cancer death.

From 2004 to 2015, differences in one-, three-, five-, eight- and ten-year relative survival by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES) were observed. Survival among females ranged from two to four percent higher than among males. African Americans, Latinos, and Asian/Pacific Islanders had survival rates similar to each other, but their survival was three to six percent lower than that of non-Latino whites at any time period. Survival decreased with increasing age, increasing stage, and decreasing SES at any time period (Tables 15.2 and Figures 15.1-15.2).

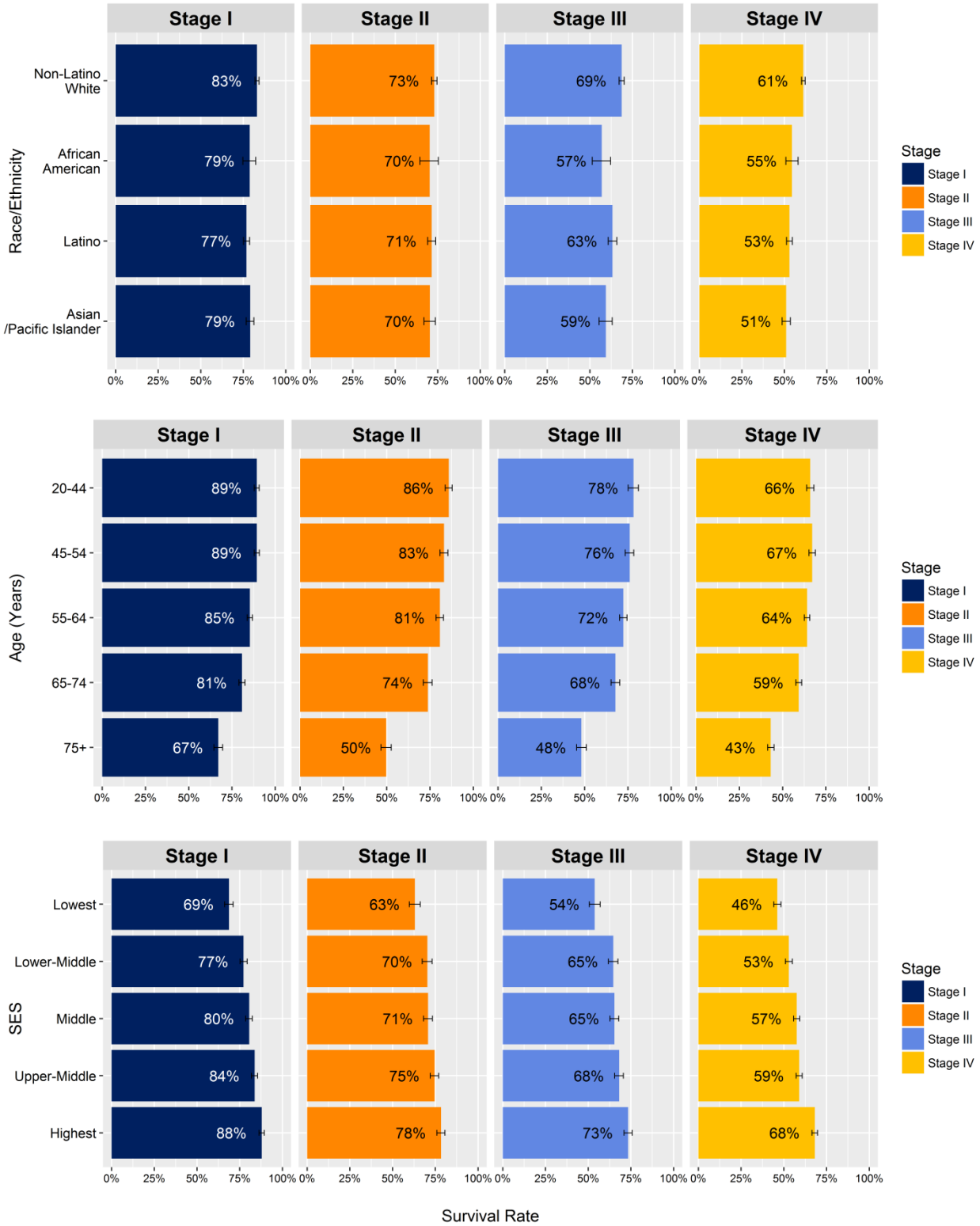
NHL survival has improved markedly in California over the past two decades. Patients diagnosed with NHL between 1990 and 1994 had a five-year relative survival rate of 48 percent, whereas patients diagnosed between 2006 and 2010 had a five-year relative survival rate of 68 percent. Increased survival rates were observed among patients in each racial/ethnic group (Figure 15.3).

Table 15.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Non-Hodgkin Lymphoma

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	62,487	100.0	80.3	72.0	68.0	62.9	59.8
Sex							
Male	34,252	54.8	79.4	70.5	66.1	60.8	57.7
Female	28,235	45.2	81.4	73.8	70.3	65.4	62.3
Race/Ethnicity							
Non-Latino White	38,580	61.7	81.9	74.0	70.0	64.8	61.7
African American	3,136	5.0	78.6	68.3	63.9	58.3	55.6
Latino	13,787	22.1	77.5	68.7	64.8	59.7	56.5
Asian/Pacific Islander	6,984	11.2	77.6	68.8	64.7	60.1	56.9
Age at Diagnosis							
20-44	7,571	12.1	88.2	81.5	79.5	77.3	76.0
45-54	9,276	14.8	87.5	81.1	78.0	74.1	72.1
55-64	13,803	22.1	86.0	78.0	74.3	69.4	66.6
65-74	14,333	22.9	81.9	73.8	69.0	62.4	58.5
75+	17,504	28.0	67.0	56.3	50.8	43.4	37.8
Stage at Diagnosis (American Joint Committee on Cancer)							
I	16,073	25.7	88.8	83.8	81.1	77.4	75.3
II	9,342	15.0	83.2	75.4	72.2	68.0	65.2
III	10,014	16.0	80.7	70.4	66.0	60.7	57.0
IV	21,525	34.4	73.2	63.1	58.0	51.6	48.2
Unknown	5,533	8.9	77.8	69.7	65.1	59.5	55.9
Socioeconomic Status							
1 (Lowest)	9,086	14.5	72.7	61.5	56.3	50.3	47.1
2	11,221	18.0	77.1	68.8	64.0	58.9	55.3
3	12,845	20.6	79.6	70.7	67.1	61.3	58.0
4	13,969	22.4	82.2	74.3	70.0	64.9	62.0
5 (Highest)	15,366	24.6	86.0	79.5	76.5	72.4	69.8

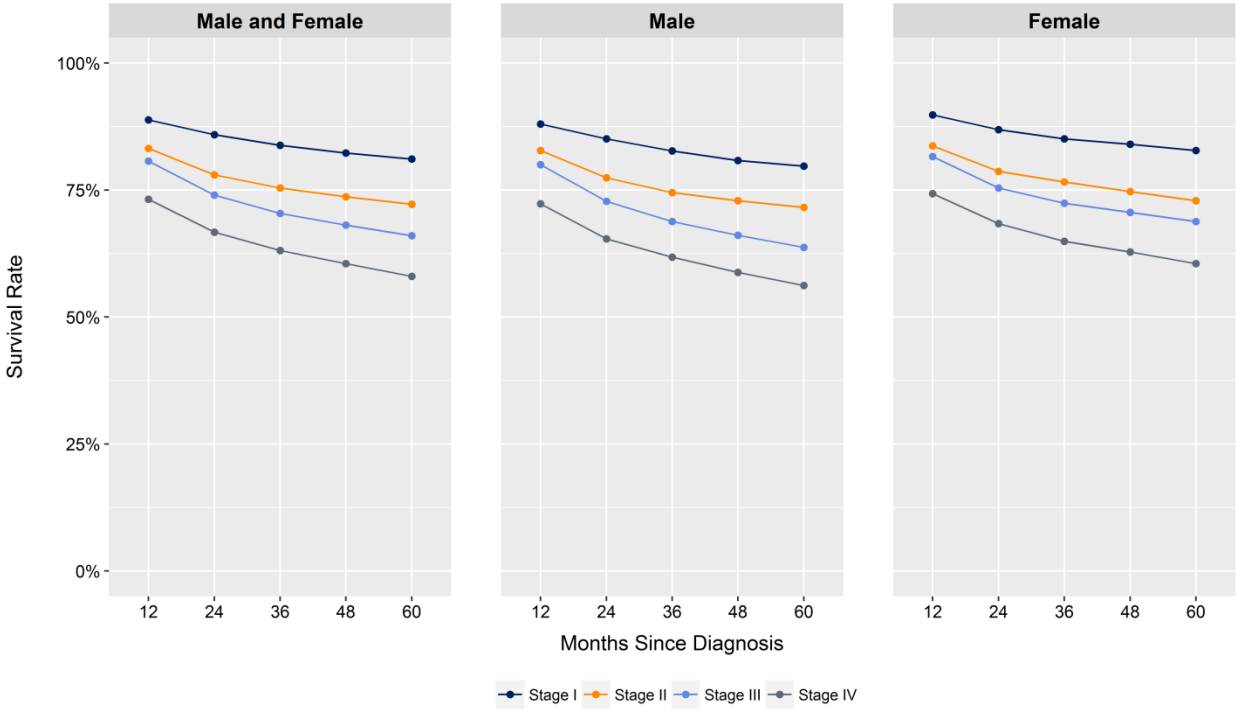
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 15.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Non-Hodgkin Lymphoma



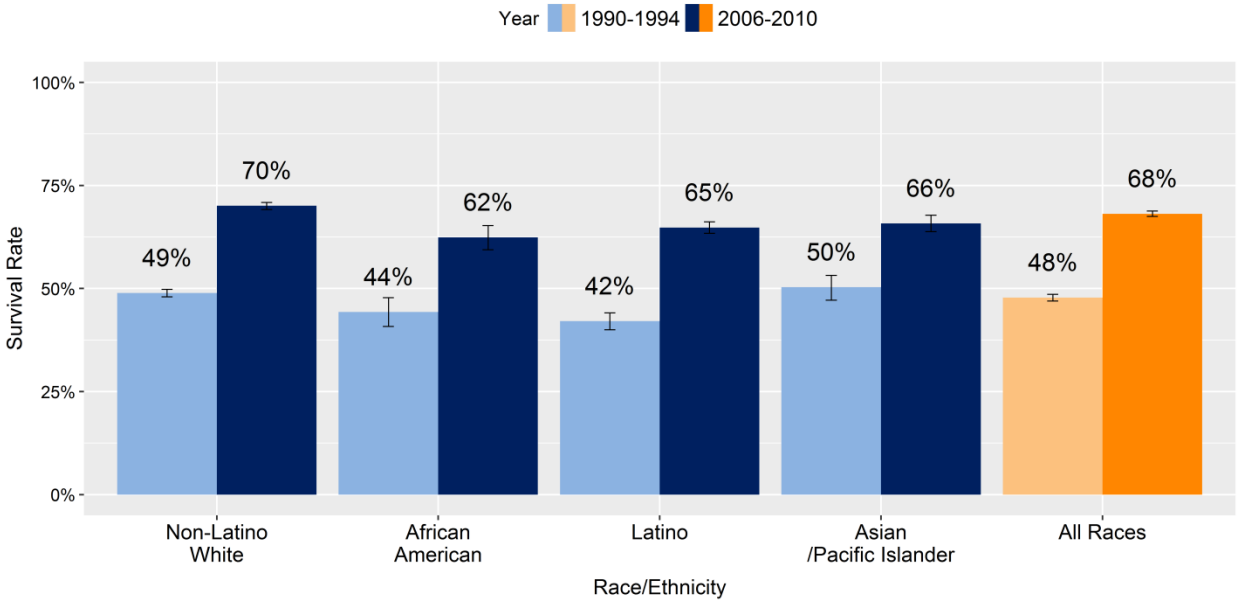
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 15.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Non-Hodgkin Lymphoma



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 15.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Non-Hodgkin Lymphoma



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Oral Cavity and Pharynx Cancer

Cancers of the oral cavity and pharynx include cancers of the lip, buccal mucosa, salivary glands, gums, tongue, floor of mouth, hard and soft palate, tonsils, and oropharynx. Collectively, oral cavity and pharyngeal cancers are the ninth most commonly diagnosed cancers among Californians and the thirteenth leading cause of cancer death.

In 2015, 4,272 Californians were diagnosed with cancers of the oral cavity and pharynx and 1,071 died of these diseases. The incidence of oral cavity and pharyngeal cancers is more than two times higher among males than females and is higher among non-Latino whites compared to African Americans, Latinos, and Asian/Pacific Islanders. The risk of developing cancers of the oral cavity and pharynx increases with age. Approximately 60 percent of all oral cavity and pharyngeal cancers are diagnosed among persons aged 60 years and older. There is currently no routine screening test for oral cavity and pharyngeal cancers. However, these sites are accessible for visual examination by health care professionals, as well as by oneself, and routine examination could result in more cancers being diagnosed at an earlier stage when prognosis is better. Currently, over 50 percent of cases are diagnosed at a late stage.

From 2004 to 2015, oral cavity and pharyngeal cancer survival decreased as time post-diagnosis increased. Ten-year relative survival was 30 percent lower than one-year relative survival (54.4% versus 85.1%, respectively). Females had a slight survival advantage over males at three, five, eight, and ten years following diagnosis. Survival decreased with increasing age and decreasing socioeconomic status (SES) (Table 16.1).

Survival disparities were observed by race/ethnicity and SES among patients diagnosed with stage I oral cavity and pharyngeal cancers. African Americans had poorer survival (82%) compared to non-Latino white (87%), Latino (89%), and Asian/Pacific Islander (88%) patients diagnosed with stage I disease. Patients with the lowest SES diagnosed with stage I disease had poorer survival (78%) compared to those with the highest SES (92%) (Figure 16.1).

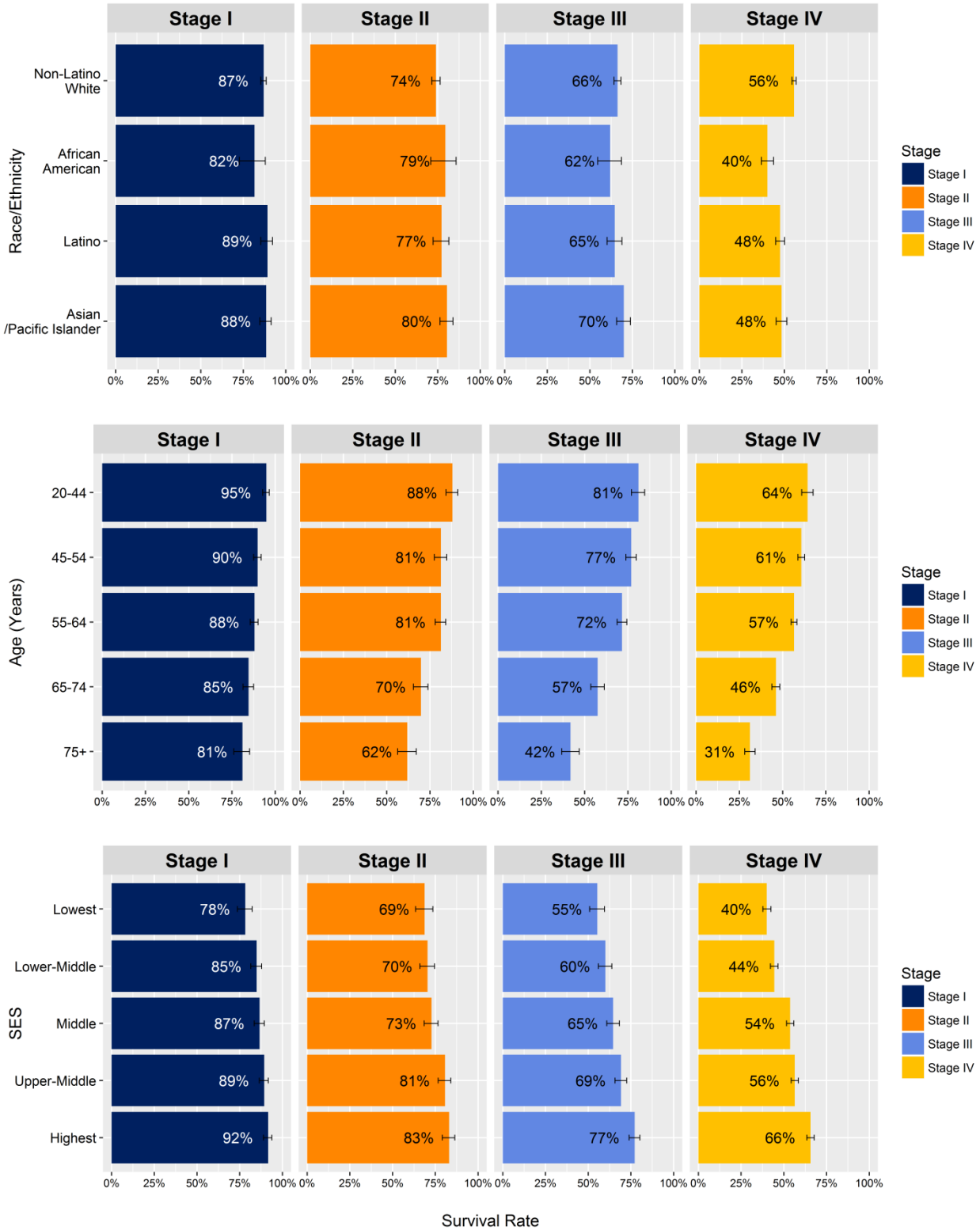
From 1990 to 2010, oral cavity and pharyngeal cancer survival markedly improved in California. Patients diagnosed with oral cavity and pharyngeal cancer between 1990 and 1994 had a five-year relative survival rate of 48 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 68 percent. Improved survival rates were observed in each racial/ethnic group but the improvement was most pronounced among African Americans, who experienced a 16 percent increase in survival (Figure 16.3).

