

California **Tobacco Facts & Figures 2018**

New Challenges to Tobacco Control in California

California Department of Public Health, California Tobacco Control Program

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This is Not Your Father's Tobacco Use Problem

The tobacco epidemic has evolved considerably since the first *Surgeon General's Report on Smoking and Health* released back in 1964.¹ As depicted by *California Tobacco Facts and Figures 2018*, the tobacco use problem has morphed from being all about cigarettes to a diverse group of tobacco product categories that includes cigarettes; chew and snus tobacco; cigarillos and little cigars; hookah; and a variety of electronic smoking devices. The latter category includes cig-a-likes, refillable tanks, and an explosion of devices that look like USB flash drives, lip-gloss, or pens.²⁻⁴ Coinciding with the diversification in electronic smoking devices is an exponential growth in flavored tobacco products; the number of flavors these products come in more than doubled from 2014 to over 15,500 flavors today.^{2,5} Flavored tobacco products are driving youth experimentation; more than 80 percent of youth who ever used a tobacco product reported that their first product was flavored.⁶

Dramatic shifts in tobacco marketing have also occurred. Beginning in the 1970s, federal legislation, lawsuits, and regulations severely restricted the ability of tobacco companies to use television, radio, billboards, print, sponsorship, and cartoon characters to sell their products.⁷⁻⁹ As these restrictions mounted, tobacco companies moved their marketing attention to the unregulated retail environment.¹⁰ Direct mail coupons, in-store price promotions, retailer incentives, and other in-store advertising dominated tobacco company marketing expenditures.^{11,12} By 2011, nearly 90 percent of tobacco industry marketing expenditures were directed towards retail price promotion and price discounting strategies.¹³

The latest tobacco marketing leverages social media and exploits social influencers, including teens, to peddle tobacco products through YouTube product reviews, Instagram, and tweets. This shift from static marketing channels to dynamic social platforms is ubiquitous, and exists in a shadowy online environment, which makes tracking and analyzing tobacco marketing more complex and reliant on big data systems to capture and analyze tobacco marketing and promotions.^{14,15} The giant foothold (54.6 percent of market share) that JUULs gained in a two-year period, within the electronic smoking device product category, illustrates the power of digital and social media to influence tobacco product use without relying on traditional media channels.¹⁶

So why does the proliferation of tobacco product categories and shifts in tobacco marketing matter? *California Tobacco Facts and Figures 2018* presents a troubling picture of teen tobacco use. The data show that while teen cigarette smoking in 2016 is low (4.3 percent), overall tobacco use among teens is stagnant. In 2016, overall teen tobacco use rate (13.6 percent) is comparable to cigarette smoking rate in 2010 (13.8 percent). The proliferation of tobacco product categories, flavored products, and the evolution in tobacco marketing appear to be fueling teens switching from traditional cigarettes to a new generation of tobacco products. A rapid public health response to the evolving tobacco product marketplace is needed to prevent the next generation of youth from a lifelong addiction to nicotine.

California Tobacco Facts and Figures 2018 also documents that while adult cigarette smoking in California is on a downward spiral, highly vulnerable population groups including those with psychological distress, persons with disabilities, low income, and low educational attainment continue to have very high rate of cigarette use. Additionally, African Americans, American Indians, certain ethnic-specific Asian (e.g. Korean, Vietnamese)

males, gender and sexually diverse groups, and rural populations have very high rate of smoking. Conversely, White and Hispanic/Latino groups have a lower smoking rate than some groups, but they comprise a very large portion of California's overall smoking population which makes addressing tobacco use in these groups important too (see *Figure 4, Adult cigarette smoking rate and number of smokers in California by demographics, 2015-16*).

The size and diversity of California's smoking population indicates that helping current tobacco users beat their addiction to nicotine is going to require an intensive effort. Simply applying those strategies that got us this far, is not sufficient to get us over the goal line. It is going to take more intensive support to help these vulnerable populations quit for good. One important place to focus our efforts is to ensure that health and behavioral health care systems identify and treat nicotine addiction as a standard of care for all patients - without regard to the initial encounter.

It's time to "wake-up," this is not our father's cigarette-pack-a-day problem. Ending tobacco use in California is going to require a lot of work, across all sectors. The California Tobacco Control Program hopes that the data in this report will be used to focus resources and build the momentum needed to get the job done.

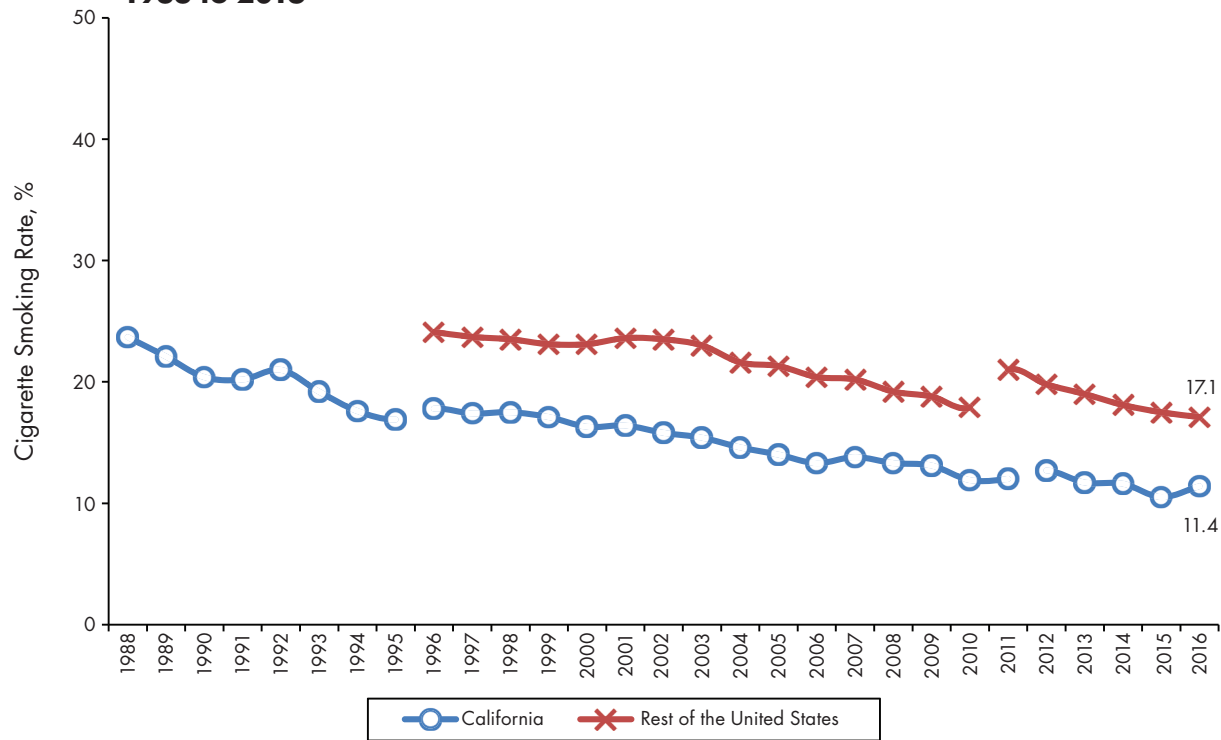


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Tobacco Usage in California

The adult cigarette smoking rate in California has declined since the creation of California’s comprehensive tobacco control program in 1989. The smoking rate declined by 51.9 percent between 1988 and 2016, from 23.7 percent to 11.4 percent as displayed in Figure 1. California has the second lowest adult smoking rate among the 50 states plus the District of Columbia, second only to Utah;¹⁷ however, California has the largest number of adult smokers (3.2 million adult smokers) because it is by far the most populous state.

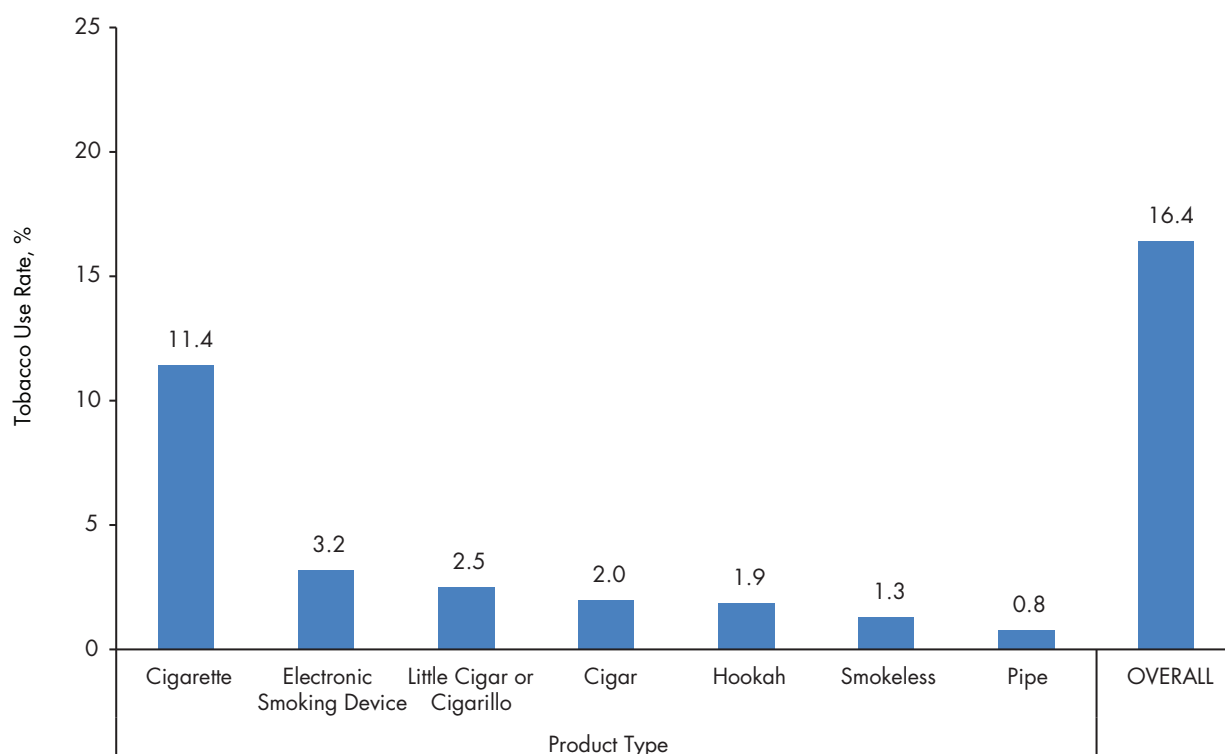
Figure 1. Adult cigarette smoking rate in California and the rest of the United States, 1988 to 2016



