



THE BURDEN OF CANCER AMONG BLACK/AFRICAN AMERICANS IN CALIFORNIA

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EXECUTIVE SUMMARY

- ❖ Characteristics of Black/African American and non-Latino/Hispanic White (White) cancer patients in California show significant differences between these two population groups. Compared with White patients, Black/African American patients were more likely to be diagnosed at late stage disease and were in poorer health, with 15.8 percent having three or more comorbidities recorded (vs. 9.8 percent of White patients). Black/African American patients were also more likely than White patients to live in impoverished areas (43.4 vs. 17.4 percent) and to be covered by Medicaid/public insurance (20.0 vs 7.8 percent).
- ❖ Between 2014 and 2018, the ten cancers most frequently diagnosed among Black/African American women in California were, from one to ten, breast, lung, colorectal, uterine, pancreatic, kidney, non-Hodgkin lymphoma, thyroid, myeloma, and ovarian cancers. The most common causes of cancer death were lung, breast, colorectal, pancreatic, uterine, ovarian, liver, myeloma, stomach, and non-Hodgkin lymphoma.
- ❖ During the same period, the ten most commonly occurring cancers among Black/African American men in California were, from one to ten, prostate, lung, colorectal, kidney, bladder, liver, non-Hodgkin lymphoma, pancreatic, myeloma, and oropharyngeal cancers. The ten most common causes of cancer death were lung, prostate, colorectal, pancreatic, liver, myeloma, stomach, bladder, kidney, and non-Hodgkin lymphoma.
- ❖ Although cancer incidence rates for all cancers combined among Black/African American were only slightly lower than for White men (462.1 vs. 468.9 per 100,000, respectively), they were higher for prostate, lung, colorectal, kidney, liver, pancreatic, and myeloma cancers. Incidence rates among Black/African American men were only lower than among White men for bladder, non-Hodgkin lymphoma, and oropharyngeal cancers.
- ❖ The cancer incidence rate for all cancers combined was lower among Black/African American women than among White women (386.5 vs. 426.8 per 100,000). Compared with white women, incidence rates among Black/African American women were lower for breast, pancreatic, kidney, thyroid, myeloma, and ovarian cancers and were higher only for colorectal, non-Hodgkin lymphoma, and uterine cancers

- ❖ Incidence rates for most cancers among Black/African American children and adolescents <19 years of age were lower than those among White children and adolescents, although the difference was statistically significant only for lymphoid leukemia, astrocytoma, and neuroblastoma and ganglioneuroblastoma.
- ❖ Cancer mortality among Black/African American men in California was lower than among White men for bladder cancer and non-Hodgkin lymphoma, with no difference in mortality rates for kidney cancer. For the seven other types of cancer, mortality rates were higher among Black/African American men than among White men.
- ❖ Mortality rates were higher among Black/African American (vs. White) women for eight of the ten most common causes of cancer death and were slightly lower for ovarian cancer and non-Hodgkin Lymphoma. Deaths due to myeloma, uterine and stomach cancers were around twice as high among Black/African American women than among White women.
- ❖ Among Black/African American men, incidence rates for all cancers combined declined by 3.7 percent per year. Incidence rates for the following cancers declined as well: bladder (-2.9 percent per year), colorectal (-5.1 percent per year), lung (-3.6 percent per year) non-Hodgkin lymphoma (-0.8 percent per year), prostate (-4.8 percent per year), and stomach (-2.4 percent per year). Myeloma and thyroid were the only cancers with an increase in incidence during the period, by 0.8 and 3.0 percent per year, respectively.
- ❖ Incidence trends among Black/African American women followed a similar pattern, with a decline of 1.4 percent per year for all cancers combined. Incidence rates also declined for cancers of the bladder (-1.8 percent per year), colorectal (-3.8 percent per year), lung (-2.4 percent per year), and stomach (-1.3 percent per year). Uterine cancer was the only cancer for which incidence rates increased among both Black/African American and White women (by 2.5 percent and 1.1 per year, respectively)
- ❖ Cancer mortality rates among Black/African American men declined by 2.3 percent per year for all cancers combined. In both Black/African American and White men, mortality rates declined for colorectal, kidney, lung, non-Hodgkin lymphoma, stomach cancers, and among Black/African American men only, prostate cancer as well. The only cancer for which mortality rates increased among Black/African American men was liver cancer (by 1.3 percent per year).

- ❖ Among Black/African American women, cancer mortality rates for all cancers combined declined as well, by 2.1 percent per year. Mortality rates decreased for both Black/African American and White women for the following cancers: breast, colorectal, lung, myeloma, non-Hodgkin lymphoma, and stomach cancers; for Black/African American women, mortality for pancreatic and bladder cancers also declined. Uterine cancer was the only cancer for which mortality rates increased among both Black/African American and White women (by 2.0 and 1.6 percent per year)
- ❖ Late stage at diagnosis was examined for six screen-detectable cancers: female breast, cervical, colorectal, prostate, lung, and oropharyngeal cancers. A significantly higher percentage of Black/African American (vs. White) patients with lung (78.4 vs. 72.9 percent), oropharyngeal (73.8 vs. 65.3 percent), cervical (65.4 vs. 53.7 percent) and breast (32.5 vs. 26.0 percent) cancers were diagnosed at late stage.
- ❖ For screen-detectable cancers, differences in late stage diagnosis between Black/African American and White patients by type of health insurance were detected for private/government insurance (47.8 vs. 42.1 percent), Medicare without supplement (53.8 vs. 45.5 percent) and Medicaid/public insurance (60.8 vs. 56.8 percent). Lack of insurance disproportionately impacted Black/African American patients, with 62.8 percent diagnosed at late stage compared with 51.7 percent of White patients.
- ❖ After adjusting for neighborhood socioeconomic status (SES), insurance status, and tumor-related characteristics, Black/African Americans had worse survival for cancers of the breast, prostate, bladder, thyroid, uterus, and non-Hodgkin lymphoma and superior survival for multiple myeloma and lung cancer compared to White patients.
- ❖ Among Black/African American cancer patients, type of health insurance was associated with survival. Compared with private/government (military or Medicare with supplement) insurance, patients who were under Medicaid had significantly worse survival. Uninsured patients or those with unknown insurance status had worse survival than those with any type of health insurance.
- ❖ SES level in the patient's neighborhood had a significant impact on cancer survival among Black/African Americans. Compared with patients living in more affluent neighborhoods, the risk of death was higher for patients living in medium and low SES areas, respectively.

INTRODUCTION

In recent years, considerable progress has been achieved in mitigating the burden of cancer; in California, the incidence and mortality for most types of cancer have declined.¹ Progress has not been equal for all population groups, however, and disparities persist for minority racial/ethnic groups. Addressing the underlying conditions and root causes of cancer disparities is essential to health equity, where everyone can attain full health regardless of social position and other sociopolitically defined circumstances.² A recent statement from the American Medical Association reiterates that race is a broad and complex sociopolitical construct distinct from genetic ancestry or biology,³ as racial ancestry account for only a minimal amount of genetic variation between people. Although race is a social construct, it is nonetheless associated with enormous differences in health care access and experiences, disease occurrence, and health outcomes.⁴

Black/African Americans in the U.S. are a diverse population that includes descendants of enslaved peoples from West and Central Africa as well as recent immigrants from regions throughout the world. The fast-growing population of people who identify as multiracial also contributes to this diversity. Overall, Black and African Americans are more likely to be socioeconomically underprivileged, which in turn can lead to reduced access to quality health care. According to the Census Bureau in 2019, the average Black/African American median household income was \$43,771, compared with \$71,664 for non-Latino/Hispanic White (White) households. Furthermore, 21.2 percent of Black/African American persons lived below the poverty level and 7.7 percent were unemployed, well above the national average unemployment rate (3.7 percent) and the percent of people living at the poverty level (9.0 percent) among the White population.⁵

Compared with the White population, Black/African Americans face illnesses earlier and more severely, deal with more rapid progression of illnesses, and suffer higher rates of disease related impairment and death.⁶ These health disparities often start long before patients approach the health care system, as social and institutional inequities impact living conditions, influence behaviors, and consequently affect health outcome.⁷ For most cancers, Black/African Americans have the highest mortality rate and the shortest survival of any racial/ethnic group in the US.

Black/African American men also have the highest cancer incidence rate.⁸ Evidence indicates that cancer health disparities in Black/African American persons are largely driven by disparities in social determinants of health, including access to medical care, quality of care, and greater comorbidity burden occurring because of discrimination and/or socioeconomic inequalities.⁹ As an example, disparities in prostate cancer outcomes among Black/African American men were erased when equal treatment was administered in clinical trials or in the context of an equitable-access health care system.¹⁰

The purpose of this report is to describe the cancer burden among the Black/African American population in California. Unless specified, information in this report refers to adults 20 years of age and older. Disparities in cancer incidence, mortality, detection, and survival between Black/African American and non-Latino/Hispanic White (White) population groups are emphasized. Information presented in this report was obtained by the California Cancer Registry (CCR), the state mandated population-based cancer surveillance system in California in operation since 1988. The CCR routinely collects demographic, diagnostic, and treatment information on cancer cases diagnosed in California, and has provided the foundation for research studies and cancer control initiatives throughout the state. Since 2012, the California Cancer Reporting and Epidemiologic Surveillance (CalCARES) Program, within the University of California Davis Comprehensive Cancer Center, has partnered with the California Department of Public Health in the management of day-to-day operations of the CCR. By providing baseline information on the burden of cancer among Black/African Americans, the CalCARES Program hopes to contribute to efforts toward equity across the cancer care continuum.

KEY POINTS



ADDRESSING THE ROOT CAUSES OF CANCER DISPARITIES IS ESSENTIAL TO HEALTH EQUITY



FOR MOST CANCERS, BLACK/AFRICAN AMERICANS HAVE THE HIGHEST MORTALITY RATE AND THE SHORTEST SURVIVAL OF ANY RACIAL/ETHNIC GROUP IN THE UNITED STATES



BLACK/AFRICAN AMERICAN MEN HAVE THE HIGHEST CANCER INCIDENCE RATE



THE PURPOSE OF THIS REPORT IS TO DESCRIBE THE CANCER BURDEN AMONG THE BLACK/AFRICAN AMERICAN POPULATION IN CALIFORNIA

METHODS

INCIDENCE RATES

This report includes cancer cases diagnosed between January 1, 2009, and December 31, 2018, and reported to the California Cancer Registry (CCR) as of December 2020. Unless specified, all rates were calculated for adults 20 years of age and older. A “case” is defined as a primary cancer; if a cancer has spread from a primary site to another organ it is not counted as a new case. Cancers were classified based on the primary site and histology of the tumor, using the National Cancer Institute’s Surveillance, Epidemiology and End Results (SEER) site recode, available at https://seer.cancer.gov/siterecode/icdo3_dwho/home/index.html. Except for the analysis of stage at diagnosis, only invasive cancers are included in this report. Incidence rates were calculated as the number of new cases in specific age groups per 100,000 persons each year and were age-adjusted to the 2000 United States standard population. Age-adjusted rates are weighted averages of age-specific rates, where the weights represent the age distribution of a standard population. Such adjustment eliminates differences in rates due to differences in age distribution between population groups. Age-adjusted incidence rate ratios and respective p-values were also calculated to facilitate comparisons between rates among Black/African Americans and White persons.

MORTALITY RATES

Similar to incidence rates, this report includes deaths due to cancer among California residents 20 years and older between January 1, 2009, and December 31, 2018. Mortality rates were calculated as the number of California deaths due to each cancer in specific age-groups per 100,000 persons each year. Mortality rates were also age-adjusted to the 2000 United States standard population.

INCIDENCE TRENDS IN CANCER INCIDENCE AND MORTALITY

Trends were estimated as the average annual percent change (AAPC), which represents the average percent increase or decrease in cancer age-adjusted incidence and mortality rates per year over a specified period. In this report, the AAPC was estimated over the ten years between 2009 and 2018, the most current year for which reporting was considered complete. Trends were evaluated for all cancers combined and for the 12 most commonly occurring cancers and cancer deaths among African American men and women in California. If there was less than a five percent chance that the difference in rates was the result of random variation, the trend in cancer rates was considered statistically significant.

CANCER SITE/TYPE

Cancer sites/types included in this report were classified according to SEER site ICD-O-3/WHO 2008 recode definitions, which are based on the tumor primary site and histology (https://seer.cancer.gov/siterecode/icdo3_dwho/home/index.html). In addition to all cancers combined, cancers included in this report were defined as follows: bladder (urinary bladder site recode 29010), breast (female only, site recode 26000), cervical (cervix uteri, site recode 27010), colorectal (colon and rectum, site recode 21041 – 21052), kidney (kidney and renal pelvis, site recode 29020), liver (liver and intrahepatic bile duct, site recode 21071-21072), lung (lung and bronchus, site recode 22030), myeloma (site recode 34000), non-Hodgkin lymphoma (site recode 33041-33042), oropharyngeal (oral cavity and pharynx, site recode 20010-20100), pancreas (site recode 21100), prostate (site recode 28010), stomach (site recode 21020), thyroid (site recode 32010), and uterine (corpus uteri and uterus NOS, site recode 27020-27030).