Table 16.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Oral Cavity and Pharynx Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	35,558	100.0	85.1	70.3	64.3	57.9	54.4
Sex							
Male	25,345	71.3	85.4	69.8	63.4	56.7	53.4
Female	10,213	28.7	84.5	71.4	66.4	60.7	56.8
Race/Ethnicity							
Non-Latino White	24,487	68.9	85.7	71.6	65.7	59.0	55.2
African American	2,016	5.7	77.2	57.7	51.7	45.3	41.8
Latino	4,883	13.7	83.1	66.5	60.9	55.1	52.6
Asian/Pacific Islander	4,172	11.7	87.9	72.5	66.2	60.7	57.8
Age at Diagnosis							
20-44	3,314	9.3	94.4	83.8	79.6	75.5	73.9
45-54	7,335	20.6	89.9	76.9	71.5	66.9	64.0
55-64	10,860	30.5	87.3	72.8	66.7	60.1	56.2
65-74	7,697	21.6	83.1	66.1	58.7	50.2	45.8
75+	6,352	17.9	73.1	55.1	48.7	39.7	34.4
Stage at Diagnosis (American Joint Committee on Cancer)							
I	6,034	17.0	98.2	91.7	87.3	81.8	79.8
II	3,874	10.9	92.4	81.2	75.9	67.8	62.8
III	5,185	14.6	88.4	73.0	66.4	58.8	53.6
IV	15,002	42.2	78.7	59.2	52.8	46.6	42.9
Unknown	5,463	15.4	79.9	66.1	59.7	53.7	51.2
Socioeconomic Status							
1 (Lowest)	5,355	15.1	77.0	58.5	51.1	43.8	39.4
2	6,653	18.7	81.5	64.2	57.2	50.1	46.3
3	7,632	21.5	84.8	69.5	63.7	56.2	52.5
4	8,004	22.5	87.9	74.0	68.4	62.9	59.8
5 (Highest)	7,914	22.3	91.1	80.3	75.6	70.6	67.7

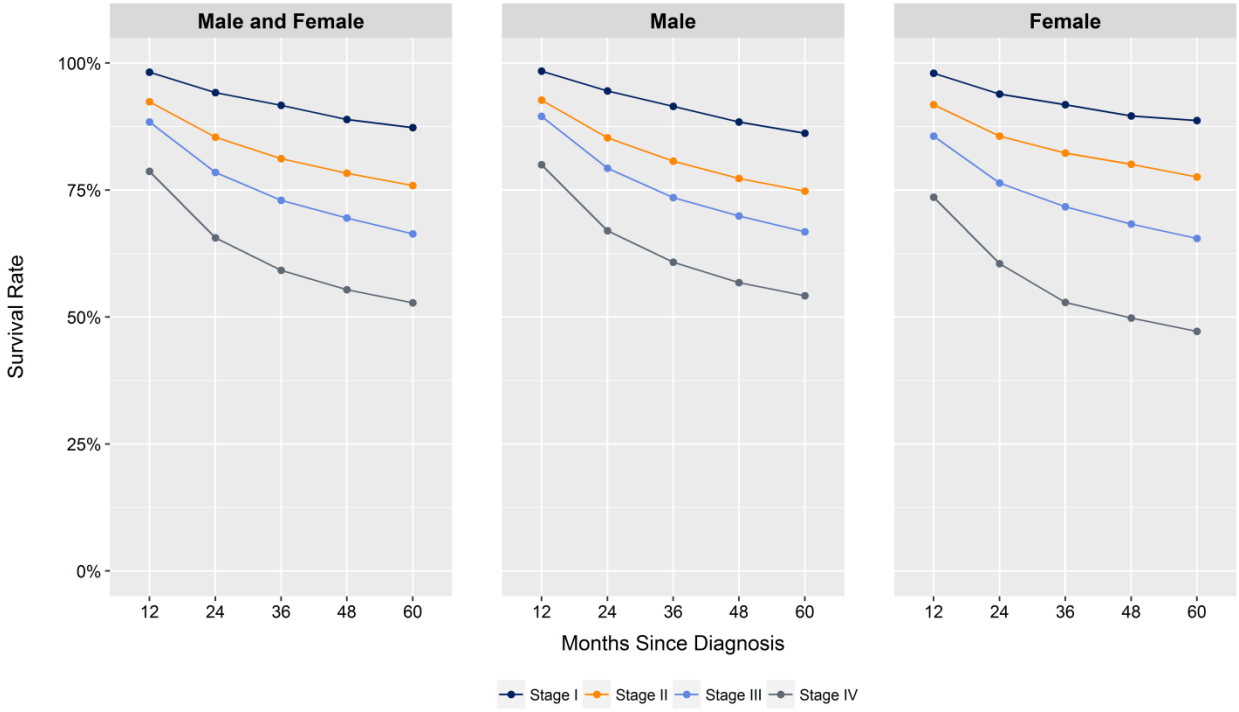
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 16.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Oral Cavity and Pharynx Cancer



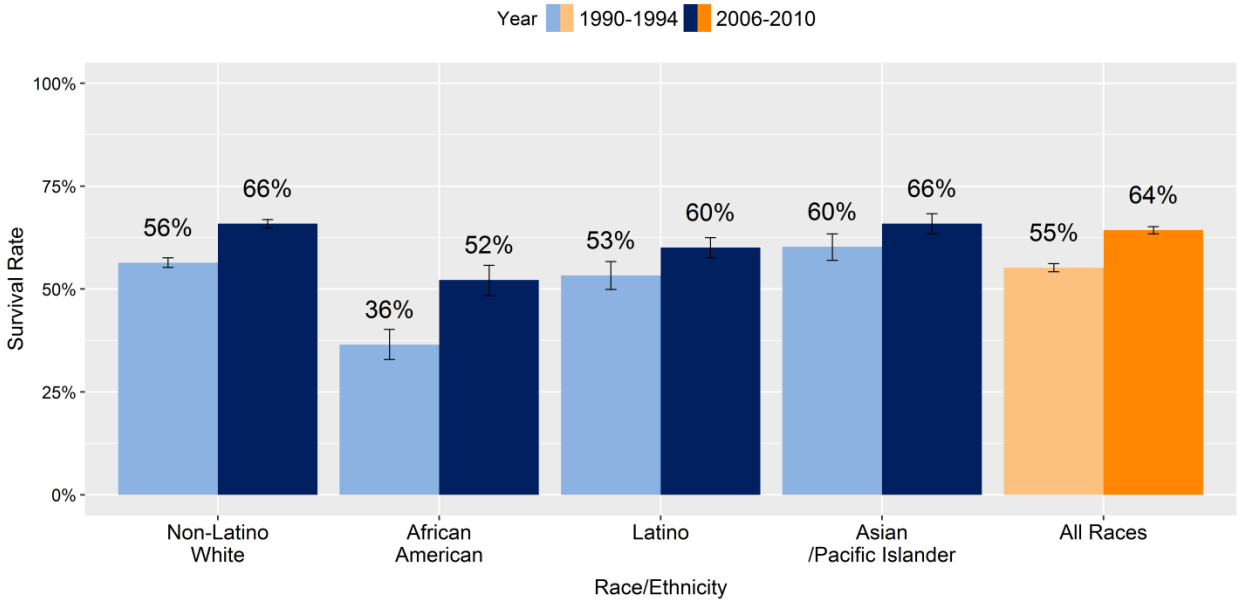
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 16.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Oral Cavity and Pharynx Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 16.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Oral Cavity and Pharynx Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Ovarian Cancer

Ovarian cancer is the eighth most commonly diagnosed cancer among California females and the fifth leading cause of cancer death. In 2015, 2,530 cases of ovarian cancer were diagnosed in California and 1,582 deaths were attributed to the disease. Ovarian cancer accounts for more deaths than any other gynecologic cancer. Currently, there is no recommended screening test for ovarian cancer, and the majority of cases are diagnosed at an advanced stage when the likelihood of survival is lower.

From 2004 to 2015, ovarian cancer survival decreased as time post-diagnosis increased. At one year, ovarian cancer survival was 76.5 percent but dropped to 36.5 percent at ten years post-diagnosis. For each time period, survival decreased with increasing age and decreasing socioeconomic status (SES). Five-year relative survival for females diagnosed at age 20 to 44 years was 74.9 percent, whereas five-year relative survival for females diagnosed at age 75 years or older was 20.4 percent. Females with the highest SES had, on average, 10 percent higher survival than females with the lowest SES at each time period post-diagnosis (Table 17.1).

Ovarian cancer survival decreased with advancing stage. Females diagnosed with ovarian cancer at stage I had a five-year relative survival rate of 89.2 percent, whereas females diagnosed at stage IV had a five-year relative survival rate of 19.1 percent (Table 17.1 and Figure 17.2). Survival disparities were observed for stage I disease. African American females had the lowest survival rate for stage I (84%), compared to non-Latino white females (89%), Latinas (90%), and Asian/Pacific Islander females (90%) (Table 17.1 and Figure 17.1).

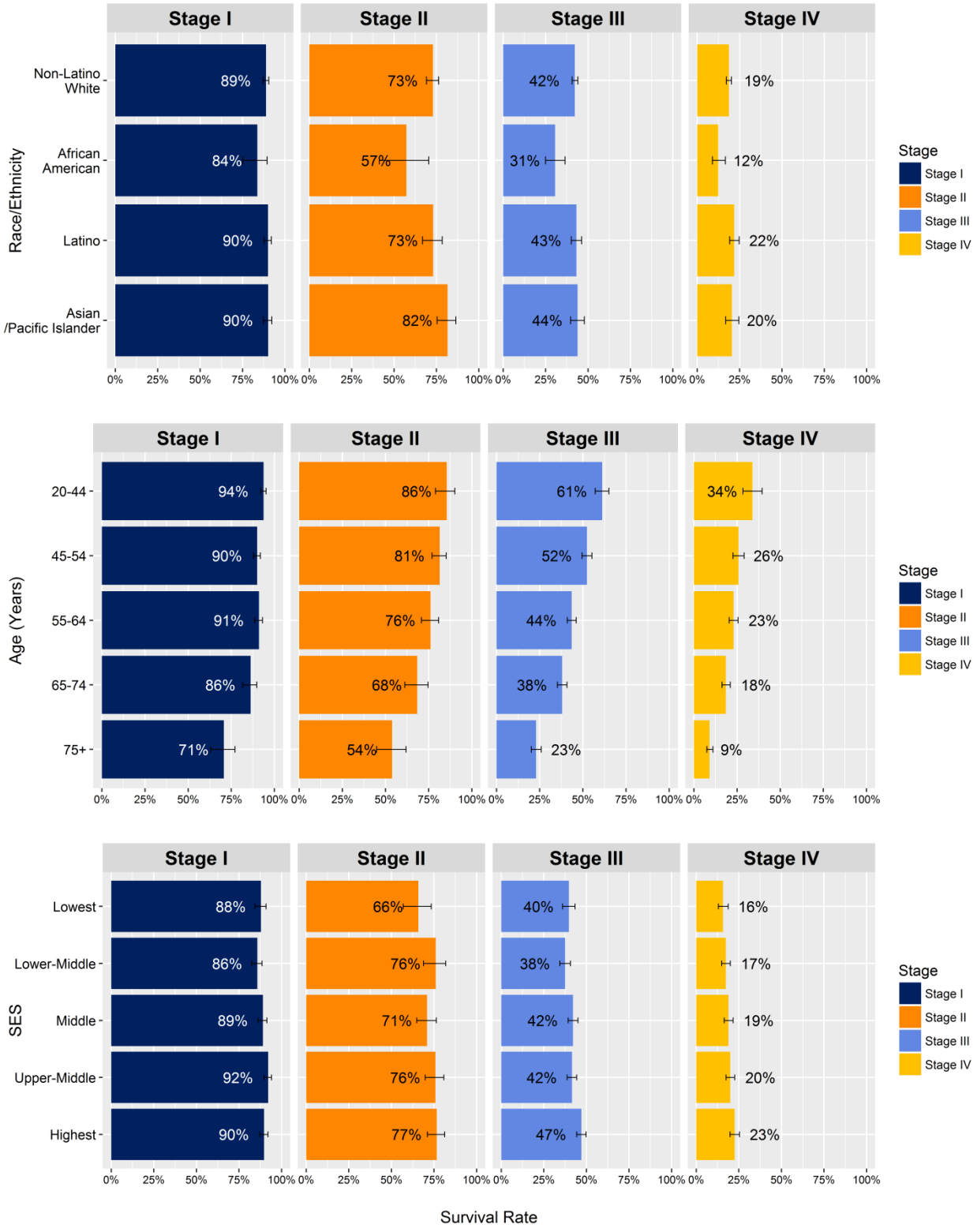
Ovarian cancer survival improved in California between 1990 and 2010. Females diagnosed with ovarian cancer between 1990 and 1994 had a five-year relative survival rate of 40 percent, whereas females diagnosed between 2006 and 2010 had a five-year relative survival rate of 47 percent. However, improved survival rates were only observed for non-Latino white females, Latinas, and Asian/Pacific Islander females. Survival rates for African American females remained about the same (Figure 17.3).