Note: Restricted to respondents aged 18 or older. Respondents were asked to report cigarette smoking behavior. An adjustment was made to address the change of smoking definition in 1996 that included more occasional smokers. The weighting methodology changed in 2012 for California but changed for the rest of the United States in 2011. Data is weighted to the 2000 California population from 1988-2011 and to the 2010 California population since 2012. Source: California Department of Public Health, California Tobacco Control Program. Behavioral Risk Factor Surveillance System, 1988-2016. Sacramento, CA: California Department of Public Health; March 2018.

In California, 8.7 percent of adults currently use other tobacco products (e.g. cigars, little cigars, pipe, hookah, electronic smoking devices which includes e-cigarettes, vape pens, tanks, and mods).¹⁸ When including cigarette users, 16.4 percent of California adults currently use some type of tobacco product (Figure 2).¹⁸ It is important that all tobacco use be monitored and addressed, as any tobacco use is detrimental to health.¹⁹

Figure 2. Adult tobacco use rate in California by product type, 2016



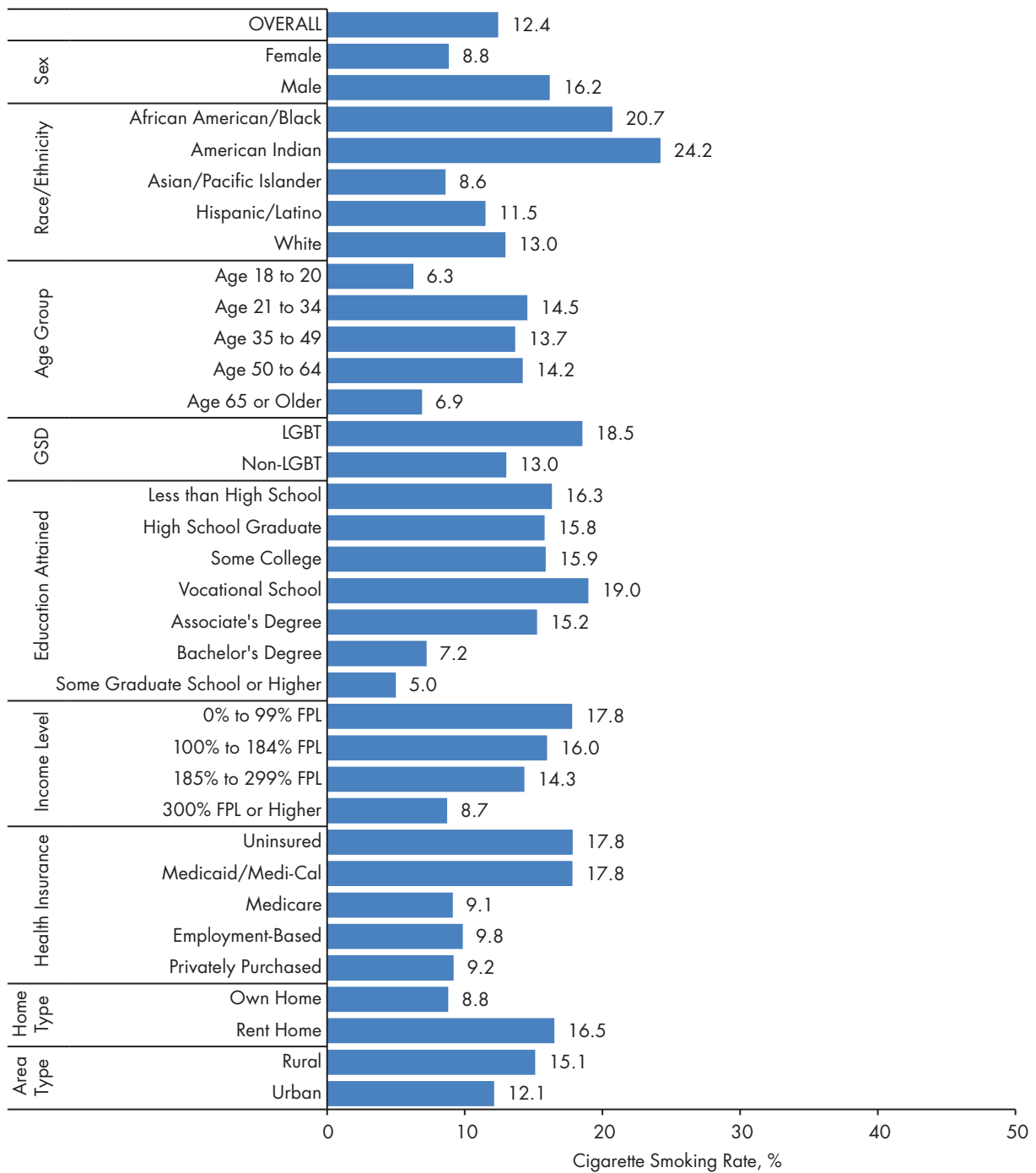
Note: Restricted to respondents aged 18 or older. Respondents were asked to report tobacco use behavior. Data is weighted to the 2010 California population. Source: California Department of Public Health, California Tobacco Control Program. Behavioral Risk Factor Surveillance System, 1996-2016. Sacramento, CA: California Department of Public Health; March 2018.

Priority Population and Other Population Groups

Figure 3 displays demographic analyses using data from the California Health Interview Survey (CHIS).²⁰ Consistent with national data,^{19,21} the cigarette smoking rate in California is significantly higher in men than women and decreases with higher levels of income and education completed. Additionally, there continues to be substantial differences in smoking rate by race/ethnicity, with the American Indian population in California having the highest cigarette smoking rate.²⁰

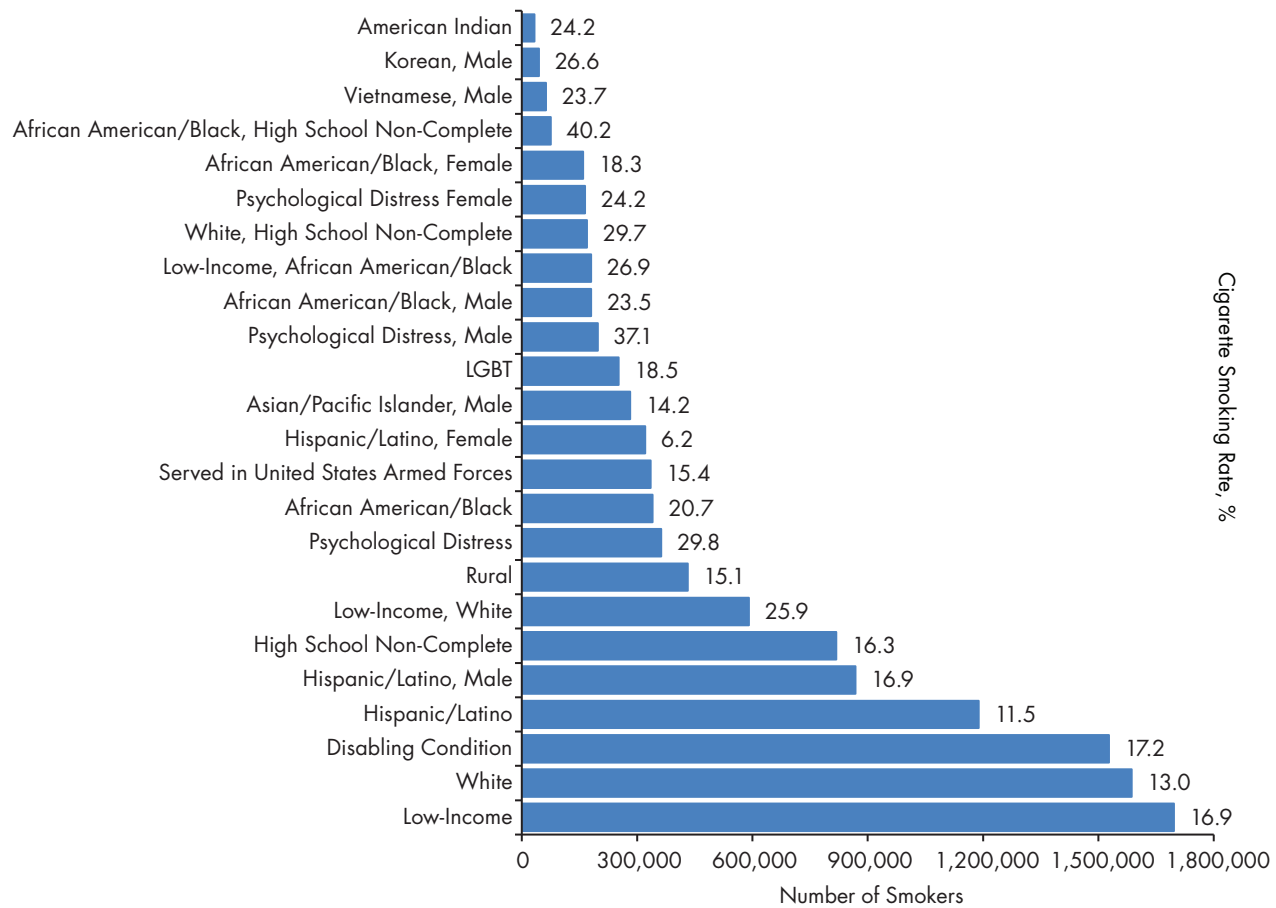
In addition to the impact of high smoking rate, it is important to look at groups which account for a significant portion of the overall number of smokers in California. For example, as shown in Figure 4, the American Indian population has a smoking rate at 24.2 percent but makes up a smaller portion of the smokers in California;²⁰ conversely, the Hispanic population has a lower smoking rate at 11.5 percent but accounts for over 1.1 million smokers in California.²⁰