RACE CLASSIFICATION

Race codes were self-reported by patients and obtained through medical records. Because information on the patient's origin is not always reported, the term "Black/African American" was used throughout this report, with "White" referring to non-Latino/Hispanic persons with race coded as White. If no race was stated in the medical record, documentation was reviewed for a statement of a race category. Patients self-described as multi-racial were coded as Black if "African-American" was indicated in nursing notes. In case the patient's race was reported differently by two or more sources within the medical record, race was coded using the patient's self-declared identification, or documentation in the medical record (dictated reports and nurses' notes). Death certificate information was used when race was coded as unknown in the patient record or when the death certificate information was more specific.

STAGE AT DIAGNOSIS

Stage at diagnosis for all cases was coded according to the SEER Summary Stage system (<https://seer.cancer.gov/tools/ssm/ssm2000/>), as follows: *in-situ* (non-invasive tumors that do not penetrate the basement membrane), localized (tumors confined entirely to the organ of origin), regional (tumors that extend into surrounding organs, tissues or regional lymph nodes), and distant (metastatic). For all cancer types (except cervical cancer) *in situ* and localized tumors were classified as early stage while regional and remote tumors were classified as late stage at diagnosis.

COMORBIDITIES

In this report, comorbidities were defined as serious health conditions recorded for the patient at the time of the cancer diagnosis. The comorbidity burden was measured using a previously validated Deyo and Romano adapted Charlson comorbidity index, based on a list of 16 serious pre-existing medical conditions.¹¹ Information on these conditions was obtained through linkage of CCR data with statewide hospital inpatient discharge, ambulatory surgery, and emergency encounters data files. Comorbidity burden was unknown if there was not a matching for the patients in any of the three discharge files.

TYPE OF HEALTH INSURANCE

The patient's source of health insurance in the CCR database corresponds to the information recorded at the end of the first course of treatment. Source of payment was classified as private/government (HMO, PPO, fee-for-service, Military, Veterans Affairs, Tricare, and Medicare with private supplement), Medicare, Medicaid/Public (Medicaid, County funded, Medicaid/Medicare dual eligible), not insured, and unknown source of insurance.

SOCIOECONOMIC STATUS

A socioeconomic status (SES) composite score at census tract-level was used to represent SES in the patient's neighborhood. The score was created through principal component analysis and includes the following characteristics in each census tract in California: proportion of persons 16 years and older with a blue-collar job, proportion 16 years and older in the workforce without a job, median household income, percent below 200% poverty level, median gross rent, median value of owner-occupied houses, and an education index.¹²

NEIGHBORHOOD RACIAL COMPOSITION

Estimates from the US Census American Community Survey were used to characterize the racial composition in the patient's area of residence. Census tracts are county subdivision areas with an average population size of 5,000 residents. The percent of Black/African Americans in each census tract population in California, broken into quartiles, was used as a proxy for the racial diversity (or segregation) of the neighborhood where Black/African American and White cancer patients resided.

CANCER SURVIVAL

Unlike mortality rates, which are calculated as the number of deaths in the population at risk, survival includes only deaths occurring among persons that were diagnosed with cancer. Survival for the top cancers among Black/African American patients is presented as relative survival and as hazard ratios, the latter representing the risk of patients dying due to the cancer they were diagnosed with after adjusting for several clinical and demographic factors that are known to impact survival.

RELATIVE SURVIVAL

One of the measures of cancer survival in this report is relative survival, which represents the probability of avoiding death due to that 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. Because relative survival is not affected by changes in mortality from other causes, it is a useful measure to evaluate disparities in survival among different racial/ethnic groups.

HAZARD RATIOS

Cancer survival depends on many factors related to the patients' demographic characteristics, tumor biology and the treatment received, among other factors. To partially address the complexity of estimating survival, this report presents estimates of the risk of dying obtained through Cox proportional hazards regression. This type of statistical method is widely used for investigating the simultaneous effect of different factors upon survival. Results are expressed as hazard ratios between the risk associated with a certain characteristic compared to the risk in the comparison, or reference, group. For example, the hazard ratio for Black/African Americans in this report compares their risk of dying with the risk for White persons, after consideration for the other factors in the model. A hazard ratio of one means that the risk in the two groups is similar, a hazard ratio significantly ($p < 0.05$) greater than one expresses a higher risk, and a ratio significantly lower than one indicates lower risk, or that the survival is better for African Americans in our analyses. In other words, hazard ratios greater than one are associated with worse survival, while hazard ratios lower than one indicate factors associated with superior survival.

RESULTS

I. POPULATION CHARACTERISTICS

Between January 1, 2014 and December 31, 2018, a total of 58,441 Black/African American persons and 582,208 White persons age 20 and older were diagnosed with cancer in California. Table 1 shows characteristics of Black/African American and White cancer patients included in the report and how characteristics differed between the two groups. Among Black/African American patients, the percentage of women diagnosed with cancer (52.1 percent) was higher than that for men (47.9 percent). During the five-year period, Black/African American cancer patients were somewhat younger: compared with 16.8 percent of White patients, 22.5 percent of Black/African American patients were under 55 years of age. A smaller percentage of Black/African American patients were 70 years and older, 32.5 percent vs. almost 45 percent among White patients. Compared with White patients, Black/African Americans were more likely to be diagnosed with late stage disease (44.7 vs. 38.0 percent distant or regional stage tumors) and less likely to be diagnosed when the tumor was localized or *in situ* (44.0 vs. 52.2 percent). Black/ African American cancer patients also had poorer health at diagnosis. Compared with White patients, the percentage of Black/African Americans with no comorbidities at the time of cancer diagnosis was significantly lower (24.4 vs. 32.3 percent). Furthermore, the percentage of Black/African American patients with three or more comorbidities at diagnosis (15.8 percent) was significantly higher than that among White patients (9.8 percent).

Almost 50 percent of White cancer patients lived in the top third more affluent neighborhoods, with only 17 percent living in the bottom third. In contrast, the majority of Black/African American patients in California (43.4 percent) lived in the bottom third most disadvantaged areas, and only 21 percent lived in the top third most affluent neighborhoods. Black/African American patients were also more likely to be covered by Medicaid/public insurance (20.0 percent) than White patients (7.8 percent), and less likely to have private/governmental (55.0 vs. 61.2 percent) insurance. The racial composition of residential areas was also strikingly different, with only 3.8 percent of Black/African American patients living in primarily non-Black neighborhoods, and 74 percent living in areas with the highest Black/African American populations in the state.

TABLE 1: CHARACTERISTICS OF BLACK/AFRICAN AMERICAN AND WHITE CANCER PATIENTS IN CALIFORNIA, 2014-2018

CHARACTERISTIC	BLACK/AFRICAN AMERICAN		WHITE		P-VALUE
	N	%	N	%	
ALL PATIENTS	58,441	9.1	582,208	90.9	< 0.001
SEX					
MALE	27,988	47.9	289,690	49.8	< 0.001
FEMALE	30,453	52.1	292,518	50.2	
AGE AT DIAGNOSIS					
0 – 19	507	0.9	3,488	0.6	< 0.001
20 – 39	2,693	4.6	21,448	3.7	
40 – 54	9,920	17.0	72,644	12.5	
55 – 69	26,326	45.0	223,295	38.4	
70+	18,995	32.5	261,333	44.9	
CANCER STAGE AT DIAGNOSIS					
IN SITU	3,419	5.9	71,219	12.2	< 0.001
LOCALIZED	22,293	38.1	233,111	40.0	
REGIONAL	11,148	19.1	101,282	17.4	
DISTANT	14,962	25.6	119,853	20.6	
UNKNOWN	6,619	11.3	56,743	9.8	
COMORBIDITIES AT DIAGNOSIS					
NONE	14,274	24.4	188,022	32.3	< 0.001
1	8,183	14.0	78,256	13.4	
2	5,070	8.7	40,067	6.9	
3 OR MORE	9,214	15.8	56,822	9.8	
UNKNOWN	21,700	37.1	219,041	37.6	
SOCIOECONOMIC STATUS					
LOW	25,367	43.4	101,266	17.4	< 0.001
MEDIUM	20,729	35.5	204,634	35.1	
HIGH	12,345	21.1	276,308	47.5	
TYPE OF INSURANCE					
PRIVATE/GOVERNMENT *	32,136	55.0	356,106	61.2	< 0.001
MEDICARE, NO SUPPLEMENT	11,566	19.8	136,006	23.4	
MEDICAID/PUBLIC	11,690	20.0	45,696	7.8	
UNINSURED	534	0.9	3,379	0.6	
UNKNOWN	2,515	4.3	41,021	7.0	
PERCENT BLACK/AFRICAN AMERICANS IN PATIENTS' NEIGHBORHOOD (QUARTILE) †					
0 - 0.6%	2,186	3.8%	147,956	25.6%	< 0.001
0.7% - 2.0%	4,403	7.6%	156,573	27.1%	
2.1% - 5.3%	8,675	15.0%	155,570	26.9%	
> 5.3%	42,640	73.6%	118,518	20.4%	

* Private/government insurance includes HMO, PPO, fee-for service, Military, Veterans Affairs, Tricare, and Medicare with private supplement. † US Census American Community Survey, census tract population data. Source of data: California Cancer Registry, California Department of Public Health.

II. CANCER INCIDENCE AND MORTALITY

Tables 2-4 show age-adjusted incidence and mortality rates for all cancers combined and for the ten most common cancers among Black/African Americans. For comparison, rate ratios were calculated to measure differences in rates between Black/African American and White populations in California. Between 2014 and 2018, while incidence rates for breast, non-Hodgkin lymphoma and bladder cancers were lower among Black/African Americans, the incidence of prostate, lung, colorectal, kidney, pancreas, uterine, and myeloma cancers was higher compared with White persons.

Incidence rates for most cancers among Black/African American children and adolescents <19 years of age were lower than those among White children and adolescents, although the difference was statistically significant only for lymphoid leukemia, astrocytoma, and neuroblastoma and ganglioneuroblastoma (Table 5).

Age-adjusted mortality rates are shown for the ten most common causes of cancer deaths among Black/African Americans: lung, colorectal, prostate, breast, pancreas, liver, myeloma, stomach, and uterine cancers. Rate ratios comparing rates for Black/African Americans with White persons showed that mortality rates among Black/African Americans were significantly higher for most types of cancer examined. In particular, mortality rates for myeloma (8.4 vs. 4.1 per 100,000), stomach (7.5 vs. 3.4 per 100,000), uterine (7.4 vs. 3.6 per 100,000), and prostate (23.9 vs. 12.5 per 100,000) cancers were twice as high among Black/African Americans than among White persons. Of the ten cancers evaluated, non-Hodgkin lymphoma was the only cancer for which the mortality rate among Black/African Americans (6.0 per 100,000) was lower than among White persons (7.5 per 100,000).

Although the incidence rates for all cancers combined for Black/African American men were only slightly lower than for White men, they were higher for prostate, lung, colorectal, kidney, liver, pancreatic, and myeloma cancers. Incidence rates among Black/African American men were only lower than among White men for bladder, non-Hodgkin lymphoma, and oropharyngeal cancers (Table 3, Figure 1). On the other hand, the incidence rates for all cancers combined was lower among Black/African American women than among White women (386.5 vs. 426.8 per 100,000). Compared with white women, incidence rates among Black/African American women were lower

KEY POINTS



MORTALITY RATES AMONG BLACK/AFRICAN AMERICANS WERE SIGNIFICANTLY HIGHER FOR MOST TYPES OF CANCER EXAMINED



ALTHOUGH THE INCIDENCE OF ALL CANCERS COMBINED AMONG BLACK/AFRICAN AMERICAN MEN WAS ONLY SLIGHTLY LOWER THAN FOR WHITE MEN, THEY WERE HIGHER FOR PROSTATE, LUNG, COLORECTAL, KIDNEY, LIVER, PANCREATIC, AND MYELOMA CANCERS



THE INCIDENCE OF ALL CANCERS COMBINED WAS LOWER AMONG BLACK/AFRICAN AMERICAN WOMEN THAN AMONG WHITE WOMEN

for breast, pancreatic, kidney, thyroid, myeloma, and ovarian cancers and were higher only for colorectal, non-Hodgkin lymphoma, and uterine cancers (Table 4, Figure 2).

Cancer mortality among Black/African American men in California was lower than among White men for bladder cancer and non-Hodgkin lymphoma, with no difference in mortality rates for kidney cancer (Table 3, Figure 1). For the seven other types of cancer, mortality rates were higher among Black/African American men than among White men. Mortality rates were also higher among Black/African American women for eight of the ten most common causes of cancer death and were slightly lower than White women for ovarian cancer and non-Hodgkin lymphoma only (Table 4, Figure 2). Deaths due to myeloma, uterine and stomach cancers were around twice as high among Black/African American women than among White women.