Table 17.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Ovarian Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
Female	23,689	100.0	76.5	57.9	46.8	39.2	36.5
Race/Ethnicity							
Non-Latino White	14,235	60.1	75.8	56.6	44.9	37.3	34.7
African American	1,207	5.1	65.8	43.1	34.2	26.9	24.0
Latino	5,186	21.9	77.9	60.5	50.1	41.7	39.3
Asian/Pacific Islander	3,061	12.9	82.0	65.7	55.8	49.1	46.1
Age at Diagnosis							
20-44	3,086	13.0	91.8	81.8	74.9	68.1	65.3
45-54	4,897	20.7	88.0	71.1	59.9	50.0	46.0
55-64	5,722	24.2	84.1	63.5	49.8	42.4	39.3
65-74	4,731	20.0	76.2	52.7	39.2	29.3	26.6
75+	5,253	22.2	48.6	29.3	20.4	16.2	14.9
Stage at Diagnosis (American Joint Committee on Cancer)							
I	5,101	21.5	96.7	92.3	89.2	86.5	84.2
II	1,798	7.6	91.5	81.4	73.9	66.1	62.7
III	7,931	33.5	83.0	58.6	42.0	30.7	27.0
IV	6,438	27.2	58.7	32.0	19.1	11.9	9.6
Unknown	2,421	10.2	49.4	34.7	27.8	22.5	21.1
Socioeconomic Status							
1 (Lowest)	3,553	15.0	71.0	53.2	43.3	33.6	30.9
2	4,482	18.9	72.6	53.4	42.5	34.9	31.6
3	5,004	21.1	75.5	56.7	46.2	40.0	37.3
4	5,291	22.3	78.8	59.8	48.7	41.8	38.7
5 (Highest)	5,359	22.6	82.2	63.8	51.2	43.0	40.9

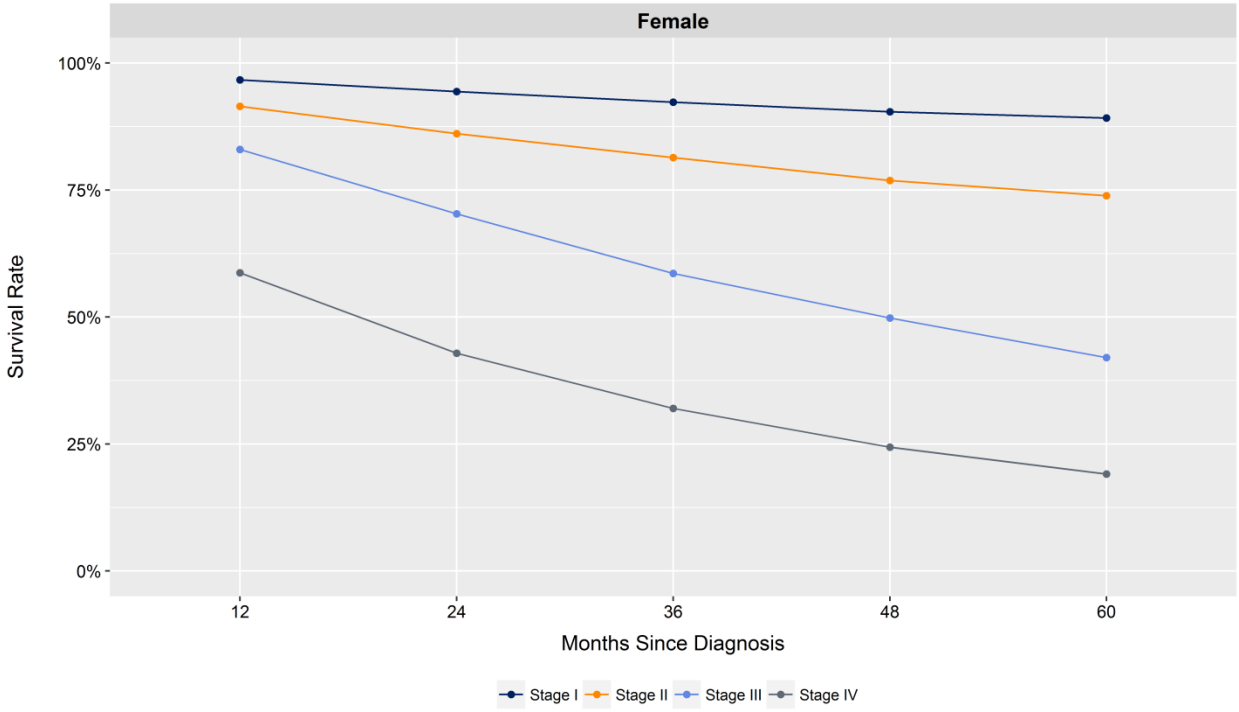
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 17.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Ovarian Cancer



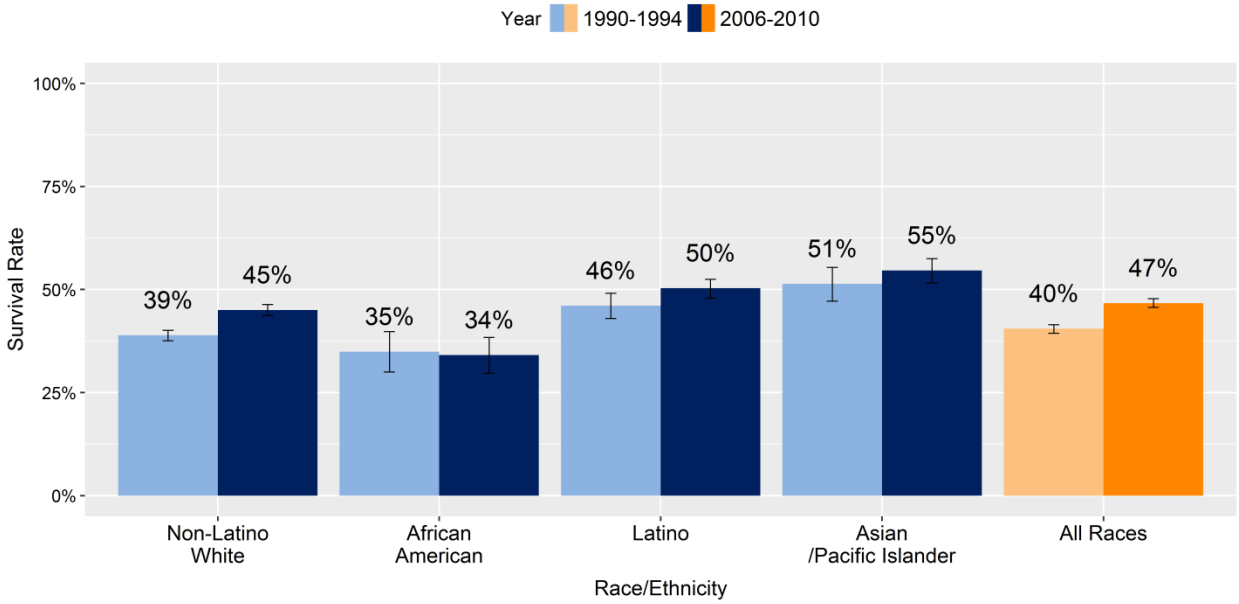
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 17.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Stage at Diagnosis: Ovarian Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 17.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Ovarian Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Pancreatic Cancer

In 2015, 4,801 cases of pancreatic cancer were diagnosed among Californians and 4,224 deaths were attributed to the disease, making pancreatic cancer the eighth most commonly diagnosed cancer and the third leading cause of cancer death. Pancreatic cancer is particularly lethal because it rarely causes symptoms until it has spread to other parts of the body. Currently, there is no routine screening test for the disease. Most pancreatic cancers are diagnosed at an advanced stage when survival is poor.

Of all the cancers covered in this report, pancreatic cancer had the lowest relative survival at one year (29.8 percent), three years (10.7 percent), five years (7.6 percent), eight years (5.8 percent), and ten years (5.3 percent) (Table 18.1 and Figure 1.4). Asian/Pacific Islanders had slightly better survival rates compared to non-Latino whites, African Americans, and Latinos at each time interval. Survival decreased with advancing age, advancing stage, and decreasing socioeconomic status (SES) at each time interval post-diagnosis (Table 18.1).

Survival disparities by race/ethnicity were observed among patients diagnosed with stage I pancreatic cancer. African Americans had the lowest five-year relative survival (28%) compared to Asian/Pacific Islanders (38%), Latinos (38%), and non-Latino whites (32%). Survival did not vary by race/ethnicity when pancreatic cancer was diagnosed at stage II, III, or IV (Figure 18.1). Survival disparities by SES were also observed among patients diagnosed with stage I and II pancreatic cancer. Patients with the highest SES diagnosed at stage I and II disease had better survival rates than patients with the lowest SES diagnosed at stage I and II disease. Survival did not vary by SES when pancreatic cancer was diagnosed at stage III and IV.

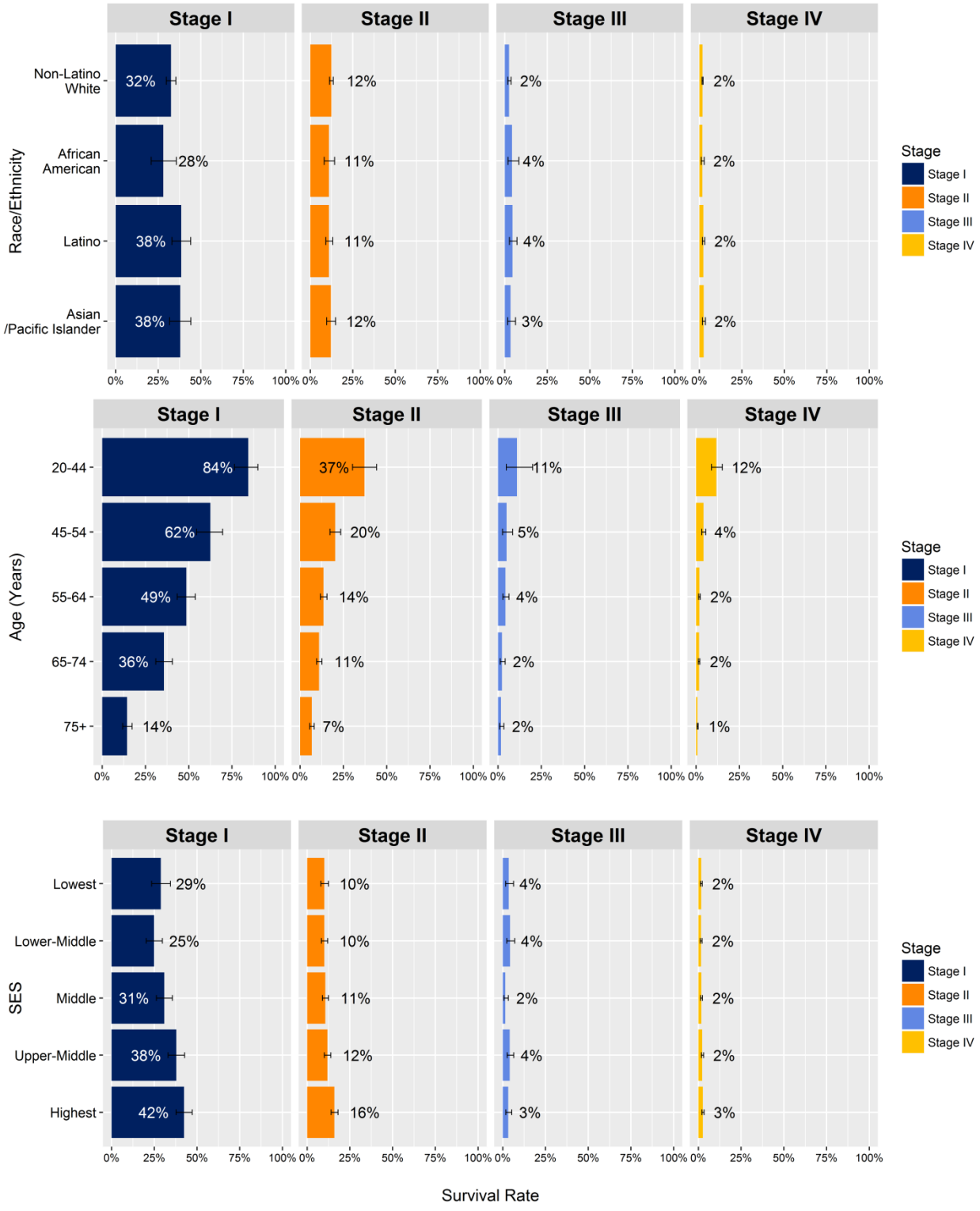
From 1990 to 2010, pancreatic cancer survival in California improved slightly. Patients diagnosed with pancreatic cancer between 1990 and 1994 had a five-year relative survival rate of four percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of seven percent. Improved survival rates were observed in each racial/ethnic group (Figure 18.3).

Table 18.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Pancreatic Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	39,665	100.0	29.8	10.7	7.6	5.8	5.3
Sex							
Male	19,877	50.1	30.0	10.6	7.3	5.7	5.4
Female	19,788	49.9	29.7	10.8	7.8	6.0	5.3
Race/Ethnicity							
Non-Latino White	24,170	60.9	29.8	10.4	7.3	5.5	5.1
African American	3,123	7.9	28.4	10.2	7.4	6.0	5.6
Latino	7,604	19.2	28.8	10.5	7.6	6.2	5.4
Asian/Pacific Islander	4,768	12.0	32.5	13.0	9.0	6.8	6.3
Age at Diagnosis							
20-44	1,213	3.1	58.7	35.5	30.8	28.3	24.6
45-54	3,976	10.0	42.8	18.0	13.8	10.6	9.8
55-64	8,997	22.7	37.2	12.5	8.6	6.5	5.8
65-74	10,709	27.0	31.3	10.4	6.7	5.0	4.8
75+	14,770	37.2	18.3	5.7	3.9	2.6	2.5
Stage at Diagnosis (American Joint Committee on Cancer)							
I	3,119	7.9	57.4	39.0	33.9	29.3	27.9
II	8,740	22.0	53.3	18.9	12.0	8.4	8.0
III	2,976	7.5	38.3	6.8	3.2	2.1	1.3
IV	19,312	48.7	15.6	3.4	2.0	1.5	1.2
Unknown	5,518	13.9	22.7	10.1	8.3	6.8	6.2
Socioeconomic Status							
1 (Lowest)	6,028	15.2	24.6	9.1	6.5	5.1	4.6
2	7,740	19.5	26.2	8.9	6.1	4.2	3.6
3	8,264	20.8	28.4	9.5	6.7	5.3	4.6
4	8,690	21.9	31.4	11.2	8.1	6.5	6.1
5 (Highest)	8,943	22.5	36.4	13.9	9.9	7.5	7.2

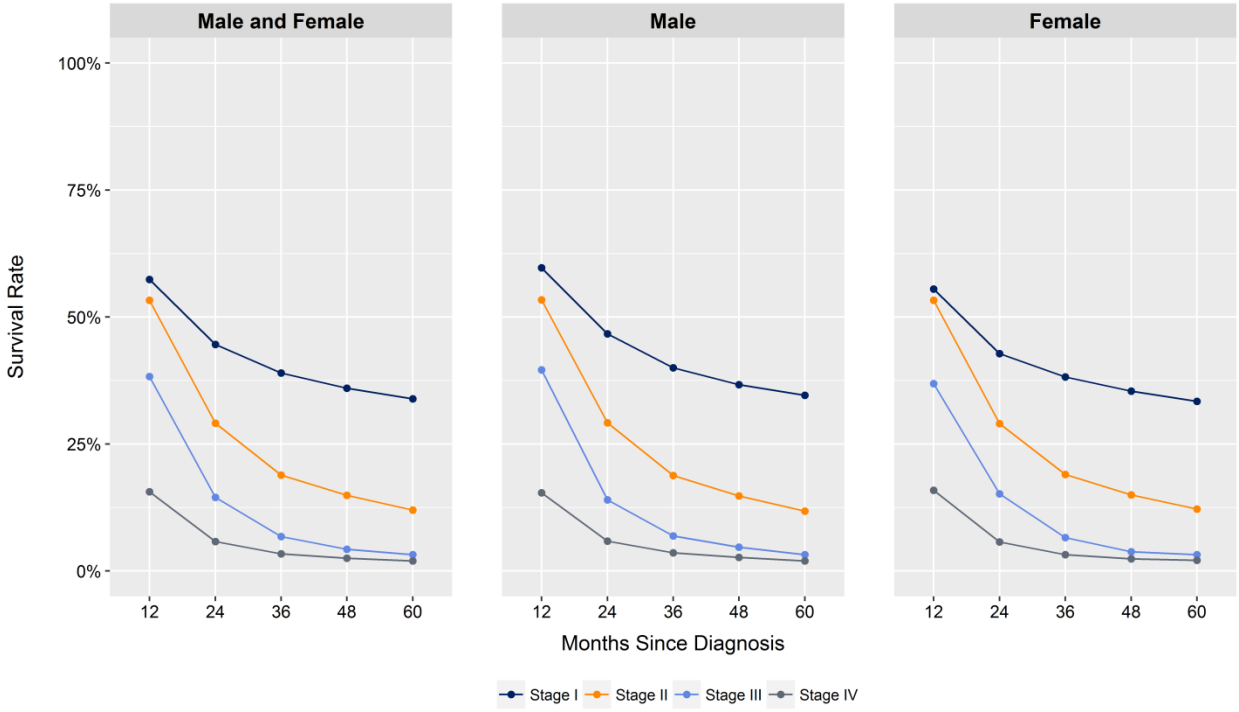
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 18.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Pancreatic Cancer