Figure 3. Adult cigarette smoking rate in California by demographics, 2015-16



Note: Restricted to respondents aged 18 or older. Respondents were asked to report cigarette smoking behavior. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. The American Indian population includes Alaska Native. The Asian/Pacific Islander population include Native Hawaiian. FPL refers to federal poverty level. GSD refers to gender and sexual diversity. LGBT refers to lesbian, gay, bisexual, or transgender. Rural and urban areas are defined based on definitions from the Nielsen Consumer Activation, with rural areas having a population density fewer than 1,000 persons per square mile while urban areas having a population density of 1,000 persons or higher per square mile. Data from 2015 and 2016 were pooled together. Source: California Health Interview Survey, 2015-2016. Los Angeles, CA: UCLA Center for Health Policy Research; December 2017.

Figure 4. Adult cigarette smoking rate and number of smokers in California by demographics, 2015-16

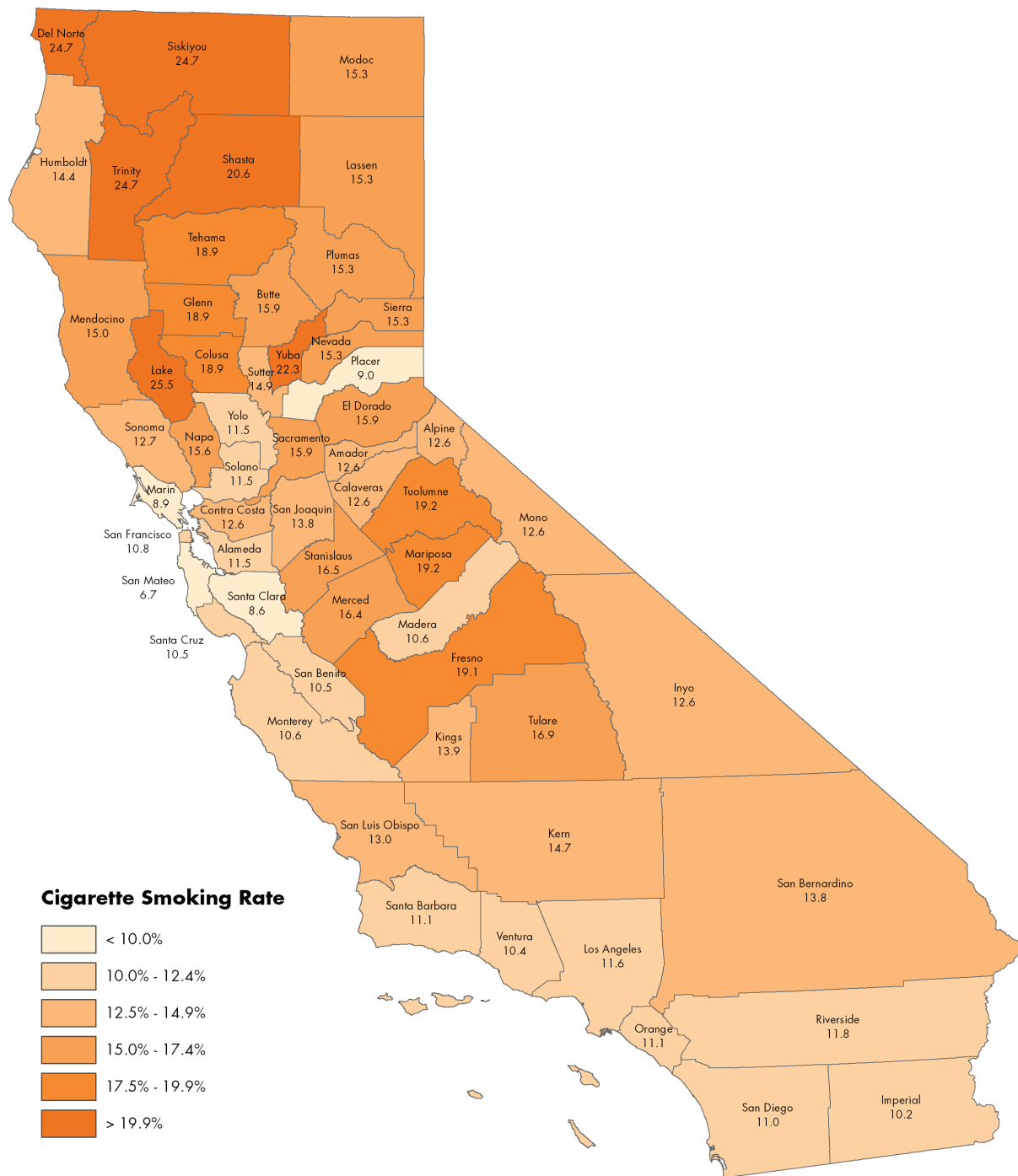


Note: Restricted to respondents aged 18 or older. Respondents were asked to report cigarette smoking behavior. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. The American Indian population includes Alaska Native. The Asian/Pacific Islander population includes Native Hawaiian. LGBT refers to lesbian, gay, bisexual, or transgender. Low-income is defined as below 185 percent of the federal poverty level. Disabling condition is based on self-reports of a disability due to a physical, mental, or emotional condition. Rural is defined based on definition from the Nielsen Consumer Activation, where the population density is fewer than 1,000 persons per square mile. Psychological distress is defined as experiencing psychological distress in the past month based on the Kessler 6 scale. Data from 2015 and 2016 were pooled together. Source: California Health Interview Survey, 2015-2016. Los Angeles, CA: UCLA Center for Health Policy Research; December 2017.

Geographical Patterns

California’s adult cigarette smoking rate varies by population density, with higher rates predominantly in rural counties. Figure 5 displays the adult cigarette smoking rate by county using data from pooled CHIS 2014-16, with the statewide smoking rate for the combined three-years at 12.2 percent.²² Counties in the North Coast, North Valley, and Central Valley have some of the highest rates, with Lake County having the highest cigarette smoking rate at 25.5 percent. In contrast to the rural regions, many counties with denser urban areas have smoking rates below the statewide level.