TABLE 2: AGE-ADJUSTED INCIDENCE AND MORTALITY RATES WITH RATE RATIOS FOR THE TOP 10 CANCERS AMONG BLACK/AFRICAN AMERICANS (AA) IN CALIFORNIA, 2014-2018: MALES AND FEMALES

CANCER SITE/ TYPE*	AA		WHITE		RATE RATIO	
	RATE	N	RATE	N	AA/WHITE	P-VALUE
CANCER INCIDENCE						
ALL CANCERS	416.8	52,423	442.6	495,978	0.94	< 0.001
BREAST (FEMALE)	69.0	8,566	72.2	77,882	0.96	< 0.001
PROSTATE	63.9	8,725	44.6	55,324	1.43	< 0.001
LUNG	52.4	6,407	46.7	55,739	1.12	< 0.001
COLORECTAL	40.2	4,936	35.8	39,935	1.12	< 0.001
COLON	30.4	3,699	25.2	28,371	1.21	< 0.001
RECTUM	9.8	1,237	10.6	11,564	0.92	0.007
KIDNEY	18.0	2,276	14.9	16,579	1.21	< 0.001
PANCREAS	15.6	1,926	12.4	14,784	1.25	< 0.001
UTERINE	15.3	2,006	14.0	16,362	1.09	< 0.001
NON-HODGKIN LYMPHOMA	14.8	1,819	19.9	22,104	0.74	< 0.001
MYELOMA	12.7	1,556	5.8	6,800	2.20	< 0.001
BLADDER	12.1	1,441	21.3	25,384	0.57	< 0.001
CANCER MORTALITY						
ALL CANCERS	253.5	21,665	209.6	178,648	1.21	< 0.001
LUNG	53.4	4,585	45.3	38,930	1.18	< 0.001
COLORECTAL	25.3	2,140	17.7	14,970	1.43	< 0.001
PROSTATE	23.9	1,901	12.5	11,103	1.91	< 0.001
BREAST	23.5	2,041	16.2	13,428	1.45	< 0.001
PANCREAS	18.3	1,588	14.9	12,898	1.23	< 0.001
LIVER	12.7	1,174	8.1	7,112	1.57	< 0.001
MYELOMA	8.4	697	4.1	3,492	2.07	< 0.001
STOMACH	7.5	618	3.4	2,809	2.23	< 0.001
UTERINE	7.4	654	3.6	3,135	2.04	< 0.001
NON-HODGKIN LYMPHOMA	6.0	505	7.5	6,425	0.80	< 0.001

* Cancer/site type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health.

TABLE 3: AGE-ADJUSTED INCIDENCE AND MORTALITY RATES WITH RATE RATIOS FOR THE TOP 10 CANCERS AMONG BLACK/AFRICAN AMERICANS (AA) IN CALIFORNIA, 2014-2018: MALES

CANCER SITE/TYPE*	AA		WHITE		RATE RATIO	
	RATE	N	RATE	N	AA/WHITE	P-VALUE
CANCER INCIDENCE						
ALL CANCERS	462.1	26,375	468.9	252,154	0.99	0.032
PROSTATE	142.2	8,725	94.6	55,324	1.50	< 0.001
LUNG	61.9	3,268	49.5	27,078	1.25	< 0.001
COLORECTAL	45.0	2,502	40.2	20,978	1.12	< 0.001
COLON	32.9	1,805	27.4	14,283	1.20	< 0.001
RECTUM	12.1	697	12.9	6,695	0.94	0.148
KIDNEY	24.4	1,417	20.7	11,006	1.18	< 0.001
BLADDER	20.5	1,039	36.7	19,773	0.56	< 0.001
LIVER	18.1	1,126	10.6	6,210	1.71	< 0.001
NON-HODGKIN LYMPHOMA	17.6	990	24.5	12,707	0.72	< 0.001
PANCREAS	17.4	948	14.5	7,940	1.20	< 0.001
MYELOMA	16.1	853	7.4	4,034	2.18	< 0.001
OROPHARYNGEAL	12.8	771	19.8	10,908	0.65	< 0.001
CANCER MORTALITY						
ALL CANCERS	305.0	11,031	245.3	94,076	1.24	< 0.001
LUNG	67.3	2,476	50.8	19,671	1.33	< 0.001
PROSTATE	59.9	1,901	29.5	11,101	2.03	< 0.001
COLORECTAL	30.1	1,118	20.3	7,708	1.48	< 0.001
PANCREAS	21.0	796	17.4	6,806	1.20	< 0.001
LIVER	19.4	805	11.4	4,700	1.69	< 0.001
MYELOMA	11.0	383	5.4	2,074	2.03	< 0.001
STOMACH	10.7	383	4.7	1,776	2.28	< 0.001
BLADDER	8.7	288	11.9	4,502	0.73	< 0.001
KIDNEY	7.7	294	6.9	2,681	1.11	0.108
NON-HODGKIN LYMPHOMA	7.3	275	9.8	3,668	0.75	< 0.001

* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health.

TABLE 4: AGE-ADJUSTED INCIDENCE AND MORTALITY RATES WITH RATE RATIOS FOR THE TOP 10 CANCERS AMONG BLACK/AFRICAN AMERICANS (AA) IN CALIFORNIA, 2014-2018: FEMALES

CANCER SITE/TYPE*	AA		WHITE		RATE RATIO	
	RATE	N	RATE	N	AA/WHITE	P-VALUE
CANCER INCIDENCE						
ALL CANCERS	386.5	26,048	426.8	243,824	0.91	< 0.001
BREAST	126.7	8,478	138.9	77,227	0.91	< 0.001
LUNG	45.8	3,139	44.7	28,661	1.03	0.179
COLORECTAL	36.3	2,434	31.9	18,957	1.14	< 0.001
COLON	28.3	1,894	23.2	14,088	1.04	< 0.001
RECTUM	8.0	540	8.6	4,869	1.34	0.074
UTERINE	28.1	2,006	27.1	16,362	1.32	0.155
PANCREAS	14.3	978	10.6	6,844	0.79	< 0.001
KIDNEY	12.6	859	9.6	5,573	0.54	< 0.001
NON-HODGKIN LYMPHOMA	12.4	829	15.8	9,397	2.33	< 0.001
THYROID	10.8	685	20.1	8,647	0.82	< 0.001
MYELOMA	10.3	703	4.4	2,766	0.91	< 0.001
OVARIAN	9.7	653	11.9	6,650	0.91	< 0.001
CANCER MORTALITY						
ALL CANCERS	221.3	10,634	183	84,572	1.21	< 0.001
LUNG	43.6	2,109	41.1	19,259	1.06	0.011
BREAST	42.2	2,017	30.0	13,301	1.41	< 0.001
COLORECTAL	21.6	1,022	15.5	7,262	1.40	< 0.001
PANCREAS	16.2	792	12.8	6,092	1.27	< 0.001
UTERINE	13.2	654	6.8	3,135	1.95	< 0.001
OVARIAN	9.2	455	10.7	4,841	0.86	0.003
LIVER	7.4	369	5.2	2,412	1.43	< 0.001
MYELOMA	6.6	314	3.0	1,418	2.23	< 0.001
STOMACH	5.1	235	2.2	1,033	2.29	< 0.001
NON-HODGKIN LYMPHOMA	5.0	230	5.8	2,757	0.86	0.037

* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health.

FIGURE 1.A AND 1.B: AGE-ADJUSTED INCIDENCE AND MORTALITY RATES AMONG BLACK/AFRICAN AMERICAN AND WHITE MALES IN CALIFORNIA, 2014-2018

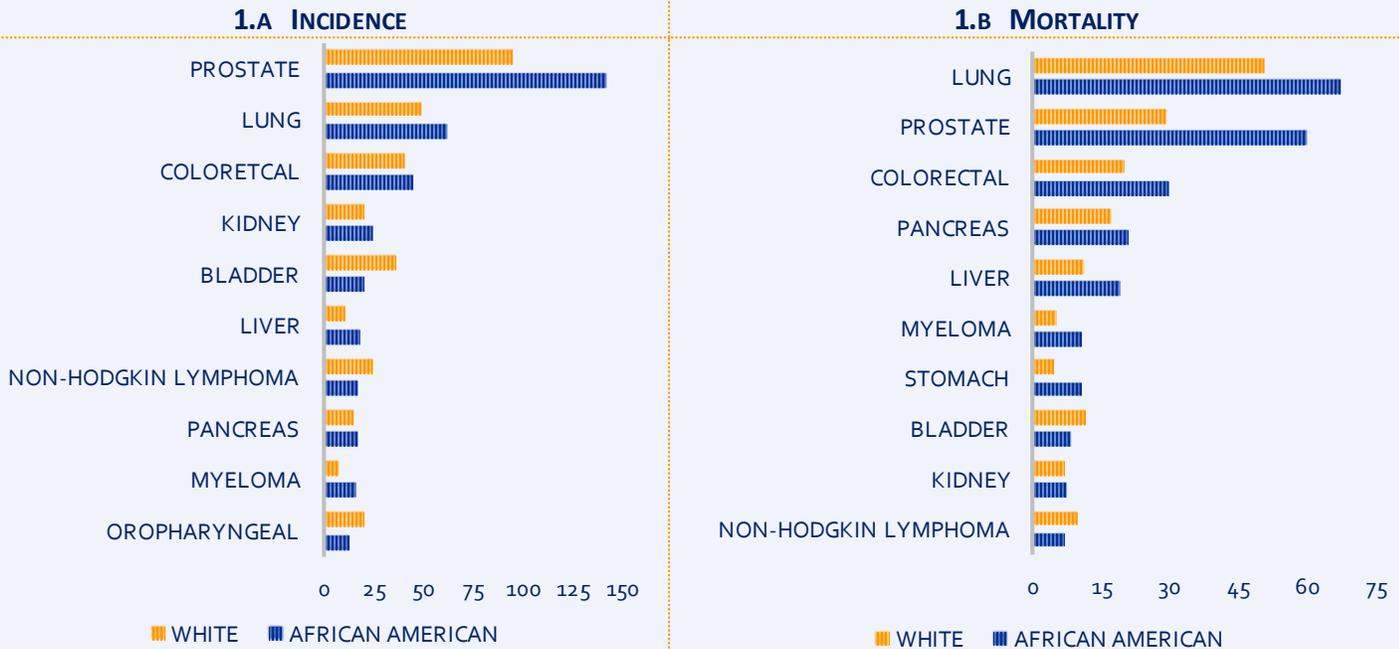
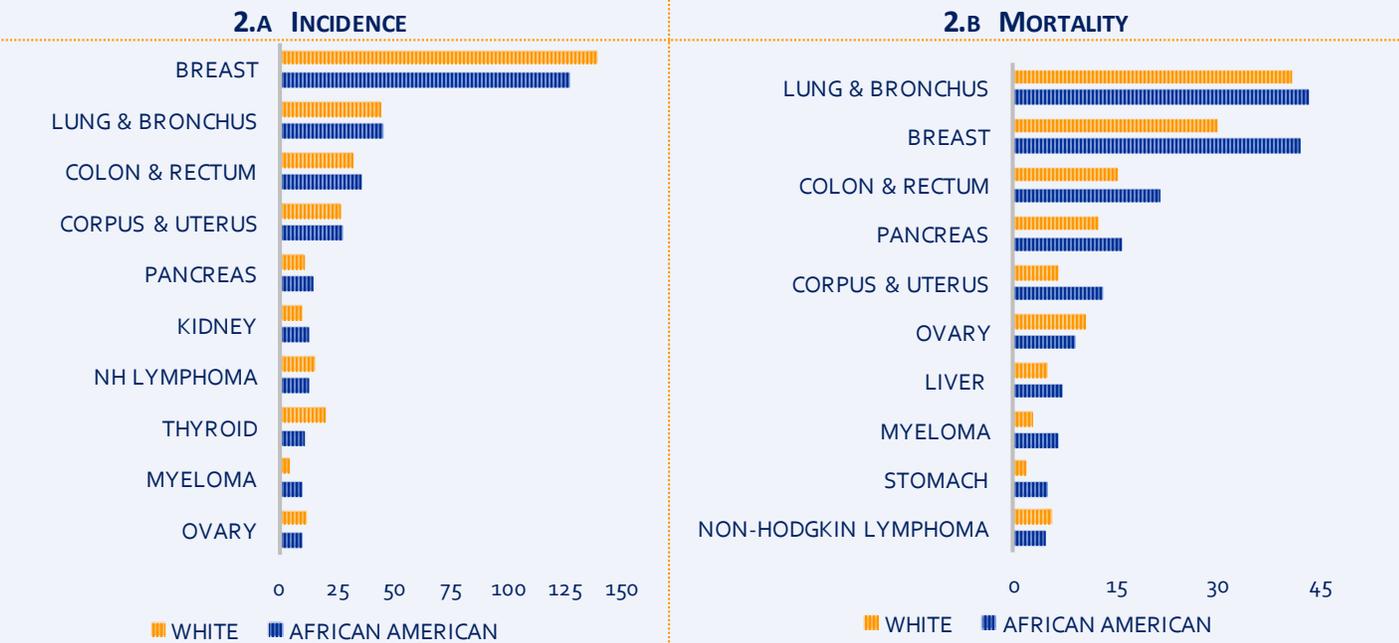


FIGURE 2.A AND 2.B: AGE-ADJUSTED INCIDENCE AND MORTALITY RATES AMONG BLACK/AFRICAN AMERICAN AND WHITE FEMALES IN CALIFORNIA, 2014-2018



* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
 Source of data: California Cancer Registry, California Department of Public Health.