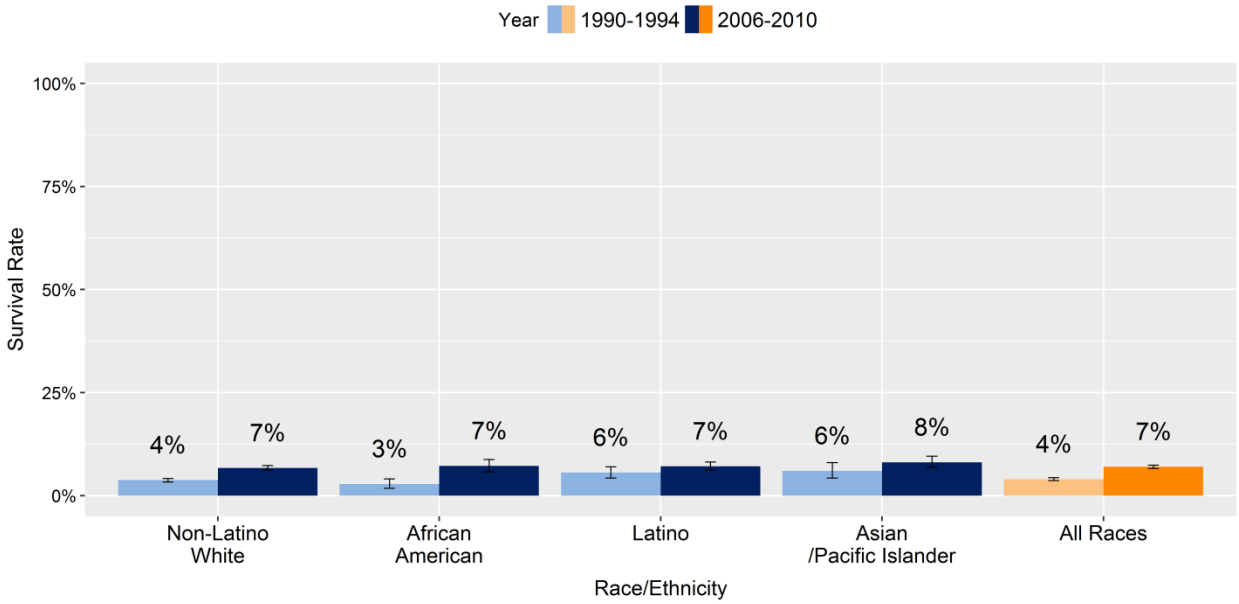
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 18.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Pancreatic Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 18.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Pancreatic Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Prostate Cancer

Prostate cancer is the most commonly diagnosed cancer in men and the second leading cause of cancer death among males in California. In 2015, 17,159 cases of prostate cancer were diagnosed and 3,314 deaths were attributed to the disease. Prostate-specific antigen (PSA)-based screening can detect prostate cancers early and reduce the chance of death, although there are significant potential risks to screening, including false positives, over-diagnosis, over-treatment, and complications from treatment that reduce quality of life. Consequently, the screening recommendations for prostate cancer are not as clear-cut as for other cancers. The U.S. Preventive Services Task Force's (USPSTF) recommendation for males aged 55 to 69 years is that the decision to undergo PSA-based screening for prostate cancer is an individual one and should be decided after discussing the benefits and harms of screening with one's physician. The USPSTF recommends against screening men aged 70 years and older.[4]

Among males, prostate cancer had the highest survival rate of any cancer, ranging from 99 percent at one year to 93.3 percent at ten years (Figure 1.4 and Table 19.1). The lowest prostate cancer survival rates were observed among males aged 75 years and older and those diagnosed with stage IV disease (Table 19.1 and Figure 19.1). Among males diagnosed with stage IV disease, differences in survival by socioeconomic status (SES) were observed. Males with stage IV disease having the lowest SES had a five-year relative survival rate of 39 percent, whereas those with the highest SES had a five-year relative survival rate of 52 percent.

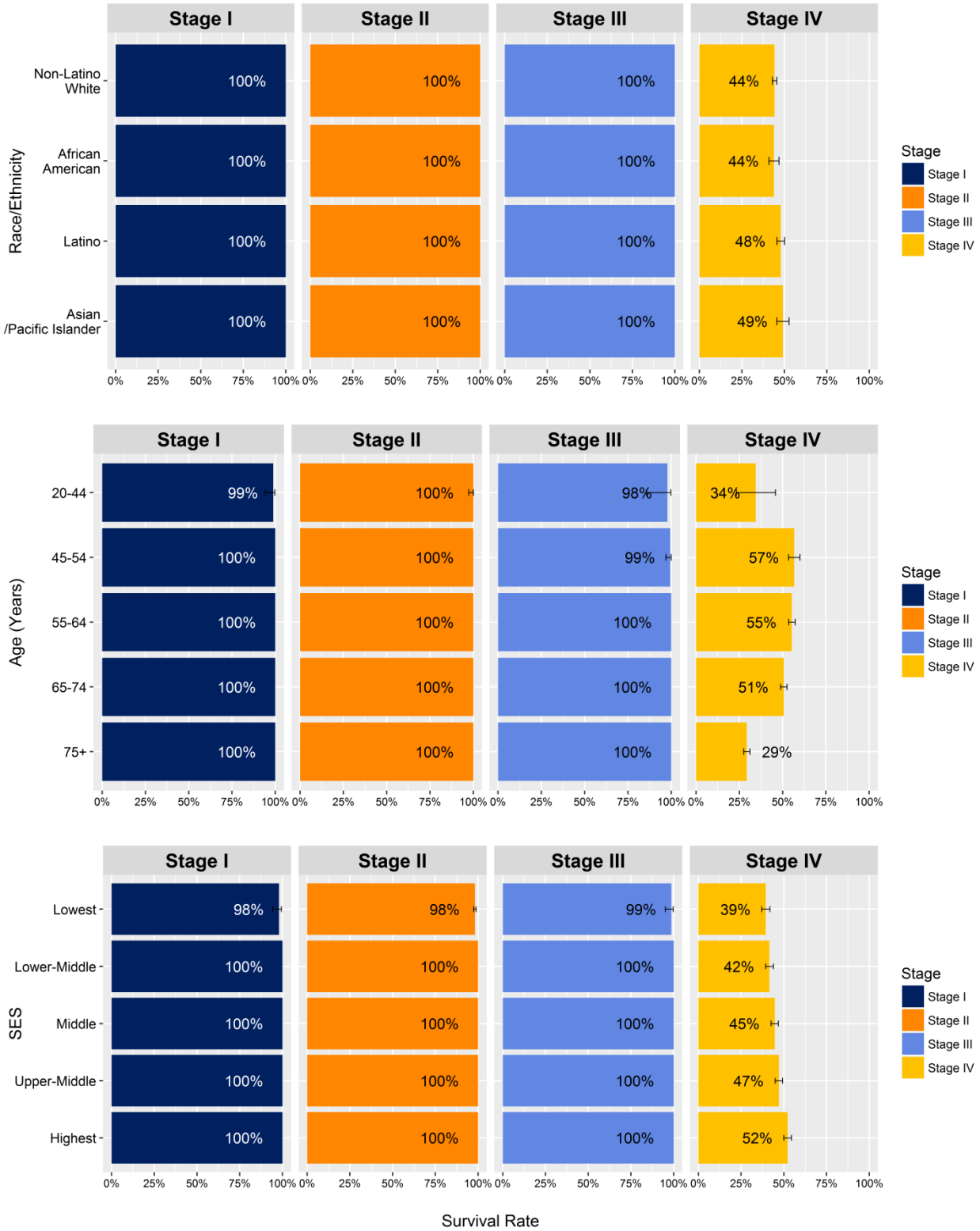
Prostate cancer survival in California improved between 1990 and 2010. Males diagnosed with prostate cancer between 1990 and 1994 had a five-year relative survival rate of 93 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 97 percent. Improved survival rates were observed in each racial/ethnic group (Figure 19.3).

Table 19.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Prostate Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
Male	215,147	100.0	99.0	97.6	96.6	94.9	93.3
Race/Ethnicity							
Non-Latino White	137,887	64.1	99.2	98.1	97.3	95.9	94.5
African American	21,829	10.1	98.6	96.6	95.1	93.1	91.7
Latino	37,904	17.6	98.7	96.7	95.4	93.2	91.0
Asian/Pacific Islander	17,527	8.1	99.1	96.9	95.2	92.3	89.9
Age at Diagnosis							
20-44	1,132	0.5	99.3	95.7	94.5	92.6	92.5
45-54	19,711	9.2	99.6	98.3	97.7	97.0	96.9
55-64	69,399	32.3	99.7	98.9	98.3	97.6	97.1
65-74	80,553	37.4	100.0	99.5	99.0	97.9	96.2
75+	44,352	20.6	96.0	91.9	88.8	82.9	77.8
Stage at Diagnosis (American Joint Committee on Cancer)							
I	23,163	10.8	100.0	100.0	100.0	95.7	95.7
II	141,301	65.7	100.0	100.0	100.0	100.0	100.0
III	17,655	8.2	100.0	100.0	100.0	100.0	98.0
IV	17,023	7.9	82.6	57.3	45.3	36.0	33.0
Unknown	16,005	7.4	93.7	86.9	80.4	71.6	67.8
Socioeconomic Status							
1 (Lowest)	27,997	13.0	97.2	93.4	90.0	85.2	81.0
2	36,589	17.0	98.3	95.6	93.5	90.0	86.8
3	43,474	20.2	98.9	96.9	95.5	93.1	90.7
4	49,045	22.8	99.5	98.6	98.1	96.9	95.6
5 (Highest)	58,042	27.0	99.9	99.9	99.9	99.9	99.9

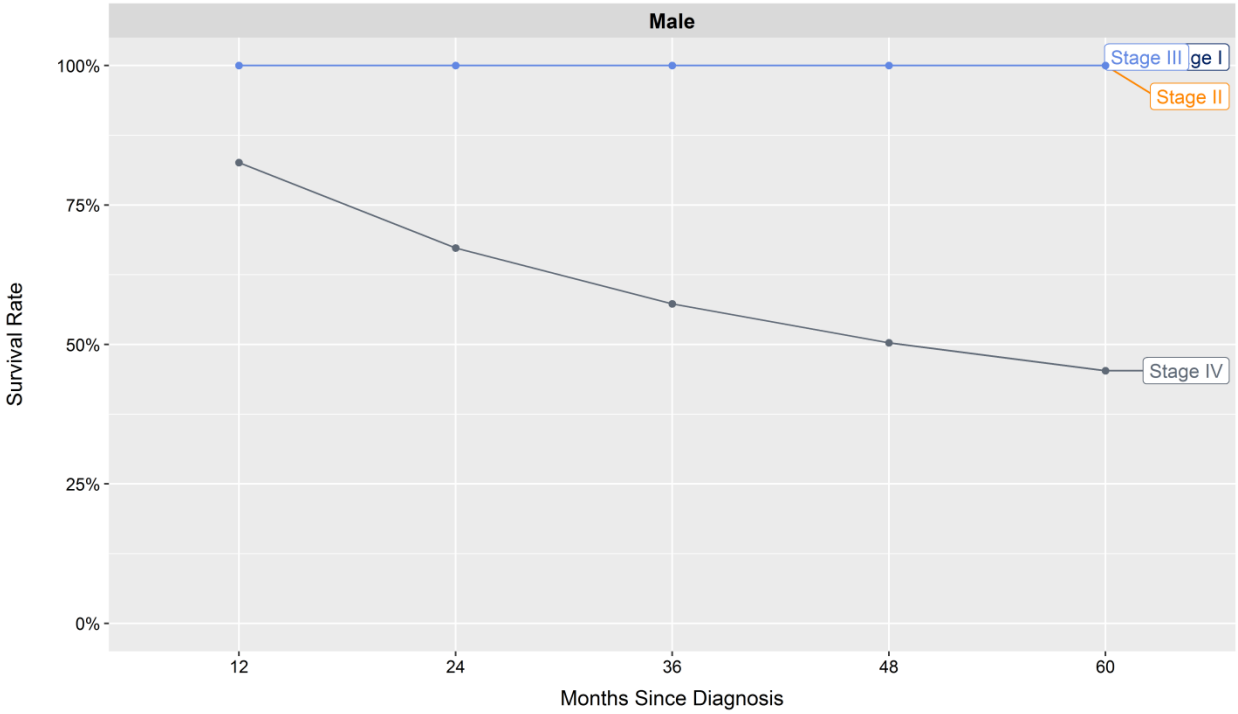
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 19.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Prostate Cancer



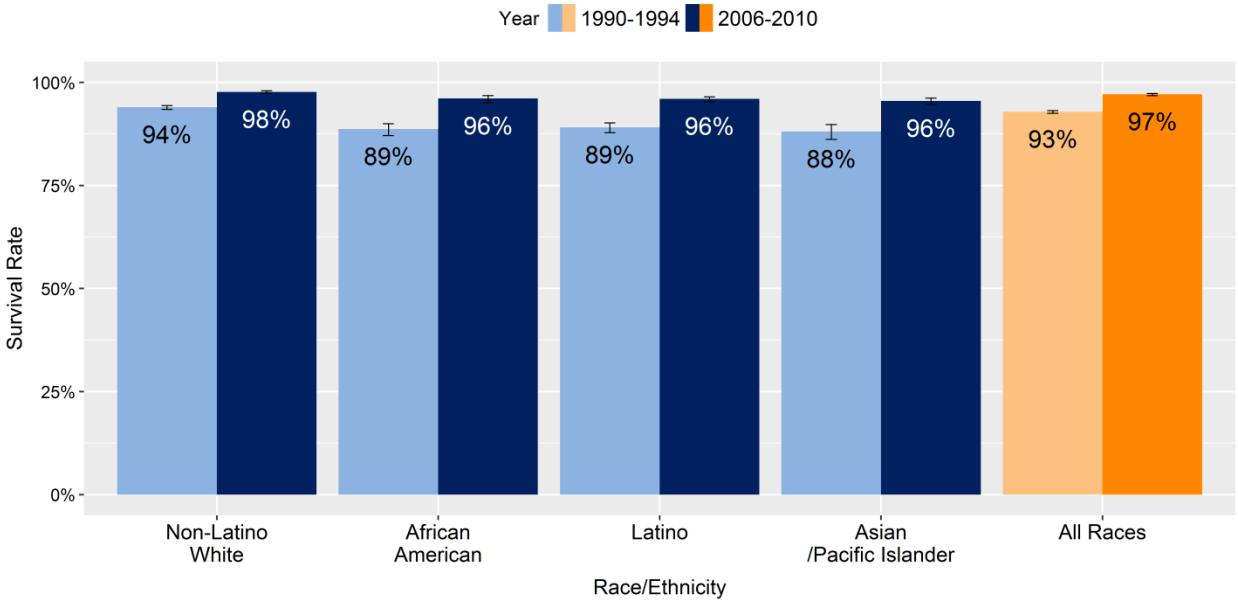
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 19.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Stage at Diagnosis: Prostate Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 19.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Prostate Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Stomach Cancer

Stomach cancer is the eleventh most commonly diagnosed cancer and the seventh leading cause of cancer death in California. In 2015, 2,919 Californians were diagnosed with stomach cancer and 1,626 died of the disease. Over 60 percent of stomach cancers are diagnosed among persons aged 65 years and older, and males are at higher risk of developing the disease than females.

Research studies suggest that routine screening for stomach cancer in populations with relatively low risk of developing the disease would not decrease mortality. Because stomach cancer is not common in the United States, routine screening is not recommended.[5] Since early stage stomach cancer often has no symptoms, over 50 percent of stomach cancers are diagnosed at an advanced stage when prognosis is poor.