Figure 5. Adult cigarette smoking rate in California by county, 2014-16

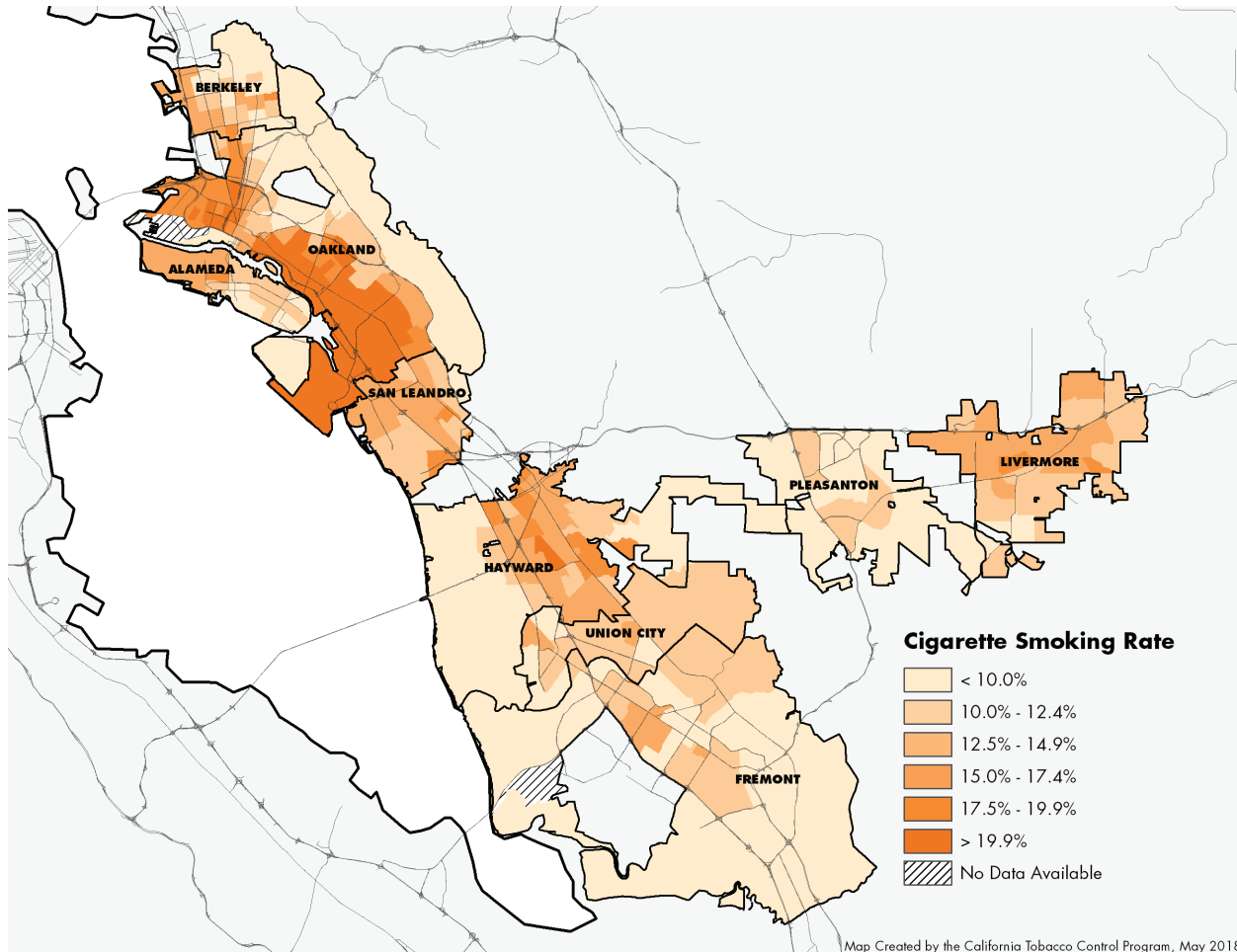


Map Created by the California Tobacco Control Program, May 2018

Note: Restricted to respondents aged 18 or older. Respondents were asked to report cigarette smoking behavior. Data from 2014, 2015, and 2016 were pooled together. Several counties were grouped together to produce stable estimates: (1) Del Norte, Siskiyou, and Trinity; (2) Lassen, Modoc, Plumas, and Sierra; (3) Colusa and Glenn; (4) Solano and Yolo; (5) Alpine, Amador, Calaveras, Inyo, and Mono; and (6) Mariposa and Tuolumne. Source: California Health Interview Survey, 2014-2016. Los Angeles, CA: UCLA Center for Health Policy Research; December 2017.

Although urban counties may have lower adult smoking rates, it is important to recognize that cities and neighborhoods within a county may have much higher smoking rates. For example, in Alameda County, there are numerous census tracts where the estimated adult smoking rate exceeds 20.0 percent based on modeling from the 500 Cities Project (Figure 6).²³

Figure 6. Modeled-based adult cigarette smoking rate in Alameda County by census tract, 2015



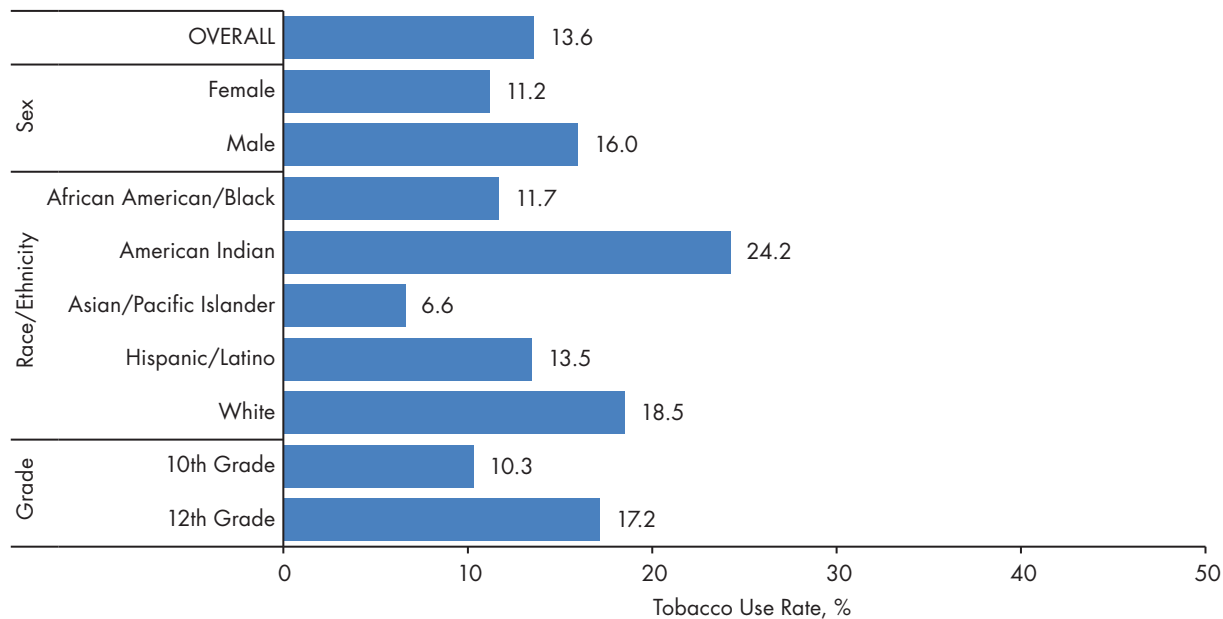
Note: Cigarette smoking rate were modeled based on Behavioral Risk Factor Surveillance System, Census Bureau population, and American Community Survey. This figure only includes census tracts from the following cities in Alameda County: Alameda, Berkeley, Fremont, Hayward, Livermore, Oakland, Pleasanton, San Leandro, and Union City. Data for census tracts with population less than 50 were suppressed. Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. 500 Cities: Local Data for Better Health. Atlanta, GA: Centers for Disease Control and Prevention; December 2017.

Tobacco Use Among California's Youth

Nationally, 86.9 percent of adult daily cigarette smokers reported started smoking cigarettes by the age of 18.¹⁹ In California, 63.6 percent of current cigarette smokers started by the age of 18 and 96.3 percent started by the age of 26.¹⁸ Continuing to delay the initiation of smoking within young adults could be a highly effective strategy to reduce long-term smoking rate in the state.²⁴

The overall tobacco use rate among California high school students is at 13.6 percent (Figure 7),²⁵ or approximately 278,000 California high school students. Consistent with national trends,^{26,27} boys and older youth use tobacco more than girls and younger youth.

Figure 7. Tobacco use rate among high school students in California by demographics, 2016

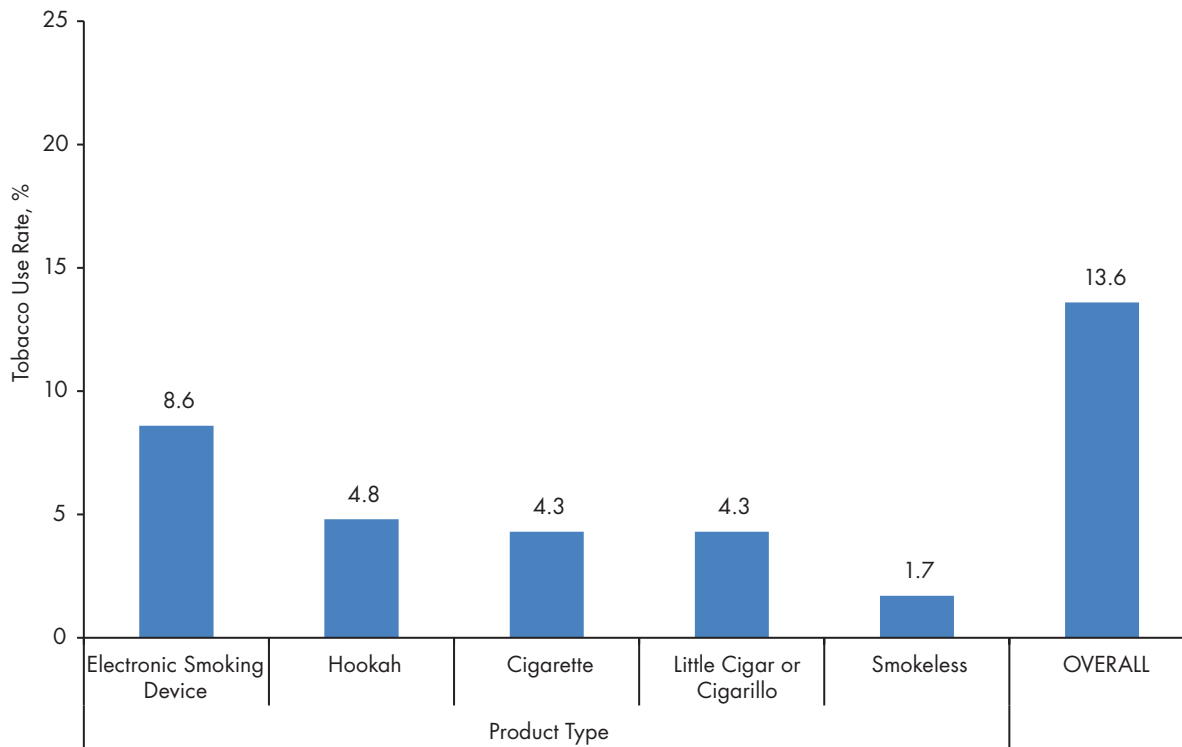


Note: Restricted to respondents in high schools. Respondents were asked to report tobacco use behavior. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. The American Indian population includes Alaska Native. The Asian/Pacific Islander population include Native Hawaiian. Source: California Department of Public Health, California Tobacco Control Program. California Student Tobacco Survey, 2015-2016. Sacramento, CA: California Department of Public Health; February 2017.