TABLE 5: AGE-ADJUSTED INCIDENCE RATES FOR THE TOP CANCERS^a AMONG BLACK/AFRICAN AMERICAN CHILDREN AND ADOLESCENTS (BIRTH TO 19 YEARS OLD) IN CALIFORNIA, 2009-2018

CANCER TYPE	AA		WHITE		RATE RATIO	
	RATE	N	RATE	N	AA/WHITE	P-VALUE
LYMPHOID LEUKEMIAS	2.0	63	3.8	548	0.52	< 0.001
HODGKIN LYMPHOMAS	1.3	41	1.6	231	0.81	0.232
ASTROCYTOMAS	1.1	35	1.7	251	0.64	0.012
NON-HODGKIN LYMPHOMAS (EXCEPT BURKITT)	1.0	33	1.0	144	1.04	0.911
ACUTE MYELOID LEUKEMIAS	0.8	24	0.8	113	0.98	1.000
NEPHROBLASTOMA & OTHER NONEPITHELIAL RENAL TUMORS	0.7	21	0.7	95	1.02	1.000
OSTEOSARCOMAS	0.7	23	0.6	80	1.30	0.324
INTRACRANIAL AND INTRASPINAL EMBRYONAL TUMORS	0.6	19	0.8	108	0.80	0.435
RHABDOMYOSARCOMAS	0.6	19	0.5	69	1.24	0.475
OTHER GLIOMAS	0.5	15	0.5	70	0.97	1.000
NEUROBLASTOMA AND GANGLIONEUROBLASTOMA	0.5	15	0.9	134	0.52	0.013
OTHER SPECIFIED SOFT TISSUE SARCOMAS	0.5	16	0.6	93	0.79	0.450

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

^aRates of cancer types with less than 15 cases diagnosed between 2009 and 2018 were not calculated.

III. TRENDS IN CANCER INCIDENCE AND MORTALITY

Among Black/African Americans, the incidence of all cancers combined declined significantly by 2.6 percent per year between 2009 and 2018 (Table 6). Significant decreases were observed in the incidence of colorectal (-4.9 percent per year), lung, (-3.3 percent per year), prostate (-4.8 percent per year), bladder (-3.6 percent per year) and stomach (-2.0 percent per year) cancers. Incidence trends among White persons followed a similar pattern except for pancreatic cancer, which increased significantly in that group during the period. Figures 3.a through 3.m show modelled cancer incidence and mortality age-adjusted rates for the 2000 – 2018 time-period.

Among Black/African American men, incidence rates for all cancers combined declined sharply, by 3.7 percent per year. Incidence rates for the following cancers declined as well: bladder (-2.9 percent per year), colorectal (-5.1 percent per year), lung (-3.6 percent per year) non-Hodgkin lymphoma (-0.8 percent per year), prostate (-4.8 percent per year), and stomach (-2.4 percent per year). Myeloma and thyroid were the only cancers with an increase in incidence during the period, by 0.8 and 3.0 percent per year, respectively.

Incidence trends among Black/African American women followed a similar pattern, with a decline of 1.4 percent per year for all cancers combined. Incidence rates also declined for cancers of the bladder (-1.8 percent per year), colorectal (-3.8 percent per year), lung (-2.4 percent per year), and stomach (-1.3 percent per year). Uterine cancer was the only cancer for which incidence rates increased among both Black/African American and White women (by 2.5 percent and 1.1 percent per year, respectively), while changes in incidence rates for other cancers were not statistically significant.

Trends in mortality rates for all cancers combined among Black/African American men declined by 2.3 percent per year. In both Black/African American and White men, mortality rates declined for colorectal, kidney, lung, non-Hodgkin lymphoma, stomach cancers, and among Black/African American men only, prostate cancer as well. The only cancer for which mortality rates increased among Black/African American men was liver cancer (by 1.3 percent per year), while rates for myeloma, pancreatic, thyroid, and bladder cancers remained unchanged.

Among Black/African American women, mortality rates for all cancers combined declined as well, by 2.1 percent per year. Mortality rates decreased for both Black/African American and White women for the following cancers: breast, colorectal, lung, myeloma, non-Hodgkin lymphoma, and stomach cancers. For Black/African American women, mortality for pancreatic and bladder cancers declined as well. Uterine cancer was the only cancer for which mortality rates increased among both Black/African American and White women (by 2.0 and 1.6 percent per year); liver cancer mortality increased but among White women only.

KEY POINTS



AMONG BLACK/AFRICAN AMERICANS, THE INCIDENCE OF ALL CANCERS COMBINED DECLINED SIGNIFICANTLY BY 2.6 PERCENT PER YEAR BETWEEN 2009 AND 2018.



AMONG BLACK/AFRICAN AMERICAN MEN, THE INCIDENCE OF ALL CANCERS COMBINED DECLINED SHARPLY, BY 3.7 PERCENT PER YEAR.



AMONG BLACK/AFRICAN AMERICAN WOMEN, THE INCIDENCE OF ALL CANCERS COMBINED DECLINED BY 1.4 PERCENT PER YEAR.



TABLE 6. AVERAGE ANNUAL PERCENT CHANGE (AAPC) IN AGE-ADJUSTED INCIDENCE AND MORTALITY RATES FOR THE MOST COMMON CANCERS AMONG BLACK/AFRICAN AMERICANS IN CALIFORNIA, 2009-2018

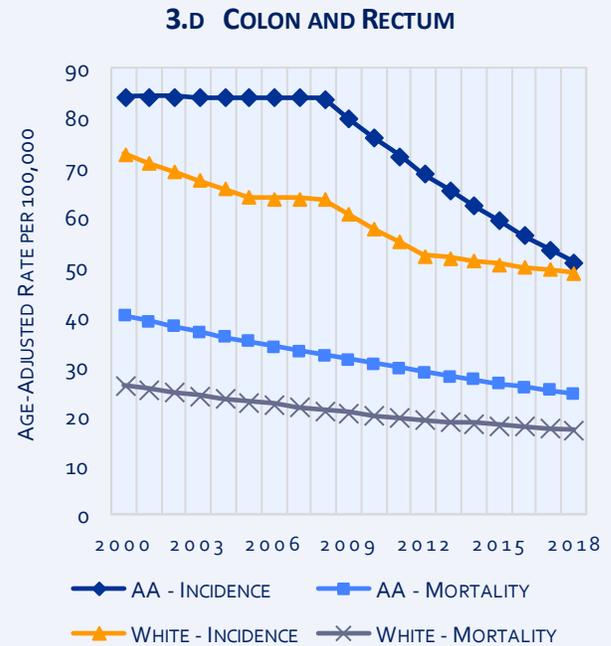
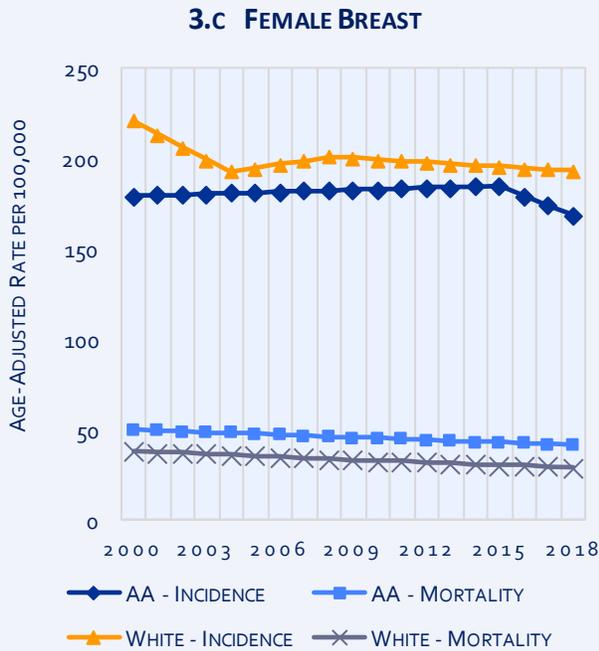
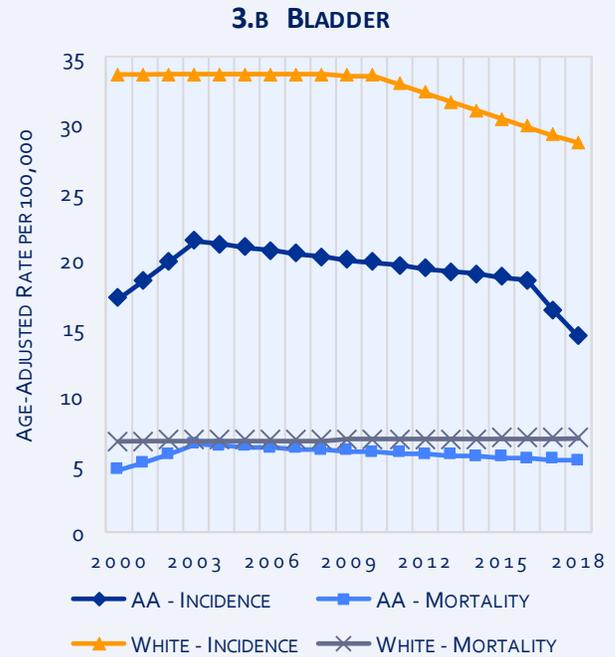
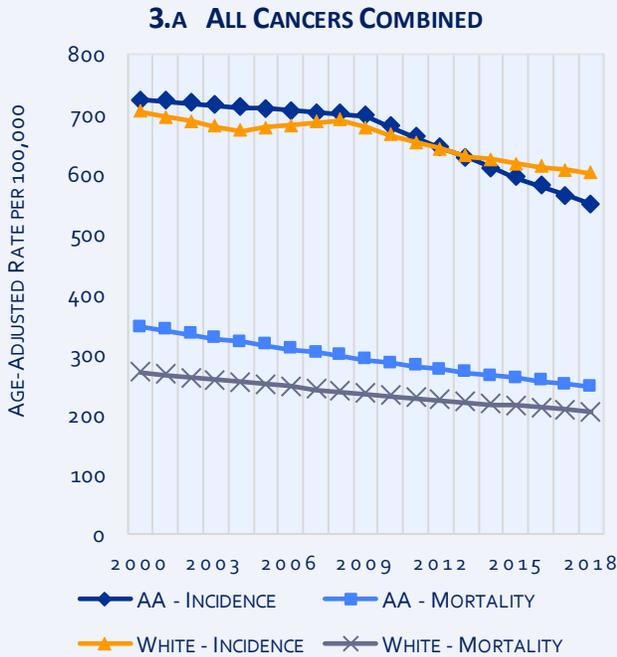
CANCER SITE/TYPE*	BLACK/AFRICAN AMERICAN						WHITE					
	ALL		MALE		FEMALE		ALL		MALE		FEMALE	
	AAPC		AAPC		AAPC		AAPC		AAPC		AAPC	
INCIDENCE												
ALL CANCERS	-2.6	↓	-3.7	↓	-1.4	↓	-1.3	↓	-2.1	↓	-0.7	↓
BLADDER	-3.6	↓	-2.9	↓	-1.8	↓	-1.8	↓	-1.9	↓	-1.1	↓
BREAST (FEMALE)	-0.2	≈	...	...	-0.9	≈	-0.2	≈	...	...	-0.4	≈
COLORECTAL	-4.9	↓	-5.1	↓	-4.8	↓	-2.4	↓	-2.7	↓	-2.3	↓
KIDNEY	-0.9	≈	-0.2	≈	-0.1	≈	-0.1	≈	-0.2	≈	-0.1	≈
LIVER	-1.1	≈	-1.1	≈	1.2	≈	0.7	≈	0.2	≈	2.7	↑
LUNG	-3.3	↓	-3.6	↓	-2.4	↓	-3.3	↓	-3.8	↓	-2.7	↓
MYELOMA	0	≈	0.8	↑	0	≈	-0.4	≈	-0.8	≈	0.6	↑
NON-HODGKIN LYMPHOMA	-0.5	≈	-0.8	↓	0	≈	-1.1	↓	-1.0	≈	-1.4	↓
PANCREAS	-0.2	≈	0.4	≈	-0.5	≈	0.3	↑	0.8	↑	0.4	↑
PROSTATE	-4.7	↓	-4.8	↓	...	...	-4.2	↓	-4.3	↓	...	...
STOMACH	-2.0	↓	-2.4	↓	-1.3	↓	-1.1	↓	-1.4	↓	-0.7	↓
THYROID	-1.1	≈	3.0	↑	-1.5	≈	0.3	≈	1.4	↑	0.3	≈
UTERINE	2.3	↑	...	...	2.5	↑	1.0	↑	...	...	1.1	↑
MORTALITY												
ALL CANCERS	-1.9	↓	-2.3	↓	-2.1	↓	-1.5	↓	-1.6	↓	-1.6	↓
BLADDER	-1.4	↓	0.5	≈	-3.7	↓	0.2	≈	-0.2	≈	-0.4	≈
BREAST (FEMALE)	-1.2	≈	...	...	-1.0	↓	-1.6	↓	...	...	-1.5	↓
COLORECTAL	-2.7	↓	-2.6	↓	-3.0	↓	-2.0	↓	-2.6	↓	-2.2	↓
KIDNEY	-1.0	≈	-1.2	↓	-1.1	≈	-0.9	↓	-0.8	↓	-1.4	↓
LIVER	1.2	↑	1.3	↑	1.1	≈	1.7	↑	1.0	≈	2.2	↑
LUNG	-4.2	↓	-4.1	↓	-3.8	↓	-4.5	↓	-4.6	↓	-4.3	↓
MYELOMA	-1.5	↓	-0.7	≈	-2.2	↓	-0.7	↓	-0.5	↓	-1.3	↓
NON-HODGKIN LYMPHOMA	-1.9	↓	-1.7	↓	-2.1	↓	-2.5	↓	-2.3	↓	-2.8	↓
PANCREAS	-0.5	≈	0.3	≈	-1.0	↓	0.1	≈	0.2	≈	0	≈
PROSTATE	-1.8	↓	-2.3	↓	...	...	0.3	≈	-0.3	≈	...	...
STOMACH	-3.2	↓	-3.0	↓	-3.4	↓	-2.7	↓	-2.7	↓	-2.9	↓
THYROID	-0.7	≈	0.9	≈	-1.1	≈	1.5	↑	1.3	↑	1.7	↑
UTERINE	1.8	↑	...	...	2.0	↑	1.2	↑	...	...	1.6	↑

* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.