From 2004 to 2015, stomach cancer survival decreased as the time after diagnosis increased. One-year relative survival was 54.5 percent, and ten-year relative survival was 24.1 percent. Survival disparities were observed by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES). Females had a slight survival advantage over males, ranging from one to four percent. Asian/Pacific Islanders had eight to 11 percent higher survival rates than non-Latino whites, African Americans, and Latinos at each time interval. Survival was markedly lower for patients diagnosed at age 75 years and older, those diagnosed with stage IV disease, and those with the lowest SES (Table 20.1).

Survival disparities by race/ethnicity, age, and SES were observed among patients diagnosed with stage I stomach cancer. Five-year relative survival for stage I stomach cancer among Asian/Pacific Islanders was 72 percent, which was much higher than that of non-Latino whites (58%), Latinos (60%), and African Americans (62%). Persons aged 75 years and older experienced poorer survival at stage I (48%) compared to those aged 20 to 44 years (76%), 45 to 54 years (76%), 55 to 64 years (74%), and 65 to 74 years (70%). Patients with the lowest SES had poorer survival for stage I disease (59%) than those with the highest SES (70%) (Figure 20.1).

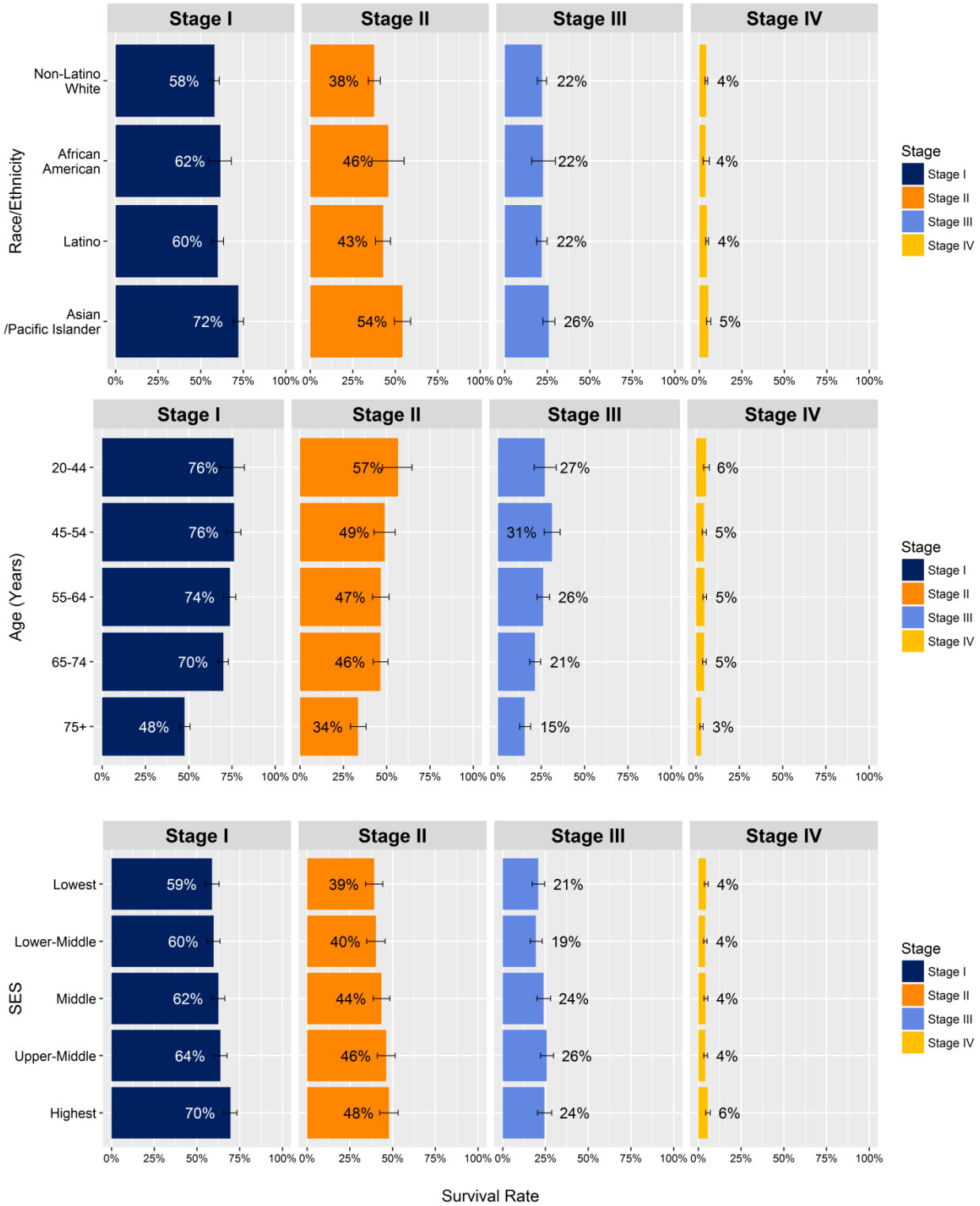
Five-year relative survival of stomach cancer improved in California between 1990 and 2010. Individuals diagnosed with stomach cancer between 1990 and 1994 had a five-year relative survival rate of 19 percent, whereas individuals diagnosed between 2006 and 2010 had a five-year relative survival rate of 29 percent. Improved survival rates were observed in each racial/ethnic group (Figure 20.3).

Table 20.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Stomach Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	26,979	100.0	54.5	33.8	28.7	25.7	24.1
Sex							
Male	16,143	59.8	54.2	32.8	27.2	24.2	22.8
Female	10,836	40.2	55.0	35.4	30.9	28.0	26.2
Race/Ethnicity							
Non-Latino White	10,821	40.1	52.8	32.0	27.0	24.3	23.0
African American	1,923	7.1	51.5	33.1	28.6	25.1	23.1
Latino	8,339	30.9	51.6	31.0	25.7	22.9	21.8
Asian/Pacific Islander	5,896	21.9	62.7	41.3	35.6	32.3	29.8
Age at Diagnosis							
20-44	2,165	8.0	56.4	33.5	28.9	26.4	24.6
45-54	3,723	13.8	57.6	35.9	31.1	28.2	27.4
55-64	5,664	21.0	59.4	36.7	31.3	28.9	27.6
65-74	6,626	24.6	59.4	38.7	33.4	30.0	27.5
75+	8,801	32.6	45.8	27.4	22.0	18.8	17.1
Stage at Diagnosis (American Joint Committee on Cancer)							
I	5,403	20.0	81.1	69.1	62.9	58.6	55.2
II	3,041	11.3	79.8	53.8	43.5	36.9	33.3
III	3,954	14.7	68.0	31.4	22.8	19.6	18.8
IV	9,935	36.8	27.0	7.0	4.4	3.5	3.5
Unknown	4,646	17.2	54.6	38.8	34.7	31.2	29.2
Socioeconomic Status							
1 (Lowest)	5,609	20.8	49.7	29.6	24.7	21.1	19.6
2	5,853	21.7	52.3	31.4	26.4	22.7	21.1
3	5,394	20.0	54.2	34.2	29.3	26.7	25.0
4	5,362	19.9	57.2	35.5	30.2	27.4	25.7
5 (Highest)	4,761	17.6	60.2	39.4	33.5	31.8	30.1

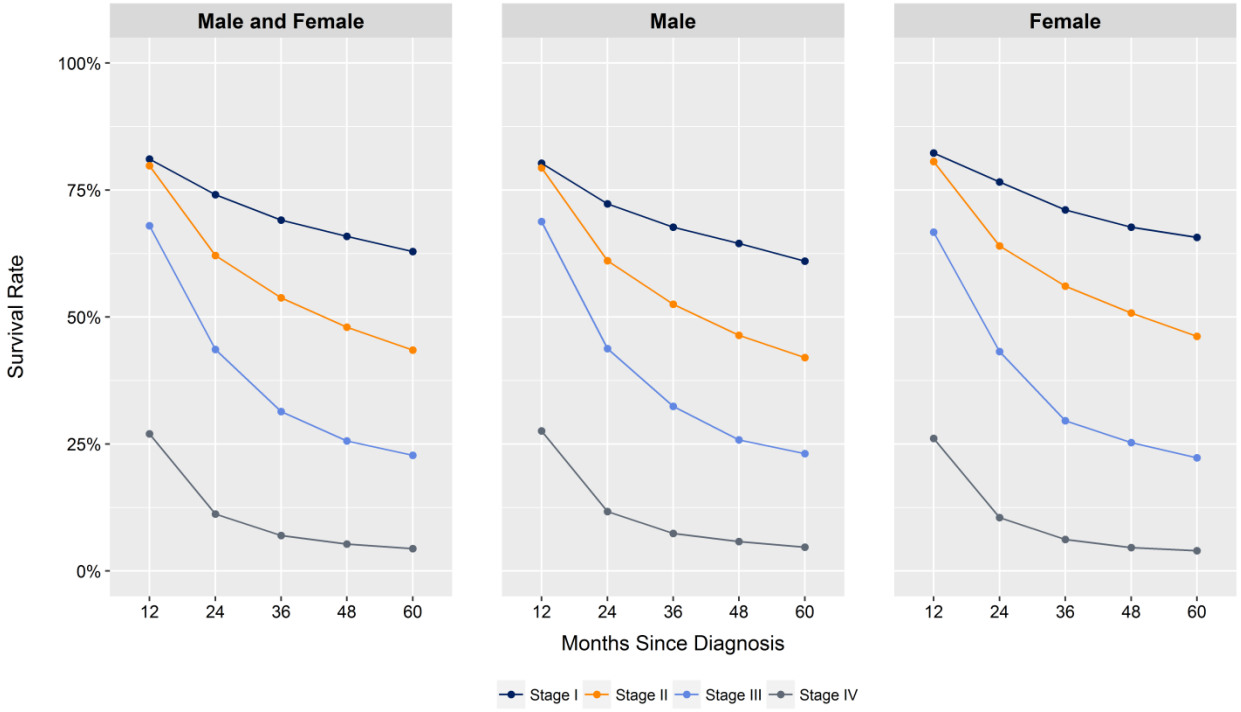
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 20.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Stomach Cancer



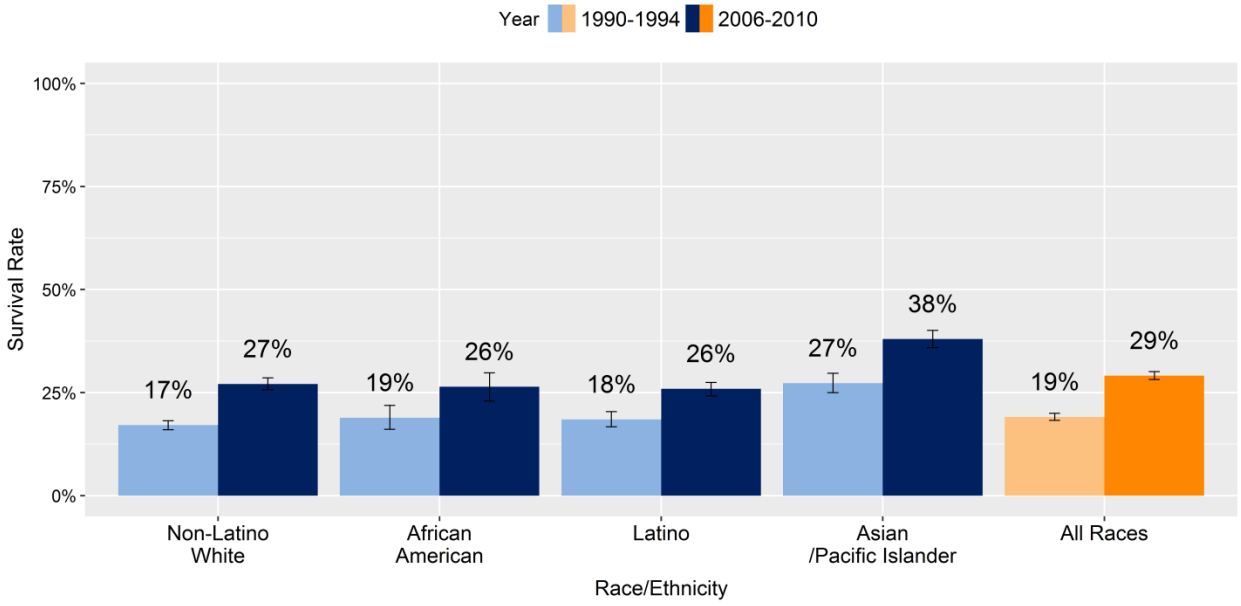
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 20.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Stomach Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 20.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Stomach Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Testicular Cancer

Testicular cancer is relatively rare and is most often diagnosed in males aged 20 to 34 years. In 2015, 1,165 California males were diagnosed with testicular cancer and 58 died of the disease. Overall, testicular cancer has a good prognosis and most cases can be cured, even if diagnosed at a late stage. Most testicular cancers are found at an early stage because they cause symptoms, such as a lump or swelling. Regular self-examination and routine medical check-ups aid in early detection.

From 2004 to 2015, testicular cancer survival was high, ranging from 97.1 percent at one year to 92.8 percent at ten years (Table 21.1 and Figure 1.4). However, there were differences in survival by race/ethnicity, age at diagnosis, and socioeconomic status (SES). Survival rates for African American males were six to 11 percent lower than those of non-Latino white males at each time interval post-diagnosis. Survival was five to 25 percent lower among males diagnosed at age 55 years and older compared to those diagnosed at age 20 to 54 years. Males with the lowest SES had poorer survival than males with the highest SES at each time interval post-diagnosis (Table 21.1).

Survival rates for males diagnosed with stage I testicular cancer were high and did not vary much by race/ethnicity, age at diagnosis, or SES. However, non-Latino white males had somewhat higher survival rates at stage I, II, and III disease compared to African American, Latino, and Asian/Pacific Islander males (Figure 21.1). Males diagnosed with stage II and III disease with the highest SES had better survival rates than those diagnosed with stage II and III disease with the lowest SES (Figure 21.1).

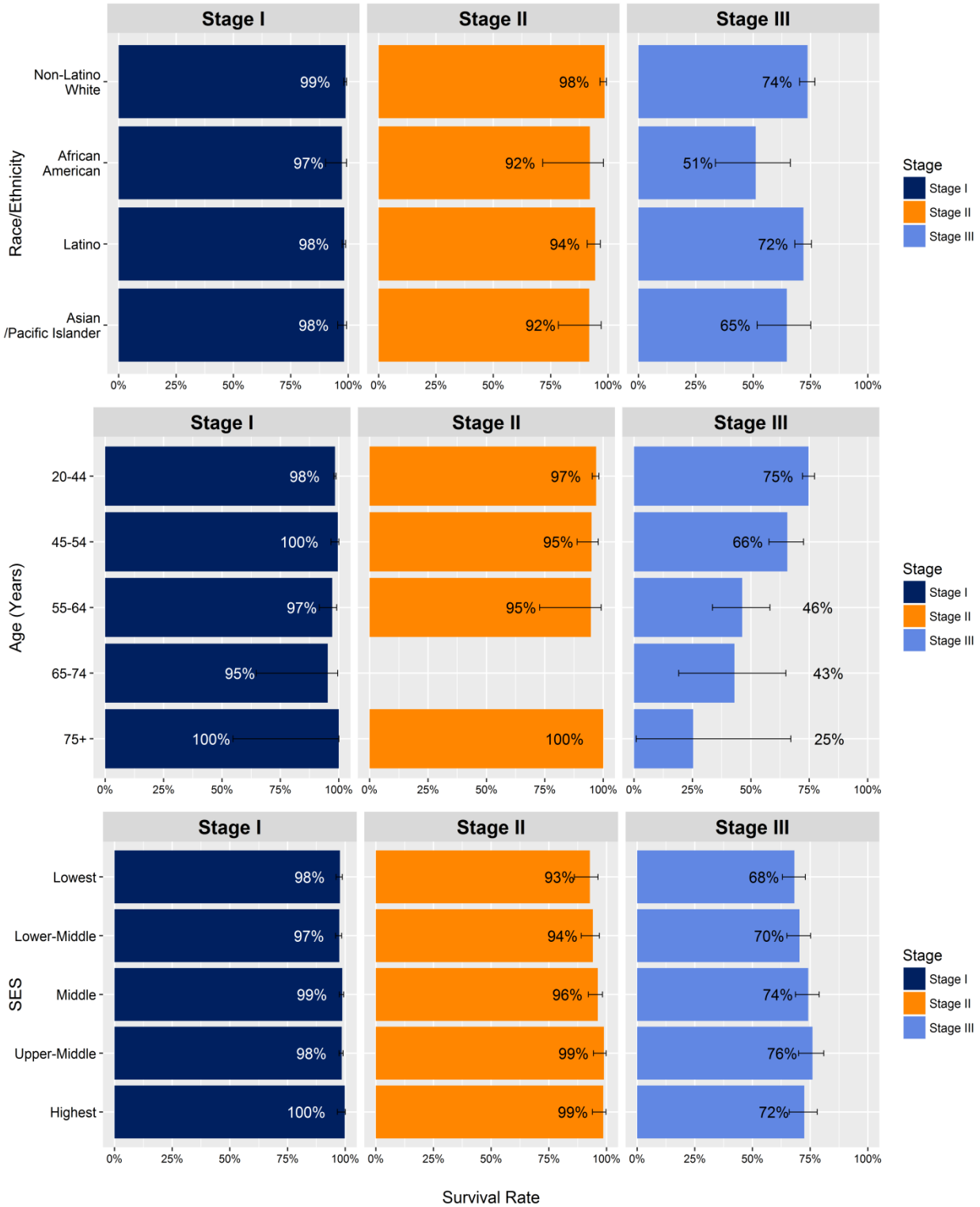
Overall, testicular cancer survival in California remained high over the past two decades. Males diagnosed with testicular cancer between 2006 and 2010 had the same five-year relative survival as those diagnosed between 1990 and 1994 (94%) (Figure 21.3).