Tobacco use remains a challenge as youth are gravitating towards electronic smoking devices over traditional cigarettes as exhibited in Figure 8.²⁵ Nationwide, the high school electronic smoking device use rate is 11.3 percent and is the most common tobacco product used by youth.²⁶ Research has shown that youth who would otherwise not have smoked cigarettes or use other tobacco products are using electronic smoking devices.^{28,29} Adolescent electronic smoking device users are also more likely to start smoking traditional cigarettes.^{30,31}

Cigarette smoking among high school students in California fluctuated between 13.0 and 16.0 percent from 2002 through 2010.³² The decline in youth smoking from 2010 (13.8 percent) to 2012 (10.5 percent) coincides with the passage of the Family Smoking Prevention and Tobacco Control Act in 2009 that prohibits the sale of flavored non-menthol cigarettes, restricted marketing, and enhanced enforcement. The most recent estimate of cigarette use among California youth is 4.3 percent (Figure 8),²⁵ with this smoking rate decline consistent with national trends.^{27,33}

Figure 8. Tobacco use rate among high school students in California by product type, 2016



Note: Restricted to respondents in high schools. Respondents were asked to report tobacco use behavior. Source: California Department of Public Health, California Tobacco Control Program. California Student Tobacco Survey, 2015-2016. Sacramento, CA: California Department of Public Health; February 2017.

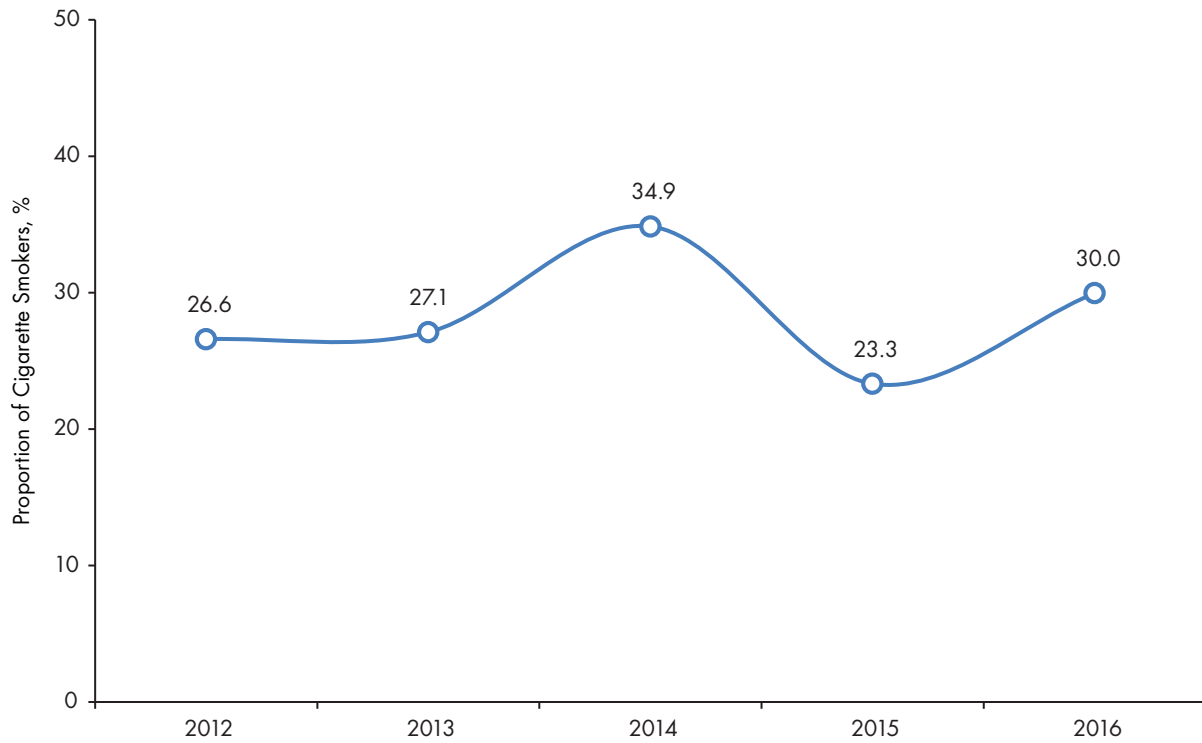
Menthol Cigarettes and Flavored Tobacco

The use of menthol and flavor additives in tobacco products have long been a popular industry strategy to mask the harshness and taste of tobacco.³⁴ In 2009, the Family Smoking Prevention and Tobacco Control Act required the United States Food and Drug Administration (FDA) to end the manufacture, marketing, and sale of cigarettes that contained characterizing flavors other than that of tobacco and menthol. This ban went into effect in September 2009.³⁵ However, the ban only applied to cigarettes. It did not apply to other tobacco products such as little cigars, hookah, smokeless tobacco, or electronic smoking devices. Flavored tobacco products are a gateway for many children and young adults to become regular smokers according to the FDA.³⁶

Menthol Cigarettes

Menthol cigarettes are disproportionately smoked by the African American/Black population, the gender and sexual diverse population, and youth.^{37,38} Approximately 25 to 30 percent of cigarette smokers in the United States smoke menthol cigarettes.³⁹ Similar rates have been found in adult California smokers (Figure 9).⁴⁰ Among California high school students who smoke cigarettes (4.3 percent), 43.6 percent smoke menthol cigarettes.²⁵

Figure 9. Menthol usage among adult cigarette smokers in California, 2012 to 2016



Note: Restricted to respondents aged 18 or older current smokers in the "Tobacco Track" (Track 3). Respondents were asked if they usually smoke menthol cigarettes. Data is weighted to the 2010 California population. Source: California Department of Public Health, California Tobacco Control Program. Behavioral Risk Factor Surveillance System, 2012-2016. Sacramento, CA: California Department of Public Health; March 2018.

Flavored Tobacco

Nationally, 70 to 80 percent of middle and high school tobacco users have used at least one flavored tobacco product in the past 30 days.^{41,42} Among adult other tobacco product (cigars, little cigars, cigarillos, snus, hookah, and electronic smoking device) users in California, 70.3 percent reported using flavored products in the past six months (Table 1). In addition, eight out of ten young adults 18 to 24 that currently use other tobacco products reported flavor usage.

Table 1. Flavored tobacco use among California adults by select demographics, 2013-15

Demographic	Cigar, Little Cigar, or Cigarillo ^a	Electronic Smoking Devices ^b	Overall Other Tobacco Product ^c
Sex:			
Female	†	62.8%	61.1%
Male	47.3%	84.7%	74.3%
Age Group:			
Age 18 to 24	†	86.6%	86.4%
Age 25 to 44	51.5%	86.6%	78.9%
Age 45 to 64	22.7%	52.0%	44.8%
Age 65 or Older	†	†	34.2%
Race/Ethnicity:			
Hispanic	†	†	75.0%
Non-Hispanic	43.6%	77.5%	68.6%
OVERALL	45.0%	77.6%	70.3%

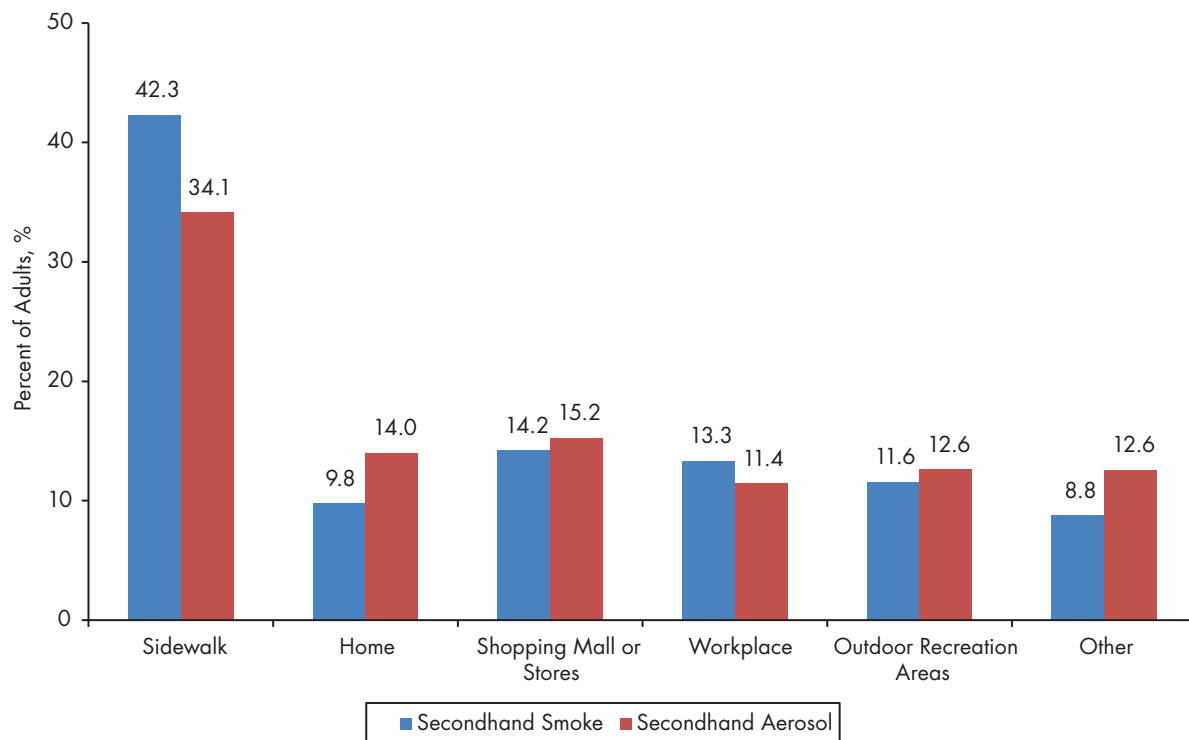
Note: Restricted to respondents aged 18 or older in the “Tobacco Track” (Track 3) who have smoked more than 100 cigarettes in their lifetime. Respondents were asked current use of the following tobacco products: cigar, little cigar, cigarillos, snus, hookah, and electronic smoking device. Flavored use is based on the past six-month use. Data from 2013, 2014, and 2015 were pooled together. An asterisk (*) indicates caution should be used when interpreting the data as the relative standard error is between 30 and 50 percent. A dagger (†) indicates data is suppressed as the relative standard error is larger than 50 percent or the analytic sample size was less than 50. ^a Data is of current users of cigar, little cigar, or cigarillo. ^b Data is of current users of electronic smoking devices. ^c Data is of current users of cigars, little cigars, cigarillos, snus, hookah, and electronic smoking devices. Source: California Department of Public Health, California Tobacco Control Program. Behavioral Risk Factor Surveillance System, 2013-2015. Sacramento, CA: California Department of Public Health; February 2017.