AAPC: Average annual percent change in rates. A positive AAPC means rates increased; a negative AAPC means rates declined over the period.

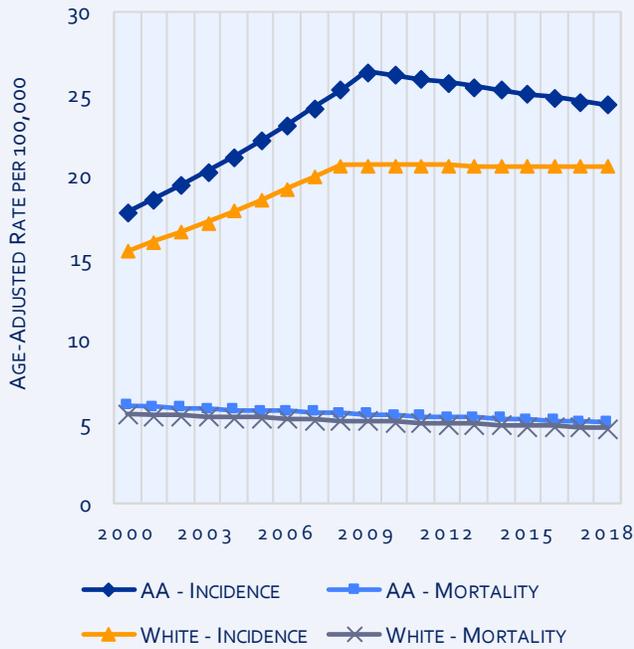
↑ Statistically significant increase; ↓ Statistically significant decrease; ≈ change in rate was not statistically significant. Source of data: California Cancer Registry, California Department of Public Health.

FIGURE 3.A – 3.N. TRENDS IN AGE-ADJUSTED CANCER INCIDENCE RATES AMONG BLACK/AFRICAN AMERICAN AND WHITE MALES AND FEMALES IN CALIFORNIA, 2000-2018

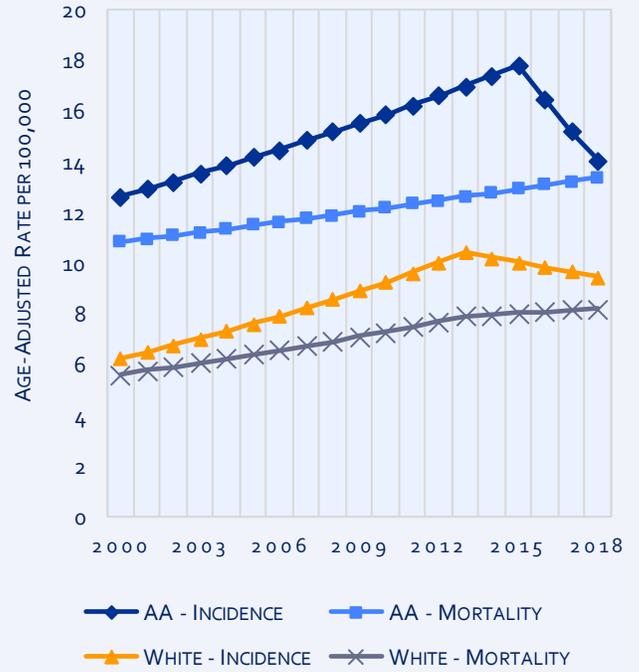


Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health.

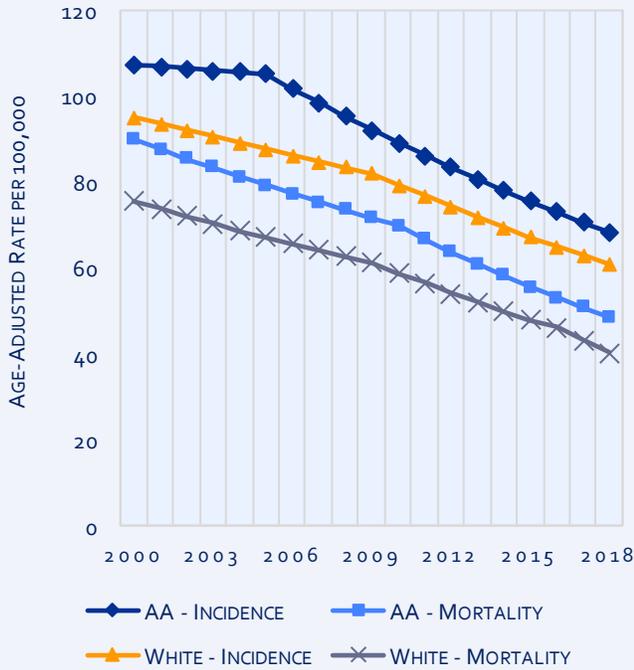
3.E KIDNEY



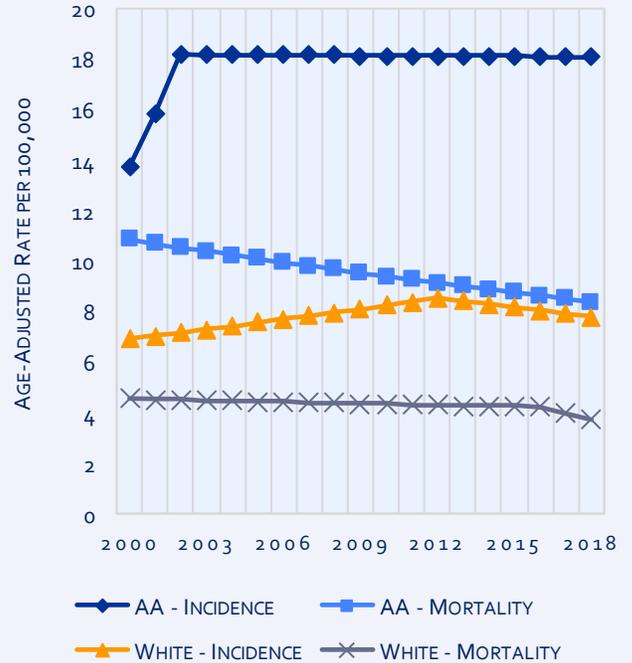
3.F LIVER



3.G LUNG

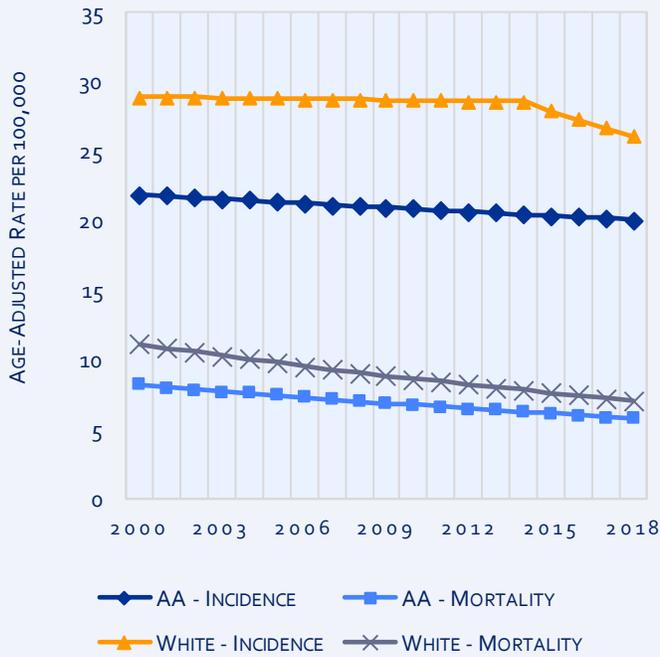


3.H MYELOMA

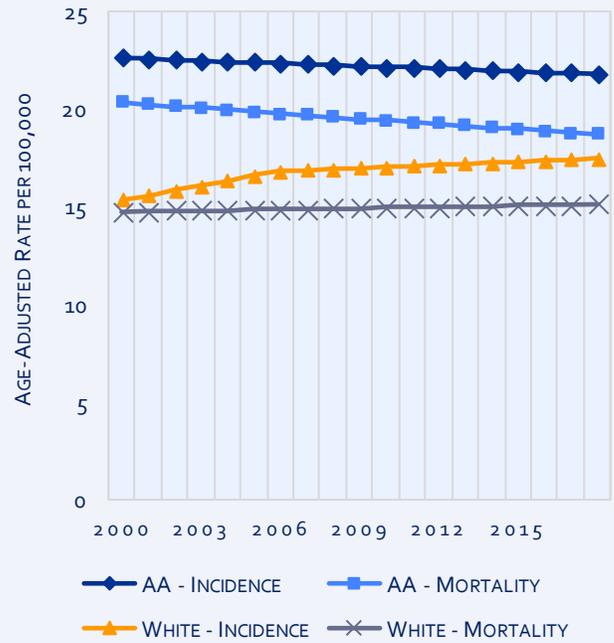


*Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health.*

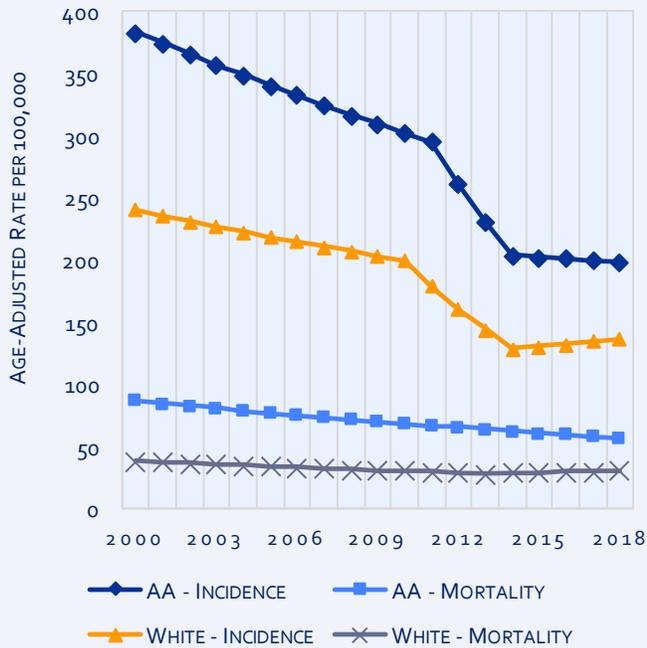
3.I NON-HODGKIN LYMPHOMA



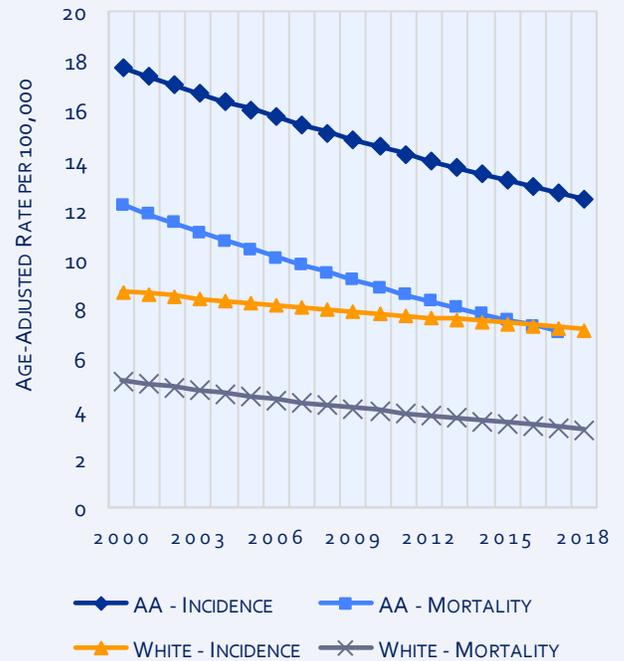
3.J PANCREAS



3.K PROSTATE



3.L STOMACH

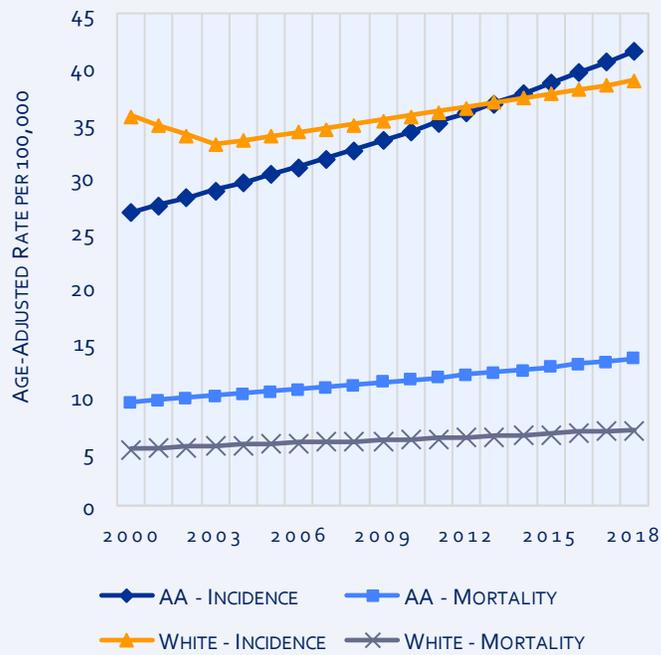


Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
 Source of data: California Cancer Registry, California Department of Public Health.