Table 21.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Testicular Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
Male	11,056	100.0	97.1	94.4	93.8	93.2	92.8
Race/Ethnicity							
Non-Latino White	6,213	56.2	97.5	95.6	95.1	94.7	94.6
African American	214	1.9	91.7	87.6	87.0	83.3	83.3
Latino	4,074	36.8	96.8	92.9	92.1	91.1	90.2
Asian/Pacific Islander	555	5.0	96.9	93.3	91.7	91.7	90.9
Age at Diagnosis							
20-44	8,938	80.8	97.7	94.9	94.1	93.6	93.3
45-54	1,410	12.8	96.7	94.2	93.9	93.7	93.6
55-64	520	4.7	92.3	88.6	87.9	87.3	86.8
65-74	128	1.2	87.1	87.1	85.9	81.6	68.4
75+	60	0.5	90.6	85.7	80.6	76.3	73.9
Stage at Diagnosis (American Joint Committee on Cancer)							
I	7,467	67.5	99.8	99.0	98.7	98.4	98.0
II	1,248	11.3	98.9	97.8	96.8	96.4	96.4
III	1,644	14.9	85.1	73.3	72.0	69.6	68.7
IV	0	0.0	-	-	-	-	-
Unknown	697	6.3	94.3	89.8	88.3	86.6	86.6
Socioeconomic Status							
1 (Lowest)	1,849	16.7	94.7	90.3	89.2	87.7	87.4
2	2,170	19.6	96.5	92.8	91.7	90.2	89.2
3	2,359	21.3	97.5	95.0	94.2	93.5	93.3
4	2,400	21.7	98.2	95.9	95.5	95.1	95.0
5 (Highest)	2,278	20.6	98.0	96.8	96.5	96.5	96.5

Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

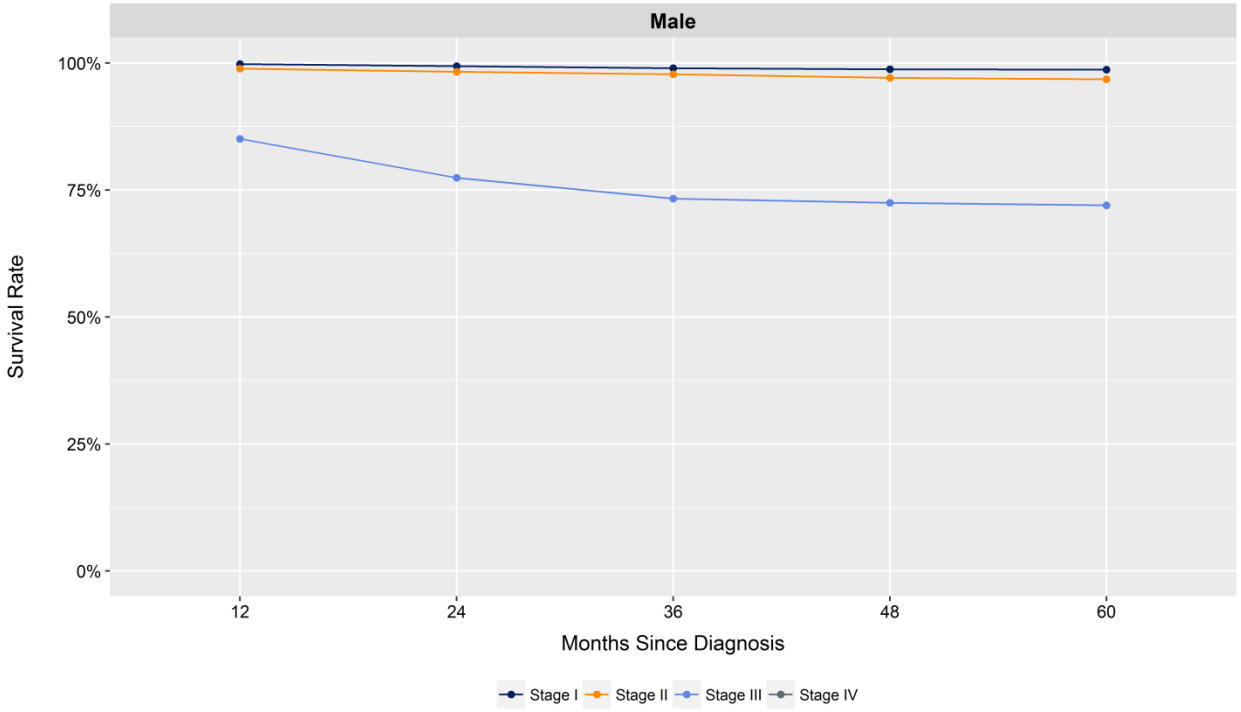
Figure 21.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Testicular Cancer



Survival could not be calculated for men aged 65 to 74 years with stage II testicular cancer.

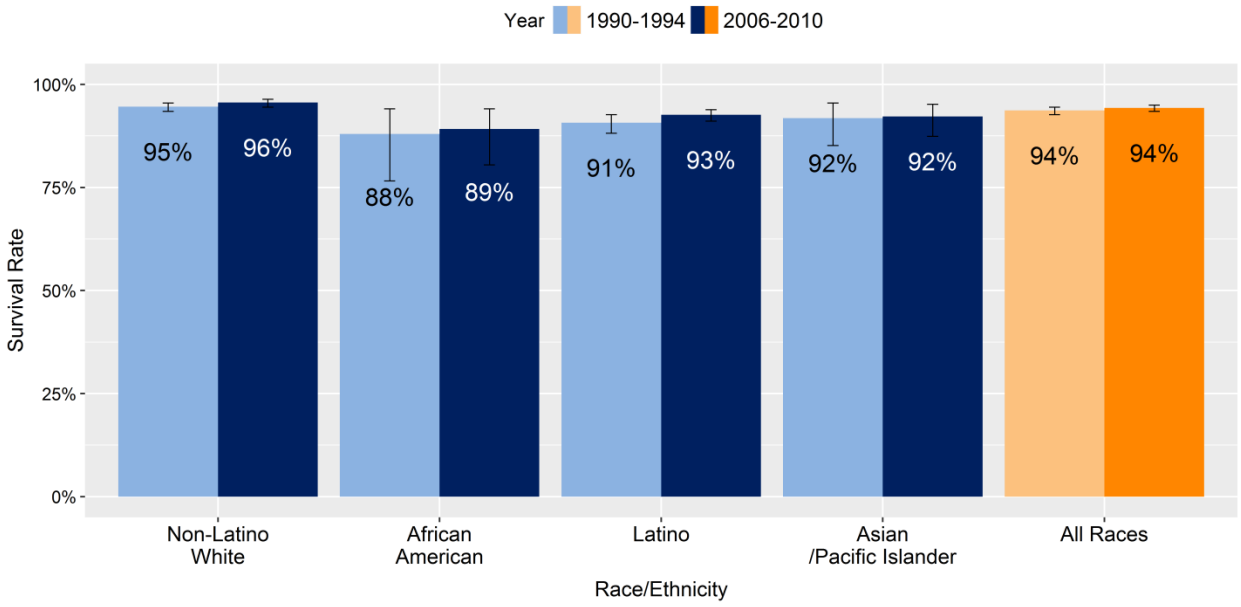
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 21.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Stage at Diagnosis: Testicular Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 21.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Testicular Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Thyroid Cancer

In 2015, 5,332 Californians were diagnosed with thyroid cancer and 281 died of the disease, making thyroid cancer the seventh most commonly diagnosed cancer and the nineteenth leading cause of cancer death. Thyroid cancer is almost three times more common in females than males. Although there is no routine screening test for thyroid cancer, most cases are diagnosed at an early stage when the patient, or a healthcare professional, feels a lump in the neck or nodule on the thyroid gland. Early thyroid cancers are also sometimes detected incidentally via ultrasound performed for unrelated health matters.

From 2004 to 2015, thyroid cancer survival was very high at each time period post-diagnosis, ranging from 98 percent at one year to 95.9 percent at ten years. Disparities in thyroid cancer survival by sex, age at diagnosis, stage at diagnosis, and socioeconomic status (SES) were observed. Among females, thyroid cancer had the highest survival rate of any cancer (Figure 1.4). Females also had higher thyroid cancer survival rates than males, and the disparity worsened with increased time post-diagnosis. At one year, female survival was two percent higher than male survival, but at ten years it was seven percent higher. As age at diagnosis increased, thyroid cancer survival decreased, with the largest decline observed among patients diagnosed at age 75 years and older. A marked decline in survival was also observed for patients diagnosed with stage IV disease. Patients with the lowest SES had poorer survival than patients with the highest SES at each time period post-diagnosis. Thyroid cancer survival did not notably vary by race/ethnicity (Table 22.1 and Figures 22.1-22.2).

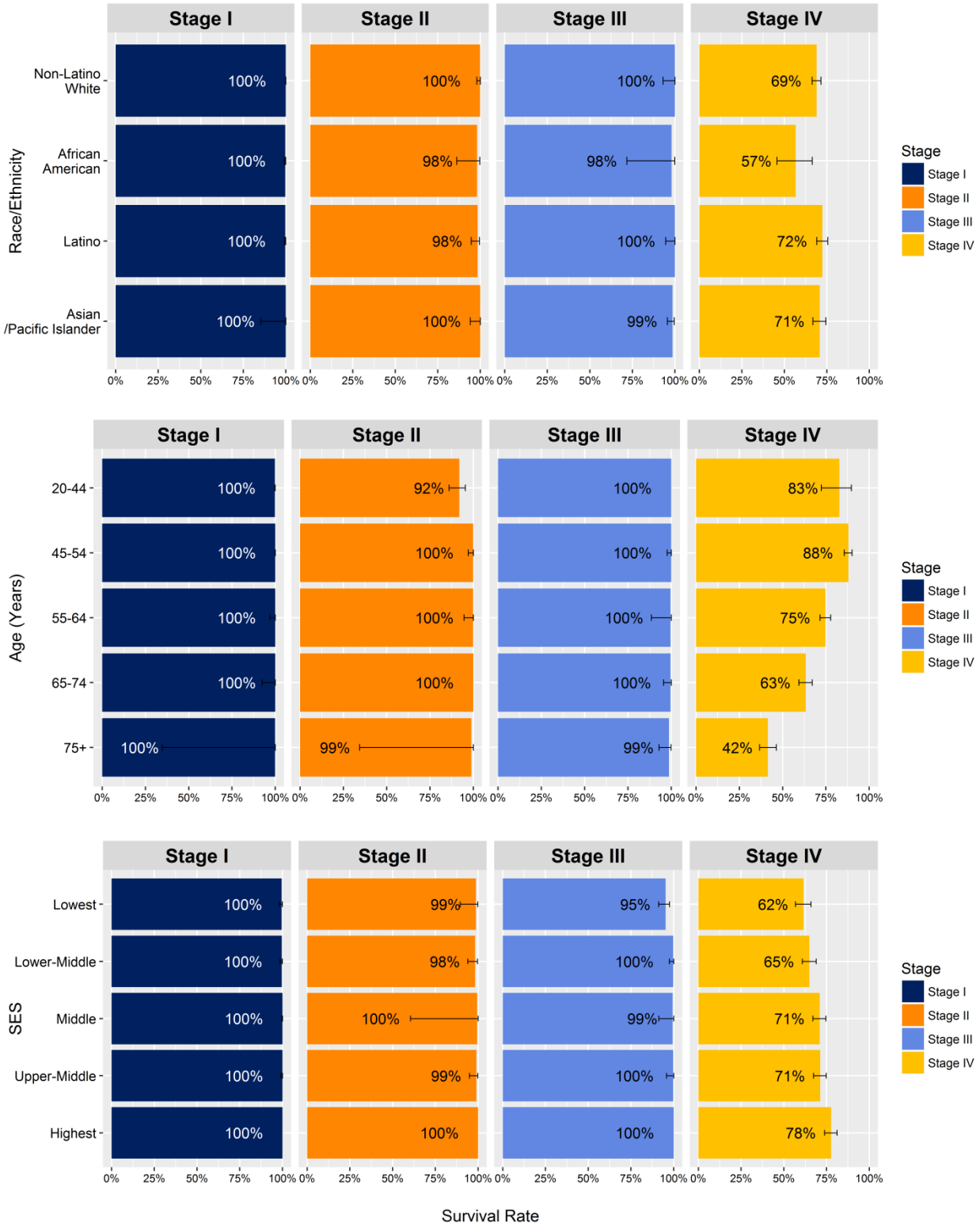
From 1990 to 2010, thyroid cancer survival in California modestly improved. Patients diagnosed with thyroid cancer between 1990 and 1994 had a five-year relative survival rate of 94 percent, whereas patients diagnosed between 2006 and 2010 had a five-year relative survival rate of 97 percent. Improved survival rates were observed in each racial/ethnic group (Figure 22.3).