One of the reasons for the high rate of flavored use among young adults maybe due to the popularity of electronic smoking devices.⁴³ Electronic smoking devices are used in conjunction with a liquid solution (commonly, e-liquid or e-juice) that is heated into an aerosol and inhaled. The e-liquid is typically flavored, with more than 15,500 unique flavors in existence.⁵ In California, data indicates that the electronic smoking device use rate is approximately 10 percent for young adults age 18 to 24 (data not shown).^{44,45}

Exposure to Secondhand Smoke and Aerosol

According to the Online California Adult Tobacco Survey (Online CATS) 2017,⁴⁴ an overwhelming majority of adults agree that secondhand smoke causes cancer. In addition, 82.1 percent of Californians agree that aerosol and vapor from electronic smoking devices are harmful. However, 54.4 percent of California adults aged 18 to 64 reported being exposed to secondhand smoke recently, and 25.5 percent reported being exposed to secondhand aerosol (Figure 10).⁴⁴

Figure 10. Location of most recent secondhand smoke or secondhand aerosol exposure among adults aged 18 to 64 in California, 2017

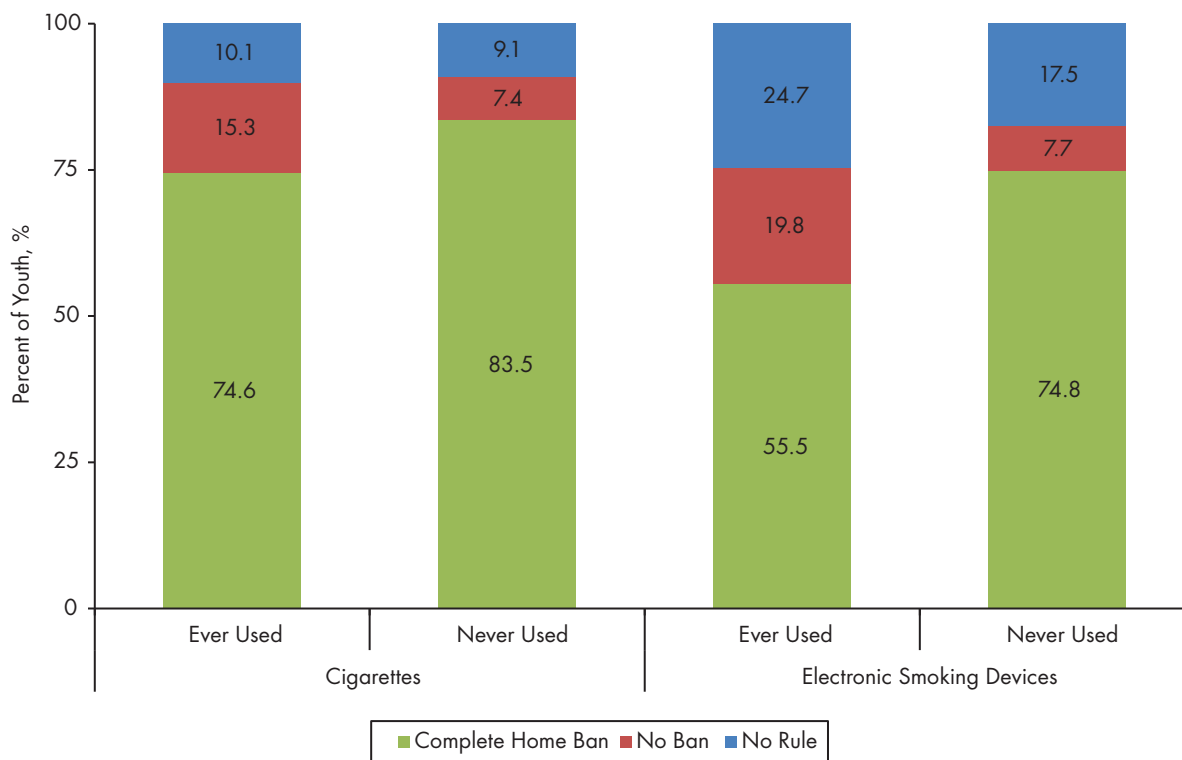


Note: Restricted to respondents aged 18 to 64. Respondents were asked whether they were exposed to secondhand smoke or aerosol within the past two weeks and to report location of the most recent exposure to secondhand smoke or aerosol. This figure has been revised from previous issues of California Tobacco Facts and Figure, see erratum notice in this report for more detail. Source: California Department of Public Health, California Tobacco Control Program. Online California Adult Tobacco Survey, October 2017. Sacramento, CA: California Department of Public Health; 2017.

California was the first state to prohibit smoking in public buildings in 1995; however, the law had numerous exemptions that permitted smoking at certain workplaces. Many of these workplace exemptions were closed due to new laws that went into effect on June 9, 2016. Unfortunately, almost one in five California workers (17.2 percent) reported still being exposed to secondhand smoke or secondhand aerosol recently in their work area.⁴⁴

Children are especially vulnerable to the health effects of secondhand smoke, with those living in lower income households significantly more exposed to secondhand smoke.^{46,47} The main place where children are exposed to secondhand smoke is at home.⁴⁷ Holtby et al. (2011) reported that more than 200,000 children in California live in homes where smoking is allowed and 742,000 children are at risk of exposure by living in homes with a person who is a smoker.⁴⁸ Home smoking bans reinforce societal norms against smoking, increasing the likelihood that smokers in the household will attempt to quit and ultimately quit successfully.^{49,50} This, in turn, increases the likelihood that children in these households will never become smokers. Among California households with youth, a higher proportion of homes with smoking bans are found in youth who had never used cigarettes or electronic smoking devices compared to youth who have used these products before (Figure 11).²⁵

Figure 11. Percent of youth in California living in household with smoke-free policies by ever use, 2016



Note: Respondents were asked to report ever use of cigarettes and electronic smoking devices, along with household policies. Source: California Department of Public Health, California Tobacco Control Program. California Student Tobacco Survey, 2015-2016. Sacramento, CA: California Department of Public Health; February 2017.

Health Effects of Tobacco Usage and Exposure

Tobacco use is considered a risk factor for numerous chronic diseases, including but not limited to cancer, cardiovascular disease, emphysema, chronic obstructive pulmonary disease, pneumonia, diabetes, and rheumatoid arthritis.¹⁹ Exposure to tobacco smoke is a risk factor for chronic diseases and is considered a human carcinogen.⁴⁷ Acute effects of secondhand smoke are serious and include increased frequency and severity of asthma attacks, respiratory symptoms such as coughing and shortness of breath, and respiratory infections such as bronchitis and pneumonia. In addition, using tobacco or being exposed to tobacco smoke during pregnancy is detrimental in fetal development and increases the risk of sudden infant death syndrome.⁴⁷

Currently, there is limited research on the long-term health effects from either using electronic smoking devices or being exposed to secondhand aerosol. Yu et al. (2016) found that vaporized e-liquid induces cell damages that would generate genetic mutation and alterations that can lead to cancer.⁵¹ In addition, studies have shown that aerosol exposure from electronic smoking devices is detrimental to indoor air quality due to increases in fine and ultrafine particulate matter,^{52,53} where frequent low exposure can increase the risk of cardiovascular and respiratory diseases.⁵⁴

In 2016, it was estimated that 34,000 California individuals aged 35 or older died from cancer, cardiovascular disease, or respiratory disease attributed to smoking as shown in Table 2 and Table 3.^{19,45,55} Another model conducted by the Centers for Disease Control and Prevention (CDC) estimates over 40,000 annual deaths in California are attributable to smoking and 440,600 youths under age 18 in California will ultimately die prematurely from smoking.⁵⁶

Asthma

Asthma is a chronic disease that causes inflammation of the airways in the lungs. Extensive data has established an association between secondhand smoke exposure with earlier onset and exacerbation of asthma.⁴⁷ In addition, research has indicated that the use of electronic smoking devices is associated with asthma in youth.^{57,58} In 2016, 14.3 percent of California adults had been diagnosed with asthma at some point in their lifetime and 8.0 percent still have asthma or have had symptoms in the past year.⁴⁵ CDC recommends that people with asthma reduce their exposure or avoid asthma triggers, which includes tobacco smoke.⁵⁹ However, for more than 580,000 California adults with asthma who live in multi-unit housing,⁴⁵ it is difficult to follow this advice, as tobacco smoke may pass from unit to unit through shared ventilation systems, electrical outlets, plumbing lines, or open windows.