3.M THYROID



3.N UTERUS



Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
 Source of data: California Cancer Registry, California Department of Public Health.

IV. CANCER DETECTION: STAGE AT DIAGNOSIS

KEY POINTS



COMPARED WITH WHITE PATIENTS, A HIGHER PERCENTAGE OF BLACK/AFRICAN AMERICAN PATIENTS WITH LUNG OROPHARYNGEAL, CERVICAL AND BREAST CANCERS WERE DIAGNOSED AT LATE STAGE.



IN ALL THREE NEIGHBORHOOD SES LEVELS, BLACK/AFRICAN AMERICANS WERE MORE OFTEN DIAGNOSED WITH LATE STAGE BREAST, LUNG, AND OROPHARYNGEAL CANCERS THAN WHITE PATIENTS.



BLACK/AFRICAN AMERICAN PATIENTS WERE DIAGNOSED AT LATE-STAGE DISEASE FOR ALL SCREEN-DETECTABLE CANCERS IN SIGNIFICANTLY HIGHER PROPORTIONS THAN THEIR WHITE COUNTERPARTS. ACROSS ALL TYPES OF HEALTH

Cancer staging describes the extent the disease has spread at the time of diagnosis, and it is one of the most important predictors of survival. Staging of a cancer is also crucial for determining the most appropriate treatment(s) and for selecting patients eligible for participating in clinical trials. In this report, late stage was examined for six types of cancer for which there are recommended screening guidelines (female breast, cervical, colorectal, prostate, and lung) and for oropharyngeal cancers, which can potentially be detected during medical/dental exams.

Compared with White patients, a higher percentage of Black/African American patients with lung (78.4 vs. 72.9 percent), oropharyngeal (73.8 vs. 65.3 percent), cervical (65.4 vs. 53.7 percent) and breast (32.5 vs. 26.0 percent) cancers were diagnosed at late stage (Table 7). These differences were large for both men and women (Figure 4). Differences in stage of disease for prostate and colorectal cancers were not significant.

In all three neighborhood SES levels, Black/African Americans were more often diagnosed with late stage breast, lung, and oropharyngeal cancers than White patients (Figure 5). For prostate and cervical cancers, differences between White and Black/African American patients were only significant in the most affluent neighborhoods. For example, in neighborhoods of low or medium SES, the percent of Black/African American women diagnosed with late stage cervical cancer was not significantly different than that for White women.

However, in high SES neighborhoods, 75.5 percent of Black/African American cervical cancer patients were diagnosed at late stage, versus 47.1 percent of White patients.

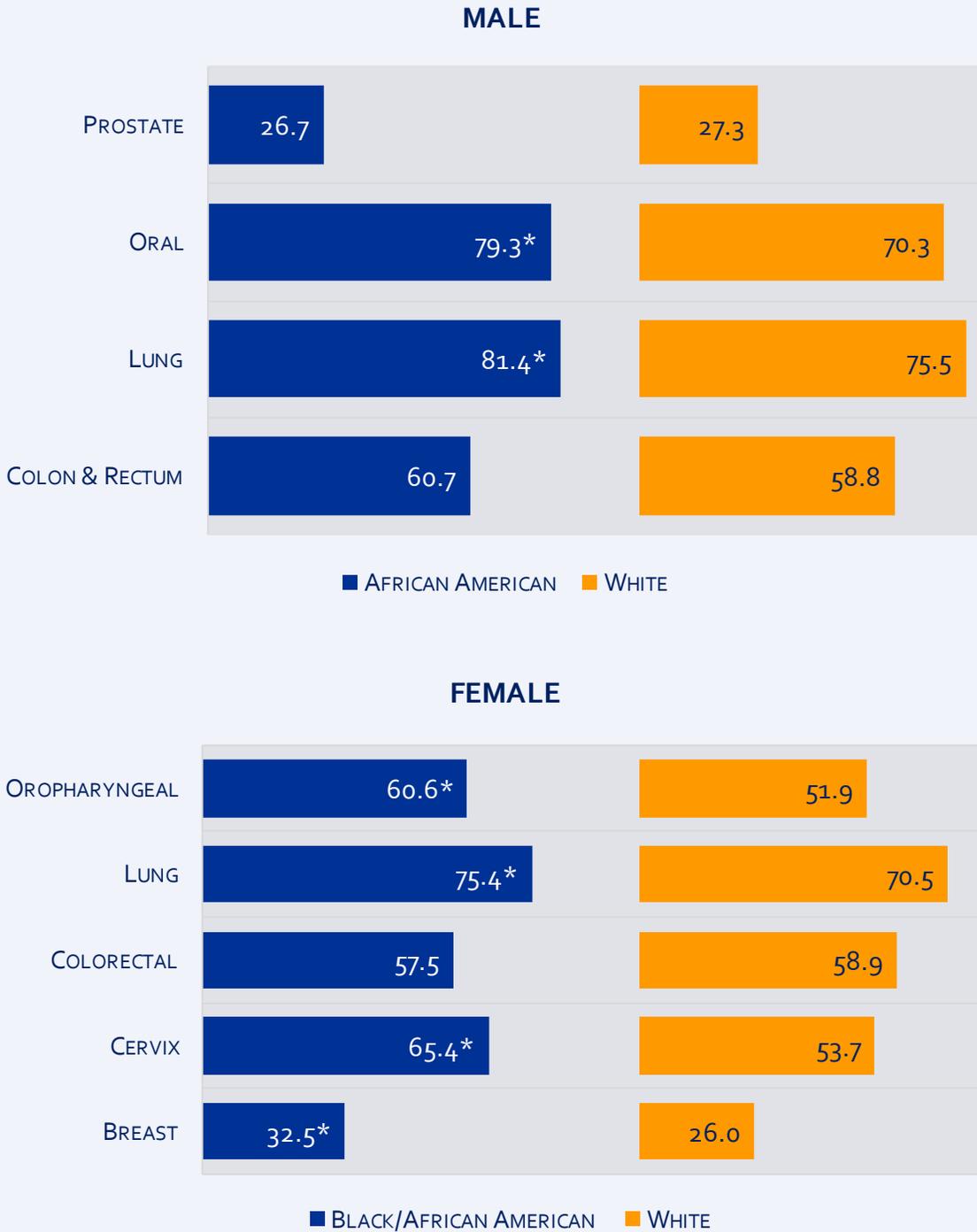
Black/African American patients were diagnosed at late-stage disease for all screen-detectable cancers in significantly higher proportions than their White counterparts across all types of health insurance (Figure 6). Differences in late stage diagnoses between Black/African American and White patients were detected for those covered by private/government insurance (47.8 percent vs. 42.1 percent), Medicare without supplement (53.8 percent vs. 45.5 percent) and Medicaid/public insurance (60.8 percent vs. 56.8 percent). Lack of insurance had even greater impact on Black/African American patients, with 62.8 percent diagnosed at late stage compared with 51.7 percent of White patients.

TABLE 7: PERCENT OF BLACK/AFRICAN AMERICAN AND WHITE PATIENTS DIAGNOSED WITH A SCREEN-DETECTABLE CANCER AT LATE STAGE IN CALIFORNIA, 2009-2018

CANCER SITE/TYPE*	AFRICAN AMERICAN		WHITE		P-VALUE
	N	% LATE	N	% LATE	
BREAST (FEMALE)	10,256	32.5	90,877	26.0	< 0.001
CERVICAL	410	65.4	2,644	53.7	< 0.001
COLORECTAL	4,722	59.1	38,233	58.8	0.749
LUNG	5,983	78.4	51,670	72.9	< 0.001
OROPHARYNGEAL	1,038	73.8	14,466	65.3	< 0.001
PROSTATE	8,164	26.7	51,851	27.3	0.236

* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health.

FIGURE 4: PERCENT OF BLACK/AFRICAN AMERICAN AND WHITE PERSONS DIAGNOSED WITH A SCREEN-DETECTABLE CANCER AT A LATE STAGE, BY SEX AND TYPE OF CANCER, 2009-2018



* Significant difference ($p < 0.05$).

Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
 Source of data: California Cancer Registry, California Department of Public Health.

FIGURE 5: PERCENT OF BLACK/AFRICAN AMERICAN AND WHITE PERSONS DIAGNOSED WITH A SCREEN-DETECTABLE CANCER AT A LATE STAGE, BY SOCIOECONOMIC STATUS (SES) AND TYPE OF CANCER, 2009-2018

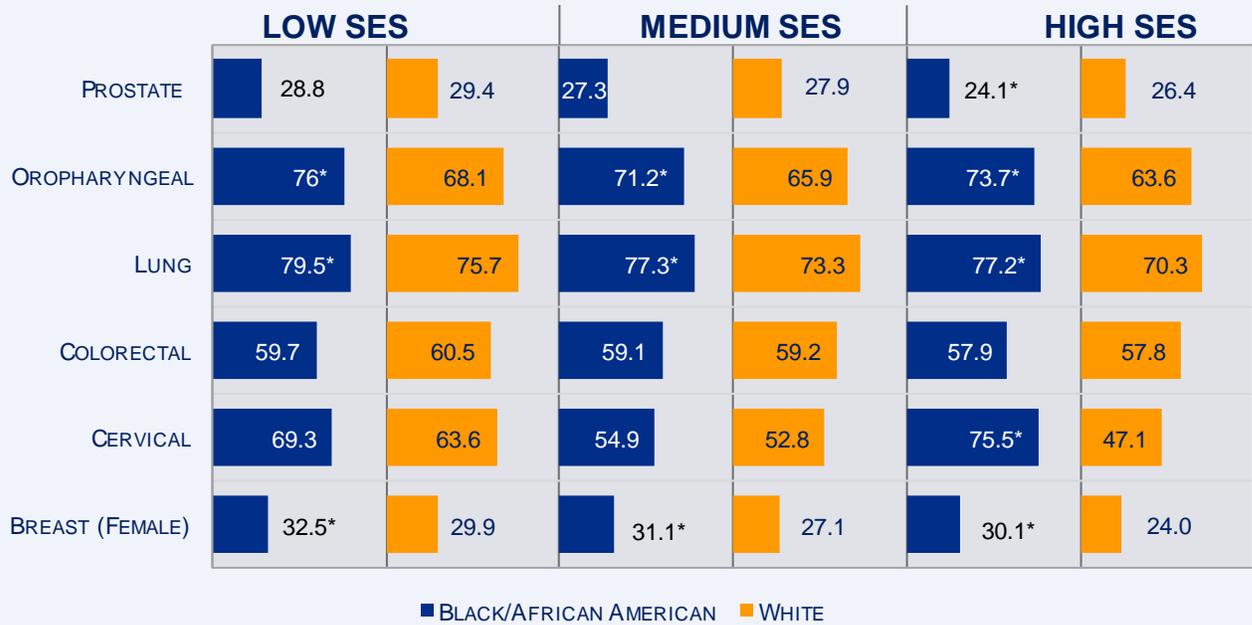
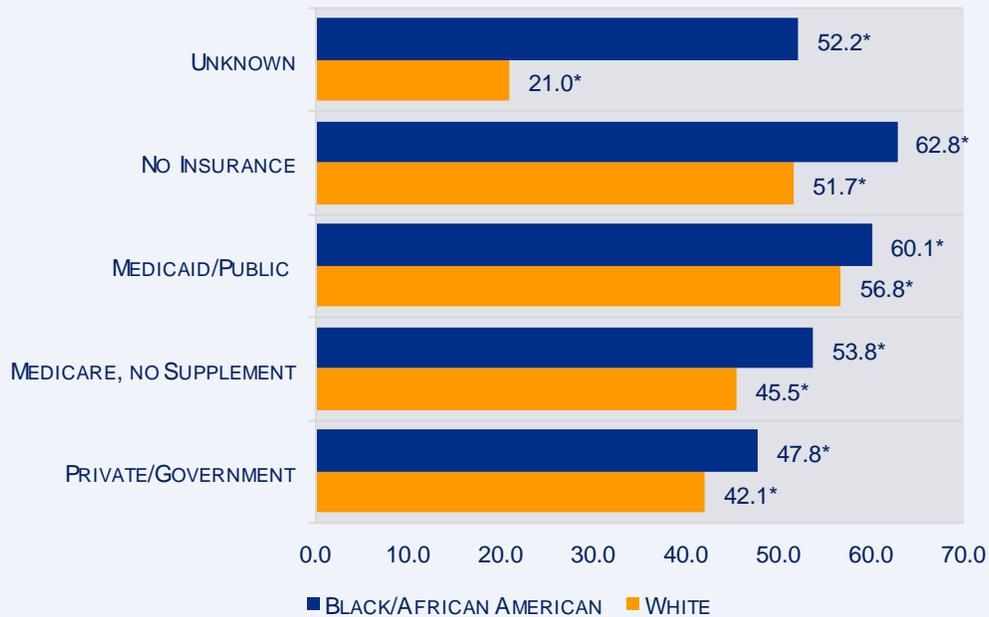


FIGURE 6: PERCENT OF BLACK/AFRICAN AMERICAN AND WHITE PERSONS DIAGNOSED WITH A SCREEN-DETECTABLE CANCER AT A LATE STAGE, BY TYPE OF INSURANCE, 2009-2018



* Significant difference ($p < 0.05$).