Table 22.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Thyroid Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	42,319	100.0	98.0	97.4	97.0	96.3	95.9
Sex							
Male	9,710	22.9	96.5	95.1	93.8	91.6	90.7
Female	32,609	77.1	98.4	98.1	97.9	97.7	97.5
Race/Ethnicity							
Non-Latino White	21,881	51.7	98.2	97.9	97.5	97.2	96.9
African American	1,676	4.0	96.8	96.4	96.4	95.9	95.9
Latino	11,544	27.3	97.9	97.2	96.6	95.6	95.0
Asian/Pacific Islander	7,218	17.1	97.7	96.8	96.1	94.2	93.7
Age at Diagnosis							
20-44	16,685	39.4	99.8	99.7	99.6	99.5	99.2
45-54	10,333	24.4	99.3	98.9	98.7	98.2	97.8
55-64	8,031	19.0	98.1	97.3	96.3	95.3	94.6
65-74	4,807	11.4	95.5	94.5	93.8	92.2	91.3
75+	2,463	5.8	84.5	81.8	79.0	75.6	74.1
Stage at Diagnosis (American Joint Committee on Cancer)							
I	27,793	65.7	100.0	100.0	100.0	100.0	100.0
II	3,267	7.7	100.0	100.0	100.0	100.0	100.0
III	5,246	12.4	100.0	100.0	100.0	99.4	98.3
IV	4,154	9.8	80.9	74.2	69.9	63.1	60.4
Unknown	1,859	4.4	95.0	92.5	90.3	87.7	85.4
Socioeconomic Status							
1 (Lowest)	5,650	13.4	96.2	94.8	93.8	92.2	90.3
2	7,642	18.1	97.5	96.5	95.6	94.1	93.3
3	8,535	20.2	97.9	97.3	96.5	95.6	95.3
4	9,851	23.3	98.4	97.8	97.7	97.4	97.3
5 (Highest)	10,641	25.1	98.9	98.9	98.9	98.9	98.9

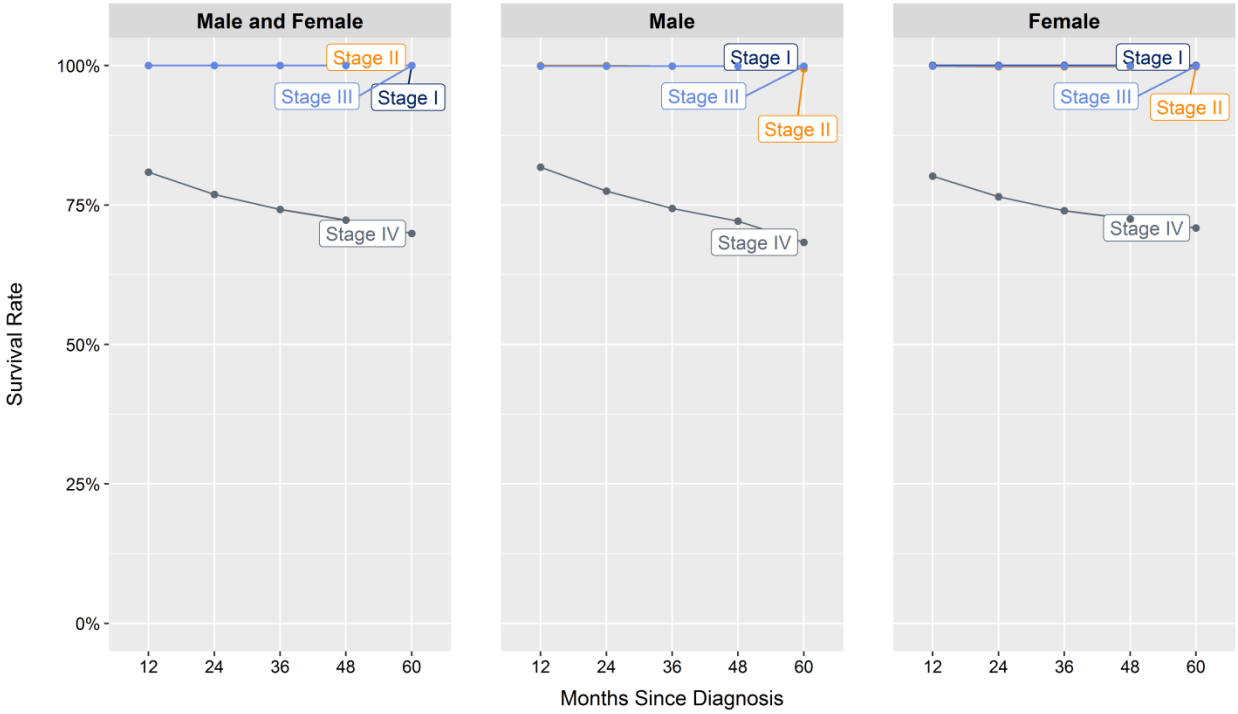
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 22.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Thyroid Cancer



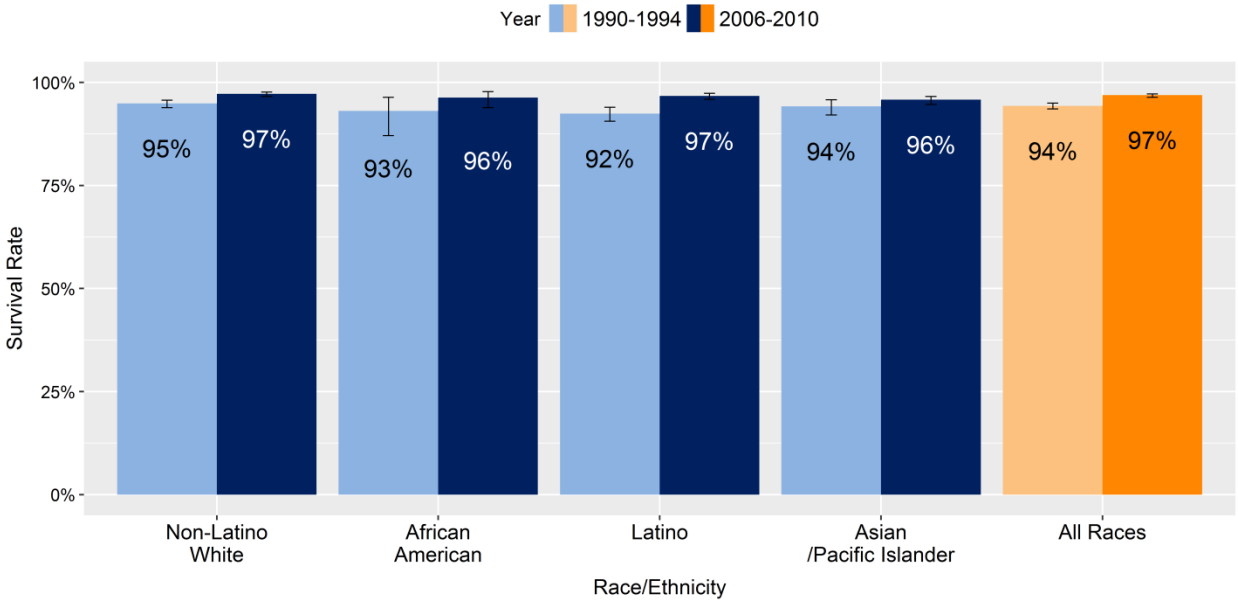
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 22.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Thyroid Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 22.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Thyroid Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Urinary Bladder Cancer

In 2015, 6,550 Californians were diagnosed with urinary bladder cancer and 1,594 died of the disease. Urinary bladder cancer is more than four times more common in males than females. In 2015, urinary bladder cancer was the fifth most commonly diagnosed cancer and the eighth leading cause of cancer death among California males. Currently, no professional organization recommends routine screening of the general population for urinary bladder cancer. Urinalysis may detect some bladder cancers early, but it has not been shown to be useful as a routine screening test. Most urinary bladder cancers are diagnosed at an early stage.

From 2004 to 2015, urinary bladder cancer survival decreased as time post-diagnosis increased. At one year post diagnosis, survival was 77.4 percent, but it declined to 46.4 percent at ten years. Disparities in survival were observed by sex, race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES). Males had a marked survival advantage over females at each time period post-diagnosis, ranging from eight to 12 percent. Survival worsened with increasing age at diagnosis, with a noticeable drop in survival for patients diagnosed at age 75 years and older. Survival also decreased with advancing stage at diagnosis and decreasing SES. At each time period post-diagnosis, survival was 10 to 20 percent lower for patients with the lowest SES compared to patients with the highest SES (Table 23.1).

Overall, patients diagnosed with stage I disease had the highest survival (compared to those diagnosed with stage II, III, and IV disease); however, disparities in survival were observed among stage I urinary bladder cancer patients. African Americans, persons diagnosed at age 75 years and older, and those with the lowest SES, had lower survival than their counterparts (Figure 23.1).

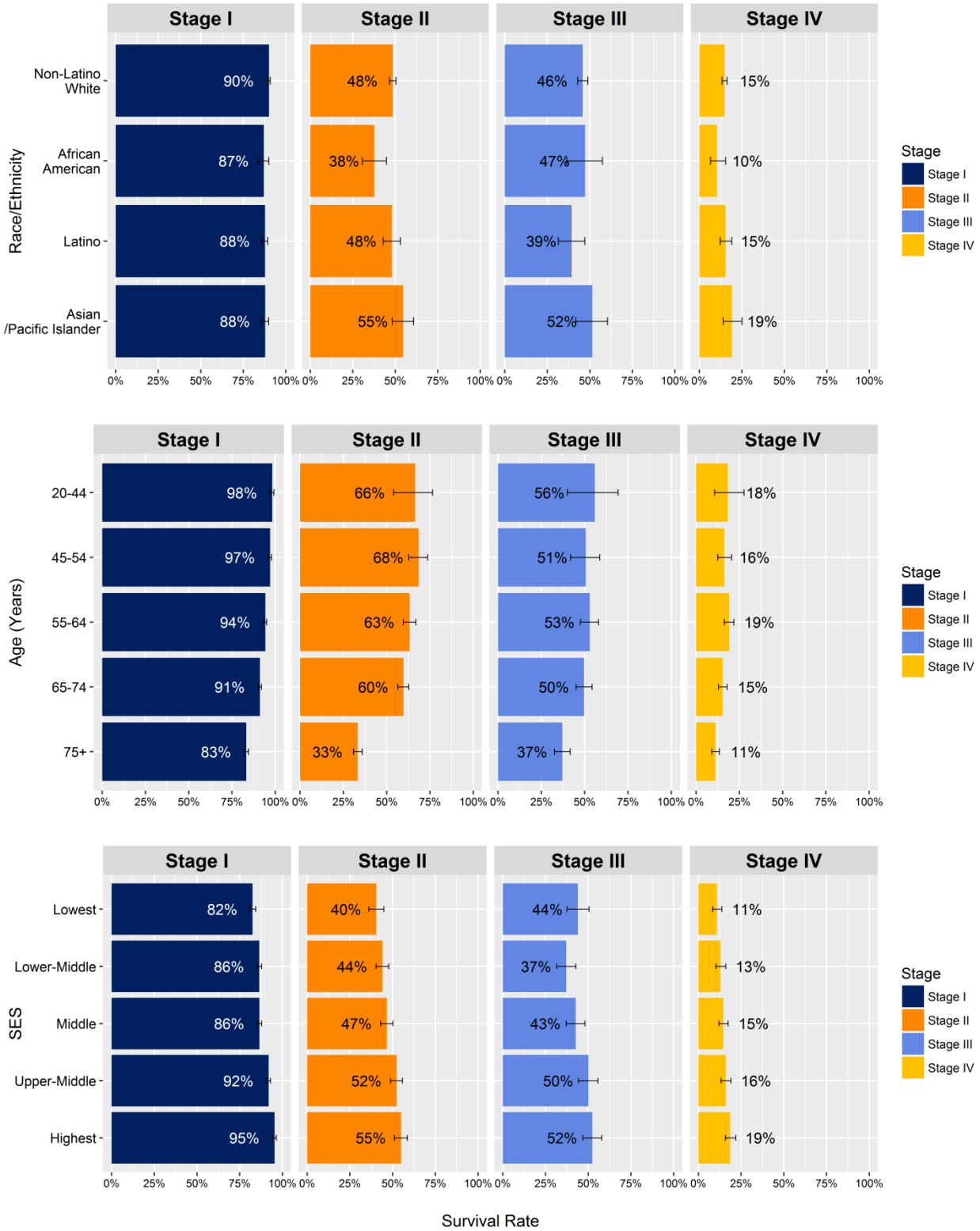
Urinary bladder cancer survival in California has not improved over the past two decades. Persons diagnosed with urinary bladder cancer between 1990 and 1994 had a five-year relative survival rate of 78 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 76 percent. Survival rates did not notably vary among racial/ethnic groups (Figure23.3).

Table 23.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Urinary Bladder Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
All Cases	27,177	100.0	77.4	61.6	55.6	48.7	46.4
Sex							
Male	20,515	75.5	80.3	64.6	58.5	51.0	48.4
Female	6,662	24.5	68.6	52.4	46.7	41.4	40.1
Race/Ethnicity							
Non-Latino White	20,566	75.7	77.3	61.8	56.0	48.6	46.4
African American	1,324	4.9	71.7	52.8	46.2	40.9	39.7
Latino	3,241	11.9	77.6	60.3	53.3	46.9	43.4
Asian/Pacific Islander	2,046	7.5	81.8	67.2	61.2	56.4	54.6
Age at Diagnosis							
20-44	501	1.8	88.2	73.4	67.3	64.0	61.8
45-54	1,873	6.9	85.6	70.7	65.0	61.0	57.7
55-64	5,171	19.0	83.7	68.6	63.2	58.0	55.9
65-74	7,453	27.4	82.8	68.2	62.3	54.3	52.8
75+	12,179	44.8	69.5	52.2	45.5	36.6	33.2
Stage at Diagnosis (American Joint Committee on Cancer)							
I	12,027	44.3	94.3	85.1	79.3	70.3	67.5
II	6,141	22.6	74.7	54.2	48.3	42.4	39.9
III	2,354	8.7	73.6	52.9	45.7	38.9	36.6
IV	4,355	16.0	45.3	20.4	14.9	11.9	10.8
Unknown	2,300	8.5	61.2	46.7	39.4	33.0	31.8
Socioeconomic Status							
1 (Lowest)	3,700	13.6	71.6	53.7	46.5	38.1	34.8
2	5,226	19.2	74.5	57.7	51.2	43.5	39.0
3	6,059	22.3	77.2	60.3	53.6	46.1	44.0
4	6,096	22.4	79.7	64.7	59.8	54.9	53.0
5 (Highest)	6,096	22.4	81.3	68.1	62.5	55.6	55.0

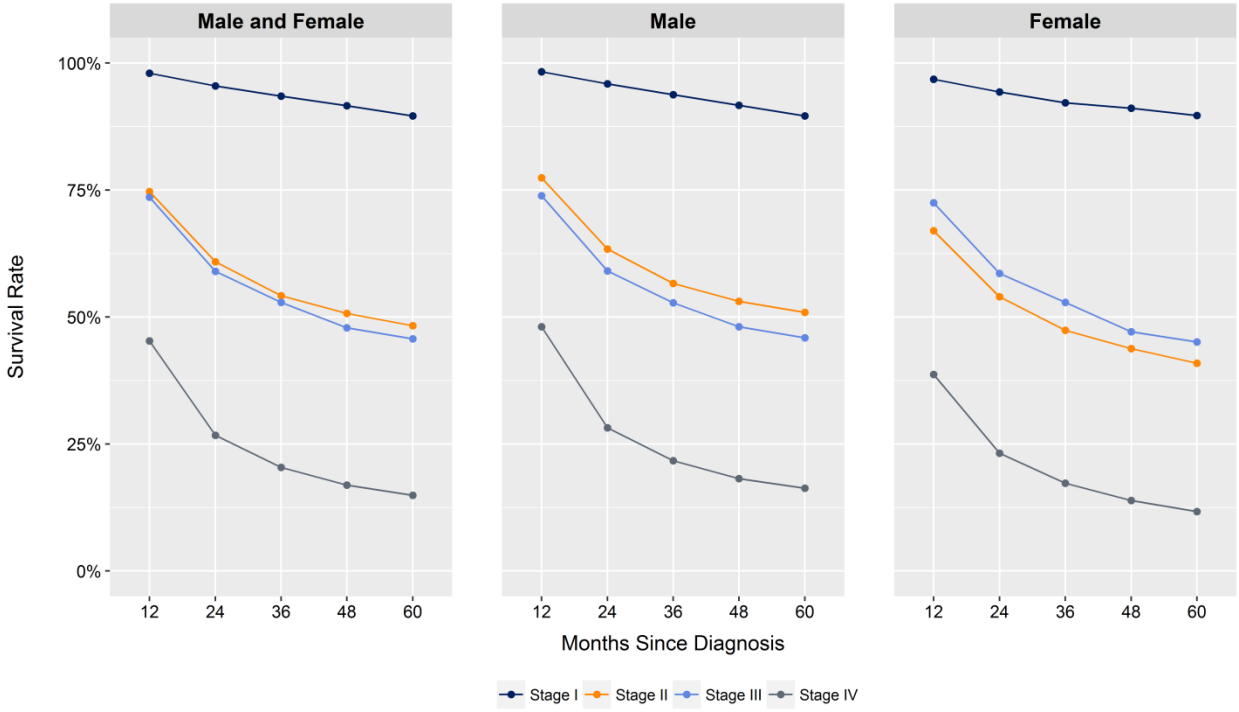
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 23.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Urinary Bladder Cancer