Table 2. Smoking-attributable mortality among female adults aged 35 and over in California, 2016

Disease	Relative Risk (Current Smoker)	Relative Risk (Former Smoker)	Attributable Risk	Total Deaths	Smoking-Attributable Mortality
Cancer:					
Lip, Oral Cavity, Pharynx	5.08	2.29	38.9%	332	129
Esophagus	7.75	2.79	49.4%	319	158
Stomach	1.36	1.32	9.2%	704	65
Pancreas	2.25	1.55	18.6%	2,175	405
Larynx	13.02	5.16	66.1%	60	40
Trachea, Lung, Bronchus	12.69	4.53	64.1%	5,657	3,625
Cervix, Uterus	1.59	1.14	7.5%	449	34
Urinary Bladder	2.22	1.89	23.2%	453	105
Kidney, Other Urinary	1.29	1.05	3.5%	474	16
Acute Myeloid Leukemia	1.13	1.38	8.7%	441	38
Cardiovascular Disease:					
Hypertension	1.69	1.16	8.6%	5,626	486
Ischemic Heart Disease, Age 35 to 64	3.08	1.32	20.9%	1,695	354
Ischemic Heart Disease, Age 65 or Older	1.60	1.20	8.7%	14,204	1,241
Other Heart Disease	1.49	1.14	6.8%	9,456	644
Cerebrovascular Disease, Age 35 to 64	4.00	1.30	26.0%	852	221
Cerebrovascular Disease, Age 65 or Older	1.49	1.03	3.4%	8,132	278
Atherosclerosis	1.83	1.00	6.7%	493	33
Aortic Aneurysm	7.07	2.07	43.1%	352	152
Other Arterial Disease	2.17	1.12	11.3%	401	45
Respiratory Disease:					
Respiratory Tuberculosis	2.18	1.38	15.6%	34	5
Pneumonia, Influenza	2.17	1.10	10.9%	2,985	326
Bronchitis, Emphysema	12.04	11.77	76.9%	336	258
Asthma	2.18	1.38	15.6%	221	35
Chronic Airway Obstruction	13.08	6.78	69.8%	6,614	4,619

Note: Attributable risk (AR) was calculated for each gender using the following formula: $AR = [pc(RRc - 1) + pf(RRf - 1)] / [1 + pc(RRc - 1) + pf(RRf - 1)]$, where pc is the proportion of the population who currently smokes, pf is the proportion of the population who are former smokers, RRc is the relative risk for current smokers, and RRf is the relative risk for former smokers. N/A refers to not applicable. Source: (1) U.S. Department of Health and Human Services. The Health Consequences of Smoking: 50 Years of Progress: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. (2) California Health Interview Survey, 2016. Los Angeles, CA: UCLA Center for Health Policy Research; December 2017. (3) Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database. December 2017; <http://wonder.cdc.gov/ucd-icd10.html>.

Table 3. Smoking-attributable mortality among male adults aged 35 and over in California, 2016

Disease	Relative Risk (Current Smoker)	Relative Risk (Former Smoker)	Attributable Risk	Total Deaths	Smoking-Attributable Mortality
Cancer:					
Lip, Oral Cavity, Pharynx	10.89	3.40	69.3%	734	508
Esophagus	6.76	4.46	66.4%	1,029	683
Stomach	1.96	1.47	22.8%	957	218
Pancreas	2.31	1.15	19.6%	2,238	439
Larynx	14.60	6.34	79.0%	192	152
Trachea, Lung, Bronchus	23.26	8.70	85.3%	6,065	5,175
Cervix, Uterus	N/A	N/A	N/A	N/A	N/A
Urinary Bladder	3.27	2.09	40.9%	1,232	503
Kidney, Other Urinary	2.72	1.73	33.0%	983	324
Acute Myeloid Leukemia	1.86	1.33	19.0%	561	107
Cardiovascular Disease:					
Hypertension	1.85	1.32	18.7%	4,837	905
Ischemic Heart Disease, Age 35 to 64	2.80	1.64	32.8%	5,241	1,718
Ischemic Heart Disease, Age 65 or Older	1.51	1.21	12.0%	16,614	1,996
Other Heart Disease	1.78	1.22	15.8%	8,526	1,347
Cerebrovascular Disease, Age 35 to 64	3.27	1.04	28.3%	1,314	372
Cerebrovascular Disease, Age 65 or Older	1.63	1.04	7.0%	5,265	368
Atherosclerosis	2.44	1.33	24.3%	330	80
Aortic Aneurysm	6.21	3.07	59.1%	570	337
Other Arterial Disease	2.07	1.01	14.0%	341	48
Respiratory Disease:					
Respiratory Tuberculosis	1.99	1.56	24.7%	76	19
Pneumonia, Influenza	1.75	1.36	18.6%	2,869	533
Bronchitis, Emphysema	17.10	15.64	87.7%	340	298
Asthma	1.99	1.56	24.7%	116	29
Chronic Airway Obstruction	10.58	6.80	76.8%	5,887	4,519

Note: Attributable risk (AR) was calculated for each gender using the following formula: $AR = [pc(RRc - 1) + pf(RRf - 1)] / [1 + pc(RRc - 1) + pf(RRf - 1)]$, where pc is the proportion of the population who currently smokes, pf is the proportion of the population who are former smokers, RRc is the relative risk for current smokers, and RRf is the relative risk for former smokers. N/A refers to not applicable. Source: (1) U.S. Department of Health and Human Services. The Health Consequences of Smoking: 50 Years of Progress: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. (2) California Health Interview Survey, 2016. Los Angeles, CA: UCLA Center for Health Policy Research; December 2017. (3) Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database. December 2017; <http://wonder.cdc.gov/ucd-icd10.html>.

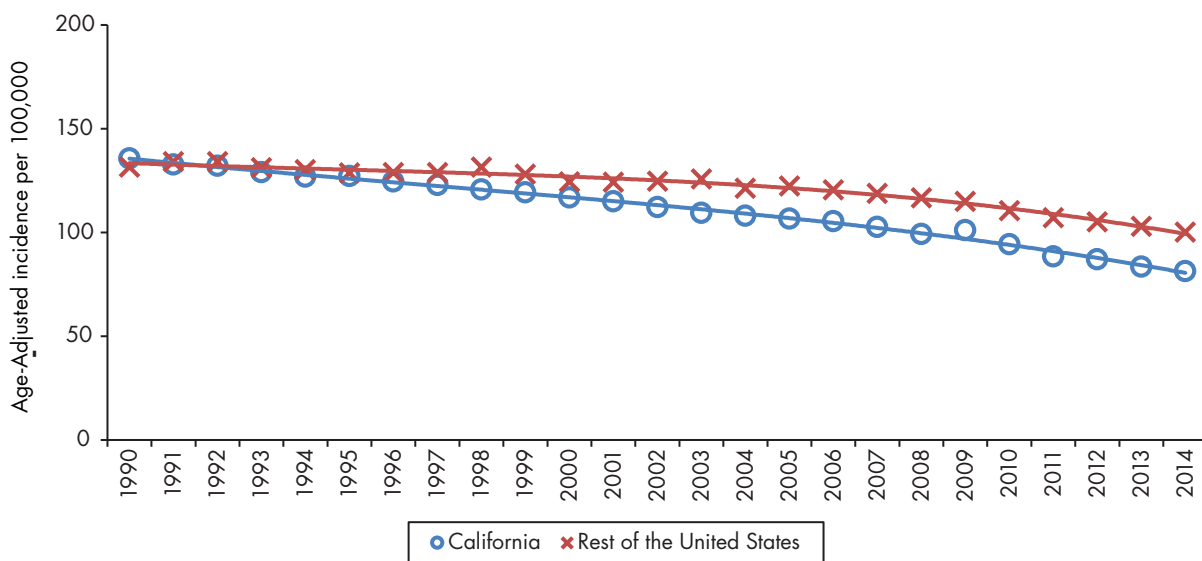
Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease, or COPD, is a lung disease caused by chronic obstruction of airflow with emphysema and chronic bronchitis being the most common conditions. The principal causes of COPD are cigarette smoking and exposure to secondhand smoke.¹⁹ In 2016, the rate of COPD in California was significantly higher among current cigarette smokers (12.7 percent) compared to former and never smokers (4.8 percent); the overall rate of COPD among adults in California is at 5.5 percent.¹⁸

Lung and Bronchus Cancer

Long-term success of California’s tobacco control program is measured by monitoring lung and bronchus cancer rate, as 80 to 90 percent of lung cancers deaths are attributable to smoking.¹⁹ In 2014, there were 16,863 new cases of lung and bronchus cancer in California.⁶⁰ Specifically, California has reduced the incidence (new cases) rate of lung and bronchus cancer twice as fast as the rest of the United States (Figure 12).

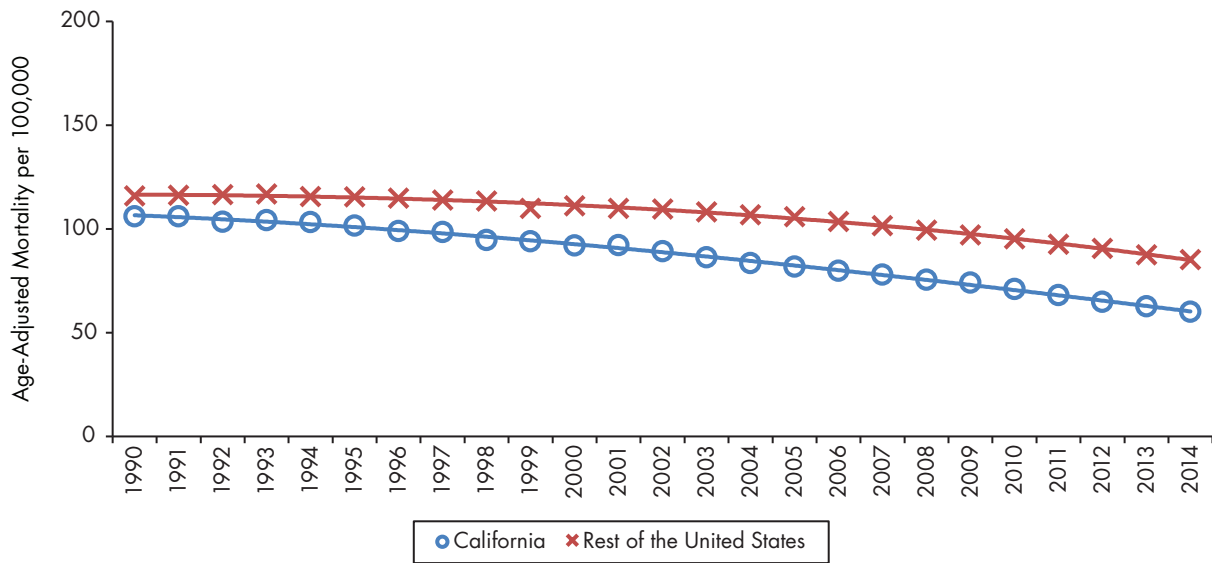
Figure 12. Age-adjusted incidence of lung and bronchus cancer among adults aged 35 or older in California and the rest of the United States, 1990 to 2014



Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.