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

V. CANCER SURVIVAL

Five-year relative survival was calculated for Black/African American and White cancer patients diagnosed between 2009-2013, the most recent 5-year time-period that allowed for at least 5 years of follow-up (Table 8, Figures 7 and 8). Relative survival after five years was significantly lower among Black/African American patients than among White patients for all cancers combined and for breast, colorectal, lung, prostate, bladder, Hodgkin lymphoma, and uterine cancers. Differences in survival between Black/African American and White patients were particularly large for breast (82.3 vs. 91.8 percent), bladder (66.4 vs. 77.1 percent), and uterine (65.0 vs. 83.0 percent) cancers. Myeloma was the only cancer for which five-year relative survival was significantly higher for Black/African Americans than White patients (56.6 vs. 51.9 percent). There were no differences in survival for cancers of the kidney, liver, pancreas, stomach, and thyroid.

Five-year relative survival worsens with increasing age, lower neighborhood SES and more advanced stage at diagnosis (Table 9). Survival differences were also apparent by health insurance, with survival lowest for those with Medicaid health insurance. The contrast of survival estimates by race/ethnicity was stark, with lower survival among Black/African Americans in nearly all categories evaluated. It should be noted that these five-year relative survival differences were detected without adjusting for the impact of these and other social and health-related factors simultaneously, factors that might help explain some of the differences observed. In multivariable adjusted statistical models, hazard ratios for Black/African Americans showed that age, sex, neighborhood SES, type of insurance, comorbidities, and stage of disease at diagnosis were all significantly associated with cancer survival (Table 10). After simultaneously accounting for these factors, Black/African American male patients fared worse than their female counterparts. Older age, more advanced stage at diagnosis and having more comorbidities around the time of diagnosis were all associated with worse cancer survival. Health insurance type was also associated with survival. Compared with private/governmental health programs, patients who were enrolled in Medicaid/public insurance had significantly worse survival. Survival for Medicare patients without supplement was also significantly lower, although the difference from private/government insurance was less marked. Patients who were uninsured or had unknown insurance status had worse survival than those under any type of health insurance. When considering neighborhood racial composition, residing in areas with a larger Black/African

American population was not associated with worse survival. However, survival was better for Black/African American patients residing in areas where between 0.7 to 2.0 percent (versus 0-0.6 percent) of the population was Black/African American.

In analyses accounting for age, sex, neighborhood SES, neighborhood racial composition, type of insurance, comorbidities, and stage of disease at diagnosis, Black/African Americans had worse cancer survival than their White counterparts for breast, prostate, bladder, non-Hodgkin lymphoma, thyroid, and uterine cancers (Figure 9). No differences in cancer survival were detected for White and Black/African American patients with stomach, cervical, colorectal, kidney, liver, and pancreatic cancers. On the other hand, African Americans diagnosed with myeloma and lung cancer had superior cancer survival when controlling for the above variables.

KEY POINTS



RELATIVE SURVIVAL AFTER FIVE YEARS WAS SIGNIFICANTLY LOWER AMONG BLACK/AFRICAN AMERICAN PATIENTS THAN AMONG WHITE PATIENTS FOR ALL CANCERS COMBINED AND FOR BREAST, COLORECTAL, LUNG, PROSTATE, BLADDER, HODGKIN LYMPHOMA, AND UTERINE CANCERS



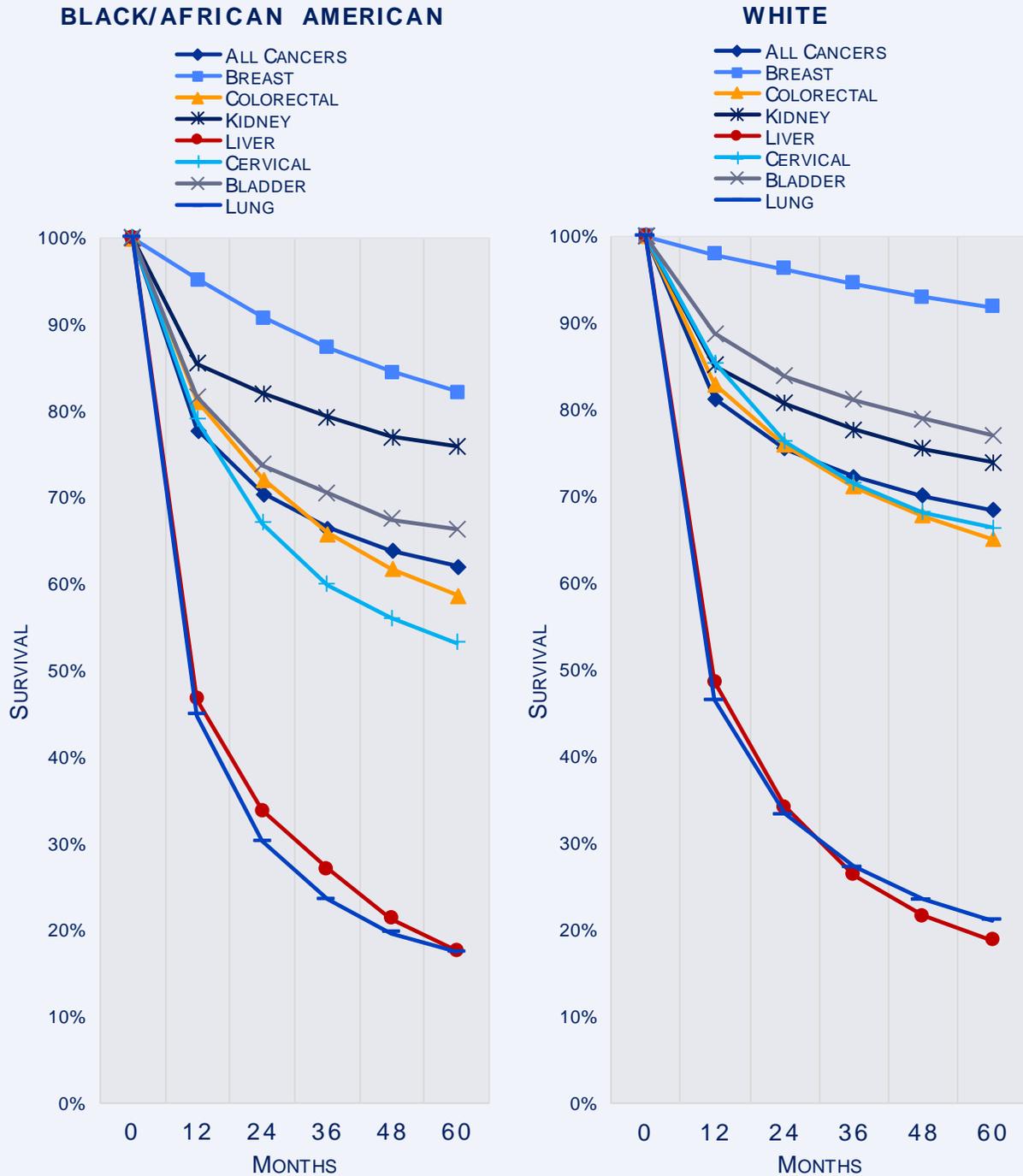
FIVE-YEAR RELATIVE SURVIVAL WORSENS WITH INCREASING AGE, LOWER NEIGHBORHOOD SES AND MORE ADVANCED STAGE AT DIAGNOSIS



OLDER AGE, MORE ADVANCED STAGE AT DIAGNOSIS AND HAVING MORE COMORBIDITIES AROUND THE TIME OF DIAGNOSIS WERE ALL ASSOCIATED WITH WORSE CANCER SURVIVAL

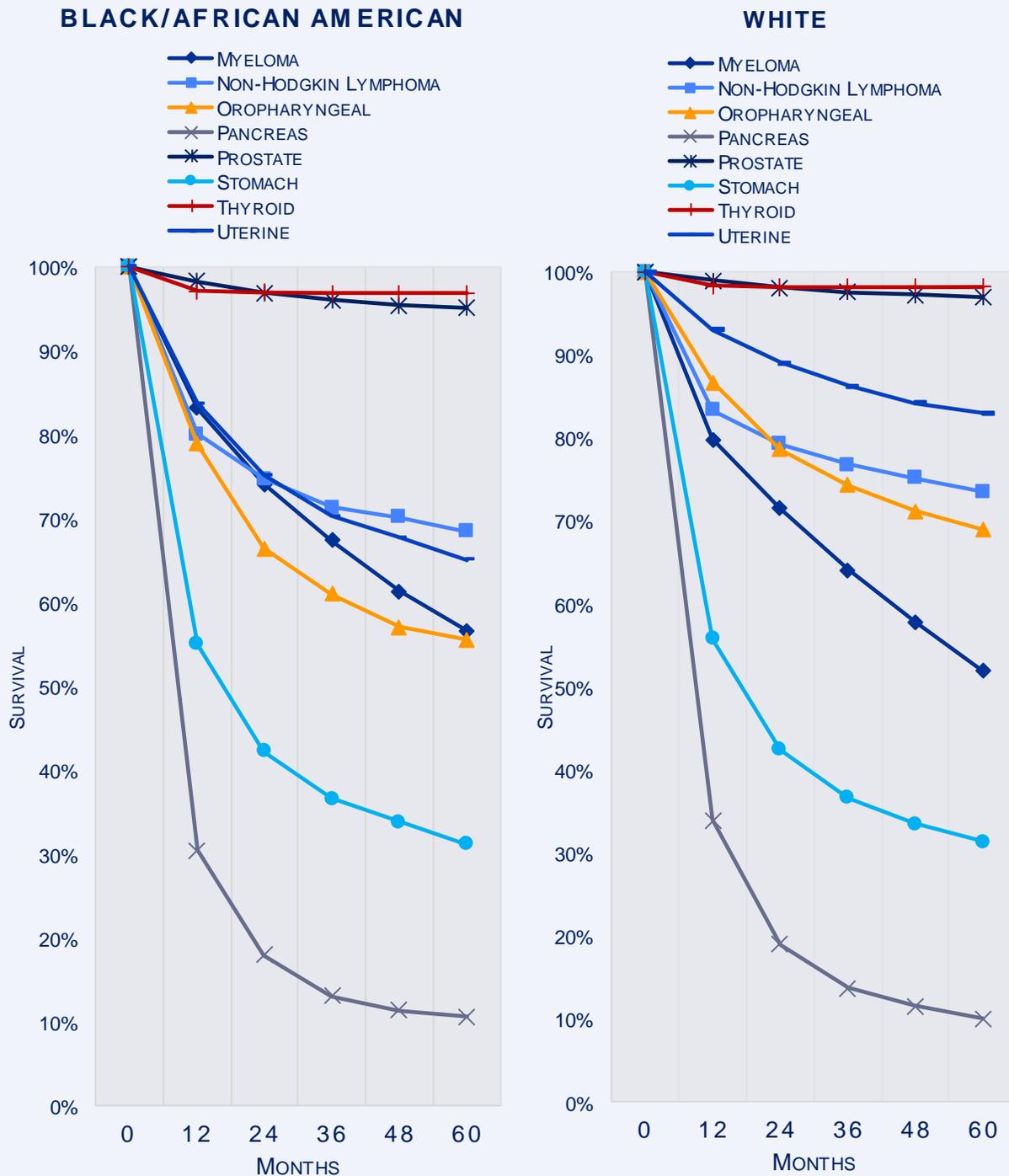


FIGURE 7. FIVE-YEAR RELATIVE SURVIVAL AMONG BLACK/AFRICAN AMERICAN AND WHITE CALIFORNIANS, 2009 - 2013: ALL CANCERS COMBINED, BLADDER, BREAST, CERVICAL, COLORECTAL, KIDNEY, LIVER AND LUNG CANCERS.