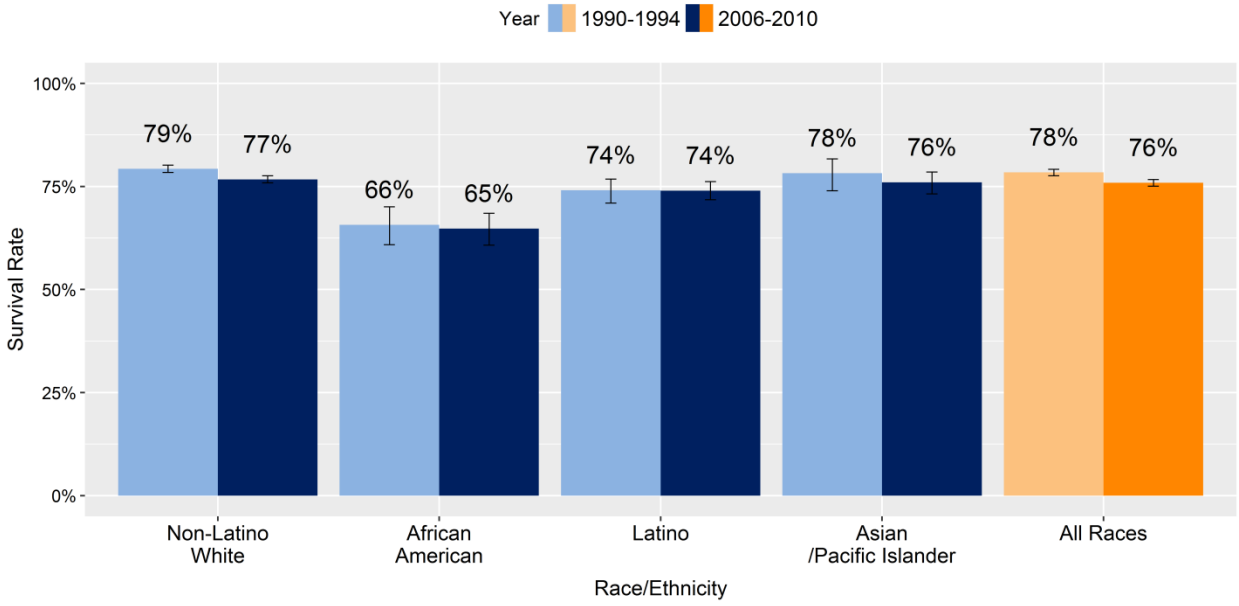
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 23.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Sex and Stage at Diagnosis: Urinary Bladder Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 23.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Urinary Bladder Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Uterine Cancer

Uterine cancer, or endometrial cancer, is the most common gynecologic cancer. In 2015, 5,855 females in California were diagnosed with uterine cancer and 1,123 died of the disease, making it the fourth most commonly diagnosed cancer among females and the seventh leading cause of cancer death. Currently, routine screening for endometrial cancer is not recommended. Endometrial cancer often exhibits signs or symptoms at an early stage, leading to early detection in many cases.

Between 2004 and 2015, uterine cancer survival in California was high but decreased as time post-diagnosis increased. Uterine cancer survival was 92.3 percent at one year but dropped to 77.6 percent at ten years. Disparities in uterine cancer survival were observed by race/ethnicity, age at diagnosis, stage at diagnosis, and socioeconomic status (SES). African American females experienced 10 to 25 percent lower survival compared to non-Latino white females at each time period post-diagnosis. Survival decreased as age at diagnosis increased, with a marked decrease in survival for patients diagnosed at age 75 years and older. Survival also decreased with advancing stage at diagnosis and with decreasing SES. Females diagnosed with stage IV disease had 36 to 45 percent lower survival compared to females diagnosed with stage III disease. Females with the lowest SES had lower survival rates than females with the highest SES (Table 24.1).

Survival disparities were observed among patients diagnosed with stage I disease. African American females diagnosed with stage I disease had the lowest survival (90%) compared to non-Latino white females (97%), Asian/Pacific Islander females (96%), and Latinas (95%). Survival of stage I uterine cancer decreased with increasing age at diagnosis and with decreasing SES (Figure 24.1).

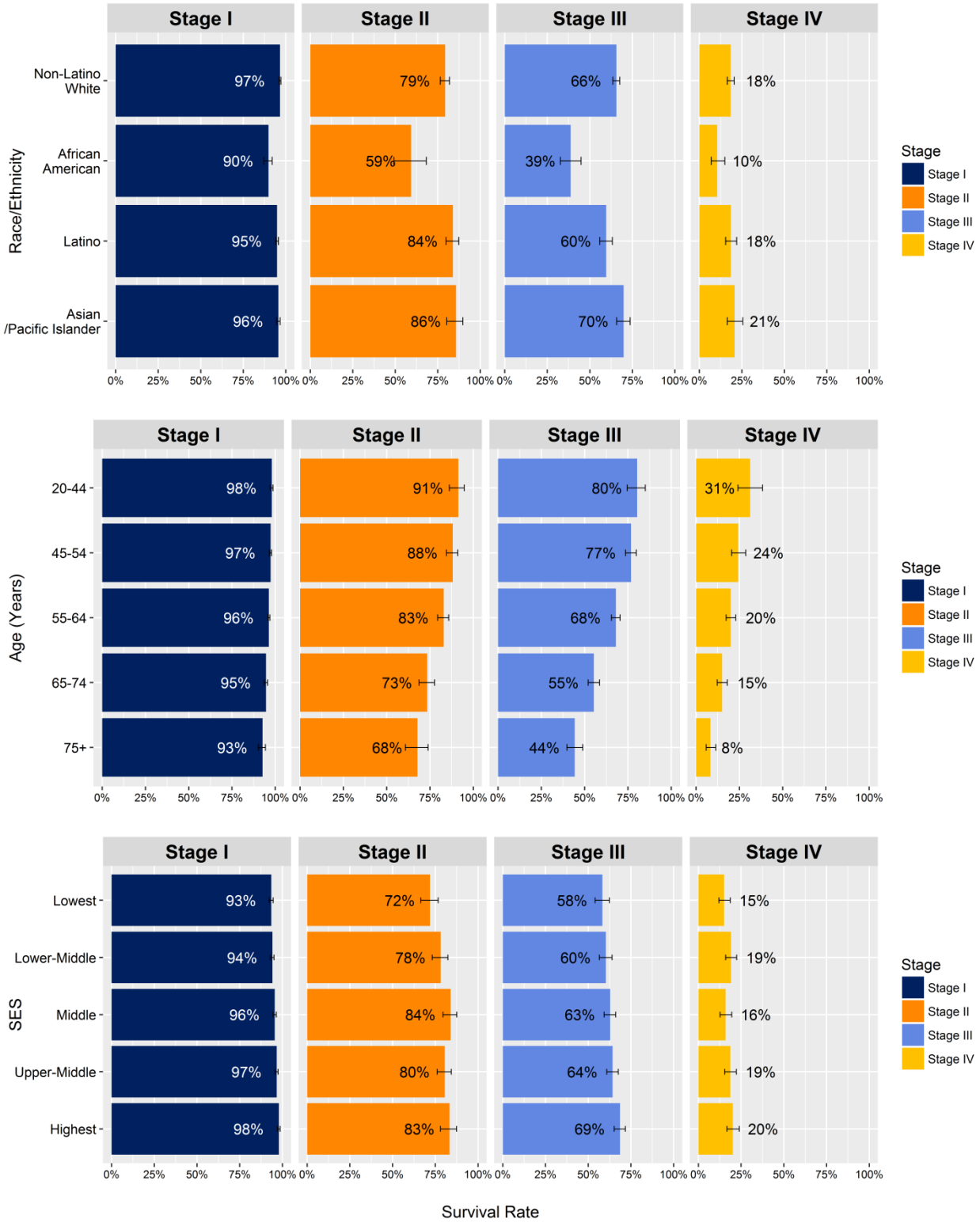
Overall, uterine cancer survival in California remained relatively unchanged over the past two decades. Women diagnosed with uterine cancer between 1990 and 1994 had a five-year relative survival rate of 83 percent, whereas those diagnosed between 2006 and 2010 had a five-year relative survival rate of 82 percent. However, uterine cancer survival improved among African American females by seven percent. Survival rates did not improve among other racial/ethnic groups (Figure 24.3).

Table 24.1: One-, Three-, Five-, Eight- and Ten-Year Relative Survival by Sex, Race/Ethnicity, Age, Stage at Diagnosis and Socioeconomic Status among Adults 20 years and older in California, 2004-2015: Uterine Cancer

	Cases Diagnosed		Relative Survival (%)				
	N	%	1-year	3-year	5-year	8-year	10-year
Female	48,502	100.0	92.3	84.6	81.2	78.4	77.6
Race/Ethnicity							
Non-Latino White	28,973	59.7	93.0	86.1	83.1	80.8	80.1
African American	3,022	6.2	83.1	67.6	62.2	57.4	55.2
Latino	10,294	21.2	92.3	84.3	80.3	76.6	75.2
Asian/Pacific Islander	6,213	12.8	93.1	86.2	82.5	79.6	78.7
Age at Diagnosis							
20-44	4,061	8.4	96.4	92.0	90.0	87.3	85.9
45-54	9,252	19.1	94.1	89.4	86.9	84.7	84.0
55-64	16,759	34.6	94.3	87.4	84.1	81.1	80.3
65-74	11,336	23.4	91.6	81.9	77.3	74.1	72.9
75+	7,094	14.6	83.6	71.4	67.3	64.7	63.3
Stage at Diagnosis (American Joint Committee on Cancer)							
I	32,565	67.1	99.3	97.3	95.8	94.5	94.0
II	2,739	5.6	95.3	84.9	79.9	73.7	71.9
III	5,786	11.9	89.2	71.6	63.3	58.3	57.1
IV	3,796	7.8	53.1	25.5	17.9	13.2	12.9
Unknown	3,616	7.5	73.3	55.2	48.9	44.2	42.0
Socioeconomic Status							
1 (Lowest)	7,397	15.3	89.3	80.3	75.4	71.5	70.6
2	9,176	18.9	91.0	82.2	78.6	74.3	72.1
3	10,228	21.1	92.3	84.4	80.6	77.4	76.7
4	10,995	22.7	93.3	86.2	83.1	81.0	80.1
5 (Highest)	10,706	22.1	94.3	88.1	85.7	84.4	84.3

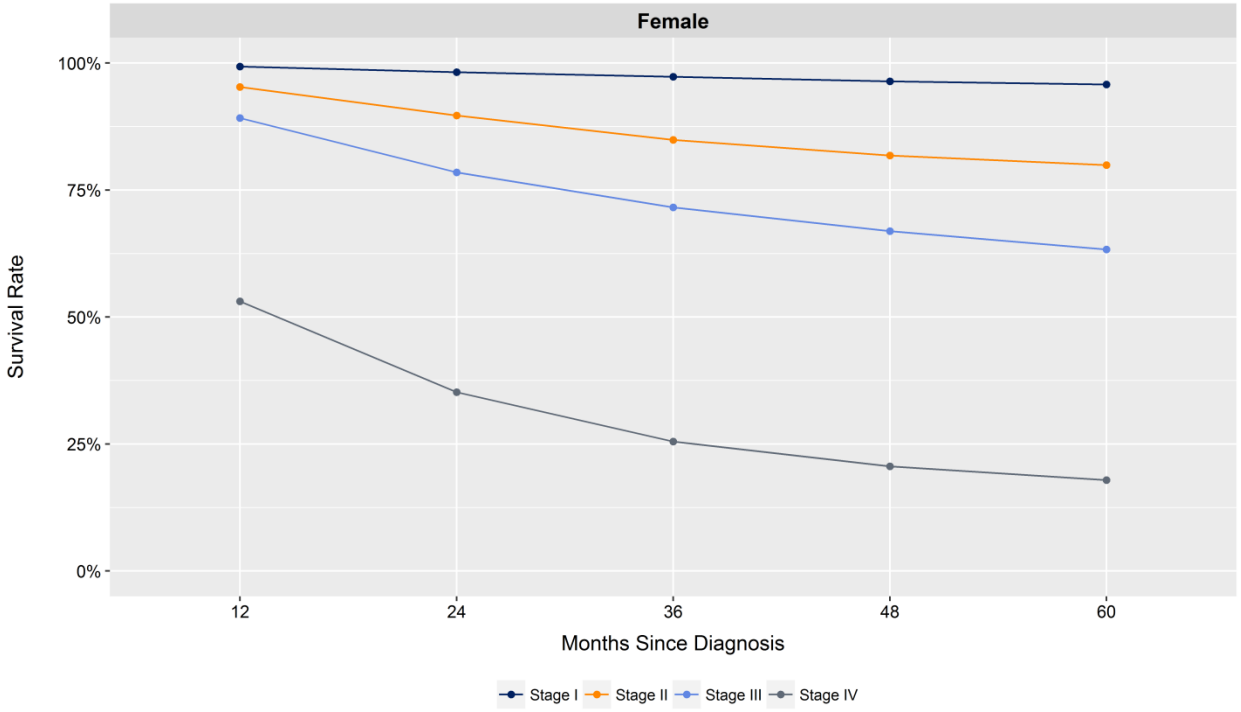
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 24.1: Five-Year Relative Survival and 95% Confidence Intervals by Stage at Diagnosis, Race/Ethnicity, Age, and Socioeconomic Status (SES) among Adults 20 years and older in California, 2004-2015: Uterine Cancer



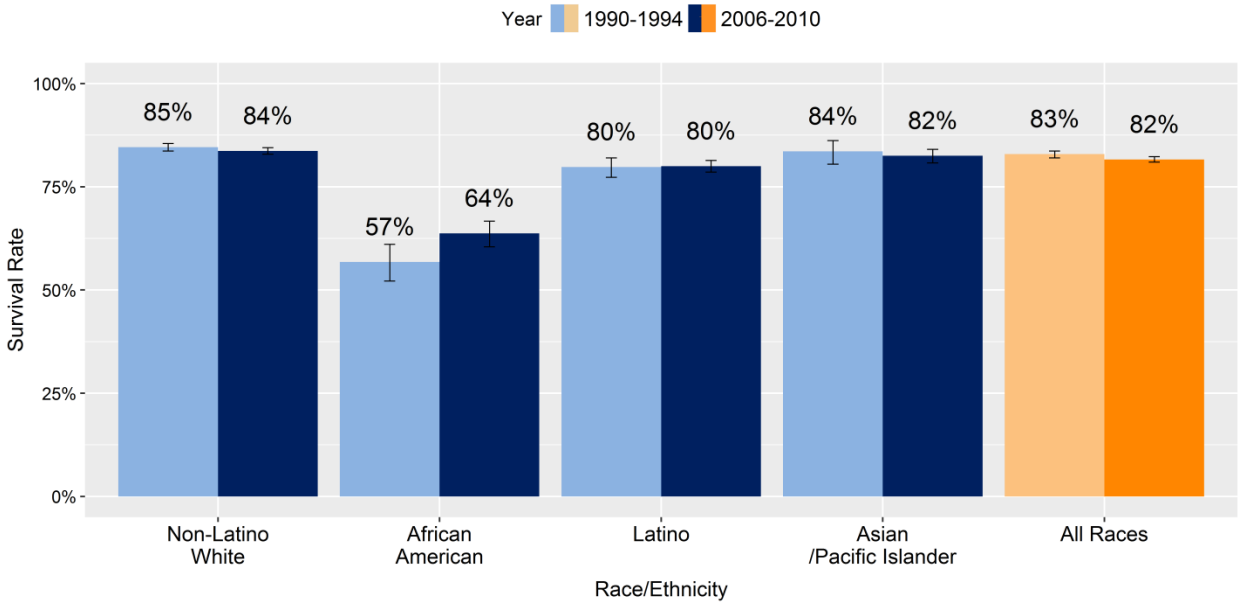
Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 24.2: Five-Year Relative Survival among Adults 20 years and older in California, 2004-2015 by Stage at Diagnosis: Uterine Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

Figure 24.3: Change in Five-Year Relative Survival with 95% Confidence Intervals among Adults 20 years and older in California, from 1990-1994 to 2006-2010 by Race/Ethnicity: Uterine Cancer



Source: California Cancer Registry, California Department of Public Health. Prepared by the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, Institute for Population Health Improvement, UC Davis Health.

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