Cancer type based on SEER Site Recodes, see Methods section for definitions.
 Source of data: California Cancer Registry, California Department of Public Health

FIGURE 8. FIVE-YEAR RELATIVE SURVIVAL AMONG BLACK/AFRICAN AMERICAN AND WHITE CALIFORNIANS, 2009 - 2013: MYELOMA, NON-HODGKIN LYMPHOMA, OROPHARYNGEAL, PANCREAS, PROSTATE, STOMACH, THYROID AND UTERINE CANCERS



Cancer type based on SEER Site Recodes, see Methods section for definitions.
 Source of data: California Cancer Registry, California Department of Public Health

TABLE 8. FIVE-YEAR RELATIVE SURVIVAL AND 95% CONFIDENCE INTERVALS (CI) FOR THE MOST COMMON CANCERS AMONG BLACK/AFRICAN AMERICANS IN CALIFORNIA, 2009-2013

CANCER SITE/TYPE*	BLACK/AFRICAN AMERICAN			WHITE		
	N	SURVIVAL	95% CI (%)	N	SURVIVAL	95% CI (%)
ALL CANCERS	84,907	62.1%	61.7 - 62.5	751,636	68.4%	68.3 - 68.6
BLADDER	1,966	66.4%	63.3 - 69.3	35,536	77.1%	76.3 - 77.8
BREAST (FEMALE)	13,317	82.3%	81.3 - 83.3	119,911	91.8%	91.5 - 92.1
CERVIX	843	53.2%	49.1 - 57.1	5,119	66.4%	64.9 - 68.0
COLORECTAL	8,250	58.8%	57.3 - 60.2	63,051	65.1%	64.6 - 65.6
KIDNEY	3,184	75.9%	73.8 - 77.9	23,834	74.0%	73.2 - 74.8
LIVER	2,501	17.6%	15.7 - 19.7	13,104	18.8%	17.9 - 19.6
LUNG	9,817	17.5%	16.5 - 18.5	80,434	21.1%	20.7 - 21.4
MYELOMA	2,419	56.6%	53.8- 59.3	10,260	51.9%	50.5 - 53.2
NON-HODGKIN LYMPHOMA	2,743	68.4%	66.1 - 70.6	32,206	73.5%	72.8 - 74.2
OROPHARYNGEAL	1,702	55.7%	52.5 - 58.5	21,633	68.9%	68.1 - 69.8
PANCREAS	2,877	10.6%	9.3 - 12.1	21,115	10.0%	9.5 - 10.6
PROSTATE	17,723	95.1%	94.3 - 95.8	104,866	96.9%	96.6 - 97.2
STOMACH	1,658	31.1%	28.3 - 34.0	9,083	31.4%	30.2 - 32.6
THYROID	1,570	96.9%	95.5 - 97.8	20,077	98.2%	97.7 - 98.5
UTERINE	3,150	65.0%	62.8 - 67.2	26,412	83.0%	82.3 - 83.6

* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.
Source of data: California Cancer Registry, California Department of Public Health

TABLE 9: FIVE-YEAR RELATIVE SURVIVAL AMONG BLACK/AFRICAN AMERICAN AND WHITE CANCER PATIENTS IN CALIFORNIA, 2009-2013: ALL CANCERS COMBINED

	BLACK/AFRICAN AMERICAN			WHITE		
	N	SURVIVAL	95% CI (%)	N	SURVIVAL	95% CI (%)
ALL CANCER CASES	43,312	62.07%	61.5 - 62.6	382,894	68.04%	67.9 - 68.2
SEX						
MALE	23,202	65.00%	64.3 - 65.7	198,406	67.52%	67.3 - 67.8
FEMALE	20,110	58.75%	58.0 - 59.5	184,488	68.61%	68.4 - 68.9
AGE						
20-39	1,929	73.43%	71.3 - 75.4	15,796	87.19%	86.6 - 87.7
40-54	9,550	69.26%	68.3 - 70.2	62,223	79.30%	79.0 - 79.6
55-69	19,574	64.39%	63.6 - 65.2	155,398	72.19%	71.9 - 72.4
70+	12,259	50.59%	49.4 - 51.7	149,477	56.55%	56.2 - 56.9
STAGE AT DIAGNOSIS						
LOCALIZED	19,225	90.27%	89.6 - 90.9	182,432	91.35%	91.2 - 91.6
REGIONAL	9,332	60.77%	59.6 - 61.9	80,604	67.36%	67.0 - 67.7
DISTANT	11,523	22.89%	22.1 - 23.7	86,947	26.51%	26.2 - 26.8
UNKNOWN	2,855	30.09%	28.2 - 32.0	23,856	32.19%	31.5 - 32.9
SOCIOECONOMIC STATUS						
LOW	19,661	55.52%	54.7 - 56.3	73,160	56.79%	56.4 - 57.2
MEDIUM	14,820	64.78%	63.9 - 65.7	136,998	65.41%	65.1 - 65.7
HIGH	8,831	72.06%	70.9 - 73.2	172,736	74.87%	74.6 - 75.1
HEALTH INSURANCE						
PRIVATE/GOVERNMENT	25,170	71.33%	70.7 - 72.0	256,408	73.64%	73.4 - 73.8
MEDICARE, NO SUPPLEMENT	6,648	54.29%	52.8 - 55.7	71,001	59.91%	59.5 - 60.4
MEDICAID/PUBLIC	9,037	45.34%	44.2 - 46.5	32,820	49.35%	48.8 - 49.9
NOT INSURED	1,022	50.73%	47.3 - 54.0	4,997	55.40%	53.9 - 56.9
UNKNOWN	1,435	48.15%	45.2 - 51.1	17,668	56.78%	55.9 - 57.7

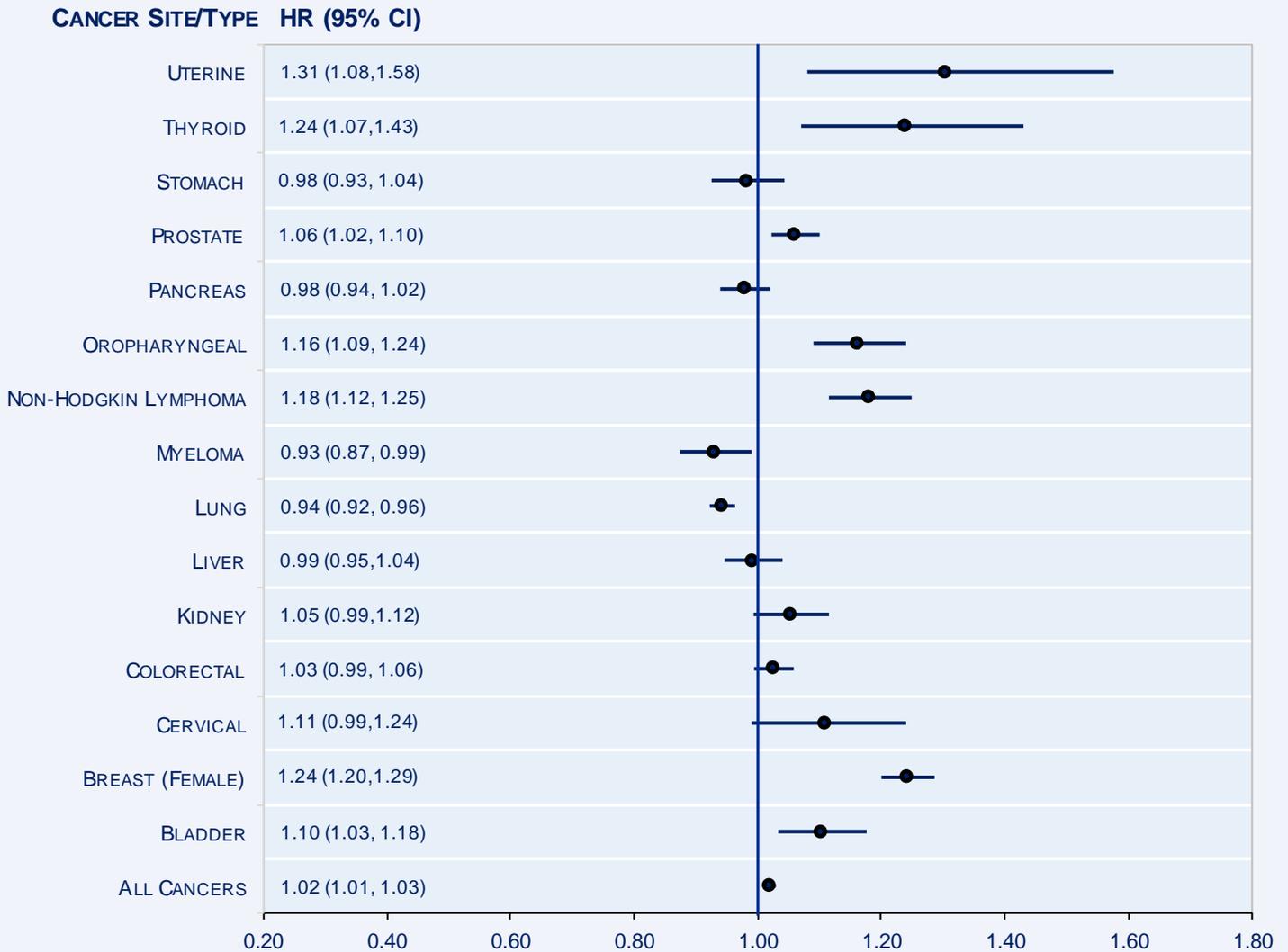
Source of data: California Cancer Registry, California Department of Public Health

TABLE 10: ADJUSTED^a HAZARD RATIOS AND 95% CONFIDENCE INTERVAL (CI) ESTIMATES FOR CHARACTERISTICS ASSOCIATED WITH RISK OF CANCER DEATH AMONG BLACK/AFRICAN AMERICAN (AA) CANCER PATIENTS IN CALIFORNIA, 2009-2018: ALL CANCERS COMBINED

CHARACTERISTIC	HAZARD RATIO	95% CI
SEX		
FEMALE (REFERENCE)	-	-
MALE	1.11	1.09 - 1.13
AGE AT DIAGNOSIS (YEARS)	1.03	1.02 - 1.03
STAGE AT DIAGNOSIS		
LOCALIZED (REFERENCE)	-	-
REGIONAL	2.11	2.06 - 2.17
DISTANT	4.62	4.51 - 4.72
UNKNOWN	2.50	2.42 - 2.57
COMORBIDITIES		
0 (REFERENCE)	-	-
1	1.39	1.36 - 1.43
2+	2.03	1.98 - 2.08
SOCIOECONOMIC STATUS		
HIGH (REFERENCE)	-	-
MEDIUM	1.11	1.08 - 1.14
LOW	1.21	1.18 - 1.24
HEALTH INSURANCE		
PRIVATE/GOVERNMENT (REFERENCE)	-	-
MEDICAID/PUBLIC	1.41	1.38 - 1.44
MEDICARE, NO SUPPLEMENT	1.11	1.08 - 1.14
NOT INSURED	1.56	1.46 - 1.66
UNKNOWN	1.88	1.81 - 1.95
PERCENT AA POPULATION IN PATIENTS' NEIGHBORHOOD		
0 - 0.6% (REFERENCE)	-	-
0.7% - 2.0%	0.93	0.88 - 0.98
2.1% - 5.3%	0.99	0.95 - 1.04
> 5.3%	1.02	0.98 - 1.06

Source of data: California Cancer Registry, California Department of Public Health
^aAdjusted estimates, reflecting the simultaneous impact of all factors included in the statistical model.
 See Methods Section for details.

FIGURE 9. ADJUSTED^a HAZARD RATIOS (HR) AND 95% CONFIDENCE INTERVAL (CI) ESTIMATES FOR THE RISK OF DEATH AMONG BLACK/AFRICAN AMERICAN COMPARED WITH WHITE CANCER PATIENTS IN CALIFORNIA BY TYPE OF CANCER, 2009-2018



^a Estimates adjusted to the simultaneous impact of sex, age, stage, comorbidities, type of insurance, SES, and neighborhood racial composition.

* Cancer site/type based on SEER Site Recodes, see Methods section for definitions.

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

CONCLUSIONS

The most current data available on cancer in California shows that Black/African Americans bear a disproportionate cancer burden. Compared with the White population, Black/African Americans had a higher incidence of many common cancers between 2014-2018, and mortality rates were higher for most cancers examined in this report. Although substantial progress has been achieved against many types of cancer, disparities among Black/African Americans diagnosed with cancer persist, likely driven by disparities in social determinants of health. Black/African American cancer patients in California were less likely to live in more affluent neighborhoods, more likely to be covered by Medicaid/public insurance, and more likely to be diagnosed at a late stage. Of six screen-detectable cancers, Black/African Americans were more likely to be diagnosed with cancers of the breast, lung, oropharyngeal, and cervix at a late stage of disease.

Survival following a cancer diagnosis was also lower among Black/African Americans for many cancers. For all cancers combined, Black/African Americans had lower five-year relative survival than White patients across all age groups, stages at diagnosis, and types of health insurance. When factors such as age, sex, SES, type of insurance, stage at diagnosis, number of comorbidities, and racial composition in neighborhood were taken into account in statistical models, survival among Black/African Americans was worse for breast, prostate, bladder, uterine, non-Hodgkin lymphoma, oropharyngeal, and thyroid cancers and superior for myeloma and lung cancers compared to Whites. Among Black/African Americans, male sex, older age, lower SES, later stage at diagnosis, presence of more comorbidities, and having any health insurance other than private, military, or Medicare with supplement were associated with lower survival.

Data available in the California Cancer Registry is insufficient for drawing conclusions on the underlying causes for the observed disparities. Although Black/African Americans were more likely to be diagnosed with late stage disease in four of six screen-detectable cancers, information on cancer screening was not available. Nonetheless, findings of the higher likelihood of late stage diagnosis in cancers that are potentially preventable, or for which screening interventions are approved, underscore the need for secondary cancer prevention in the Black/African American

community. For example, while there were no significant differences between Black/African American and White patients in the percentage of colorectal cancers diagnosed at late stage or survival for colorectal cancer, Black/African Americans had a significantly higher percentage of late stage diagnosis and significantly lower survival for breast and oropharyngeal cancers.

Pervasive and persistent racism and racial disparities in health-care access, quality, and outcomes are fact.¹³ Achieving health equity will require a committed approach to social, economic, educational, environmental, and access to care conditions that positively impact people's lives and health. Although information alone does not necessarily translate into meaningful changes, this report should serve as an evidenced-based resource for researchers, policy makers, industry and other stakeholders to develop targeted interventions that eliminate disparities and ensure that effective and equitable health care is for all Californians.

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