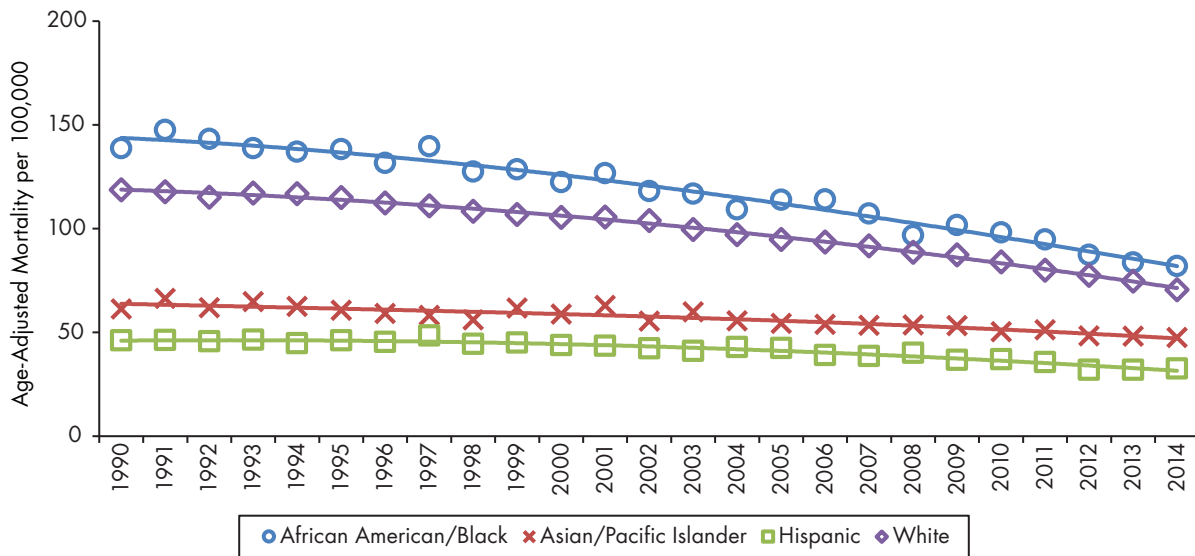
According to data from the California Cancer Registry (Figure 13 to Figure 15),⁶¹ lung and bronchus cancer mortality rate has continued to decline. Although the mortality rate declined for all races and ethnicities, it remains the highest in the White and African American/Black population. California has a similar story for lung and bronchus cancer mortality broken down by gender, where lung and bronchus cancer mortality in California males declined faster than the rest of the United States.

Figure 13. Age-adjusted mortality of lung and bronchus cancer among adults aged 35 or older in California and the rest of the United States, 1990 to 2014



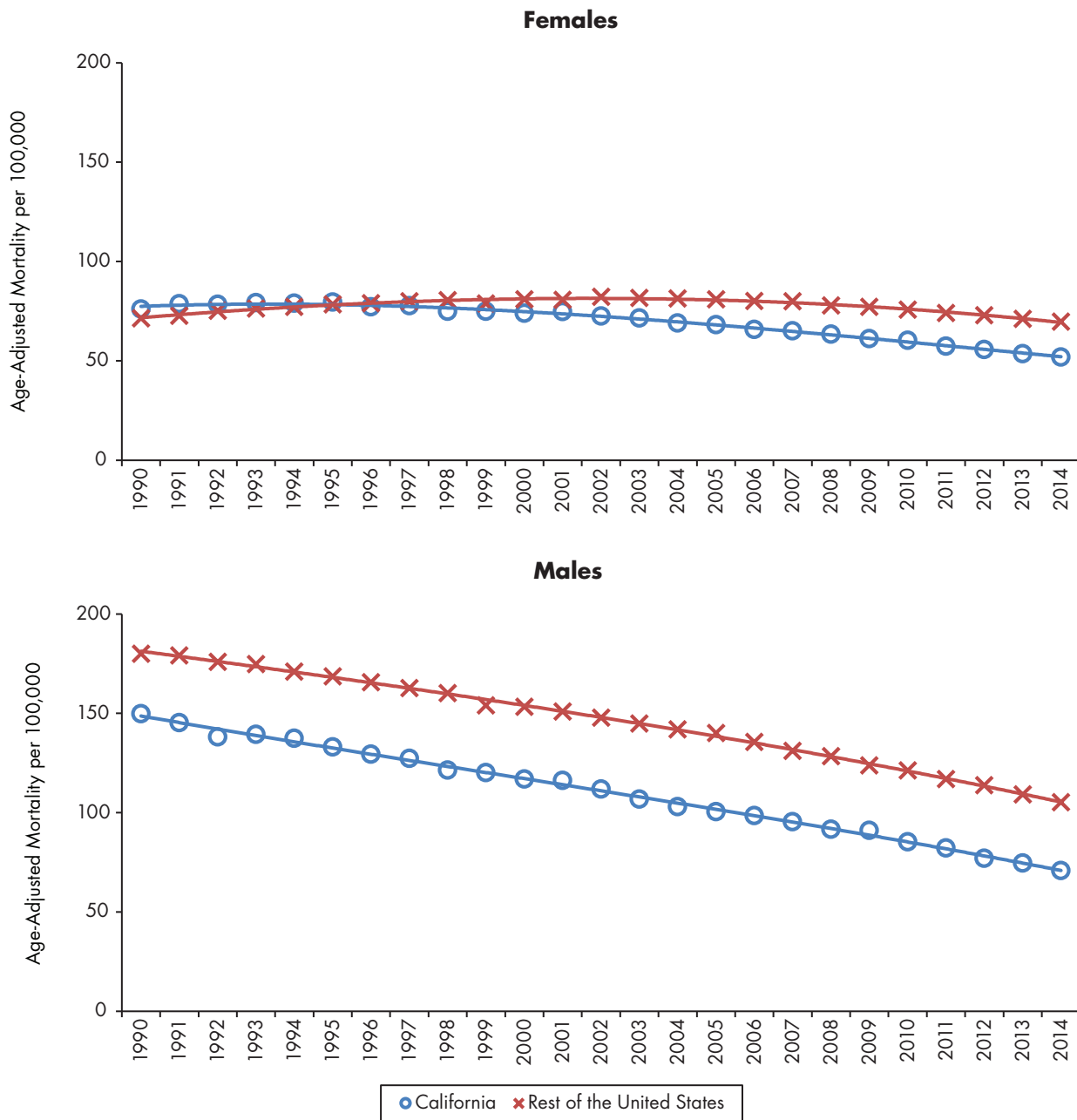
Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.

Figure 14. Age-adjusted mortality of lung and bronchus cancer among adults aged 35 or older in California by race/ethnicity, 1990 to 2014



Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.

Figure 15. Age-adjusted mortality of lung and bronchus cancer among adults aged 35 or older in California and the rest of the United States by gender, 1990 to 2014



Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.

Economics of Tobacco

The first excise tax on tobacco in California was passed by the State Legislature in 1959. This excise tax was increased from \$0.10 per pack of cigarettes to \$0.35 per pack of cigarettes when 58.2 percent of California voters approved Proposition 99 in 1988. Proposition 99 was a landmark ballot initiative. It established the first and largest comprehensive tobacco control program in the United States in 1989.⁶² In 1998, California voters approved Proposition 10 that raised the state excise tax to \$0.87 per pack of cigarettes.

The state excise tax remained at \$0.87 per pack of cigarette for nearly two decades and was ranked 37th in the United States in tobacco taxation until California voters approved Proposition 56 in 2016.⁶³ Proposition 56 was overwhelmingly passed by 64 percent of voters. It increased the tobacco excise tax by \$2 per pack of cigarettes, bringing the tobacco tax in California to \$2.87 per pack of cigarettes. The California State Board of Equalization, which has since been restructured as the California Department of Tax and Fee Administration, set the proportional tax rate for other tobacco product at 65.08 percent of the wholesale cost for fiscal year 2017-2018.⁶⁴ Between the passage of Proposition 10 in 1998 and Proposition 56 in 2016, two other tobacco tax initiatives were defeated by voters: Proposition 86 in 2006 and Proposition 29 in 2012.

Based on studies about the impact of tobacco taxes,^{65,66} Proposition 56 is estimated to save billions of dollars in future health care expenditures by decreasing cigarette smoking and exposure to secondhand smoke. It is estimated that health care expenditure savings resulting from Proposition 56 will be \$4.1 billion by 2020.⁶⁵ The most recent estimate of the economic burden of smoking in California is approximately \$18.1 billion in 2009.⁶⁷

Tobacco Industry and Tobacco Control Expenditures

The tobacco industry has consistently outspent tobacco control efforts since the California Tobacco Control Program was established in 1989. Industry efforts have included marketing, lobbying state and local legislators, funding community programs and scholarships, and leveraging on California's movie and entertainment industry. This makes it challenging to maintain a social norm in which tobacco is less desirable, less acceptable, and less accessible.

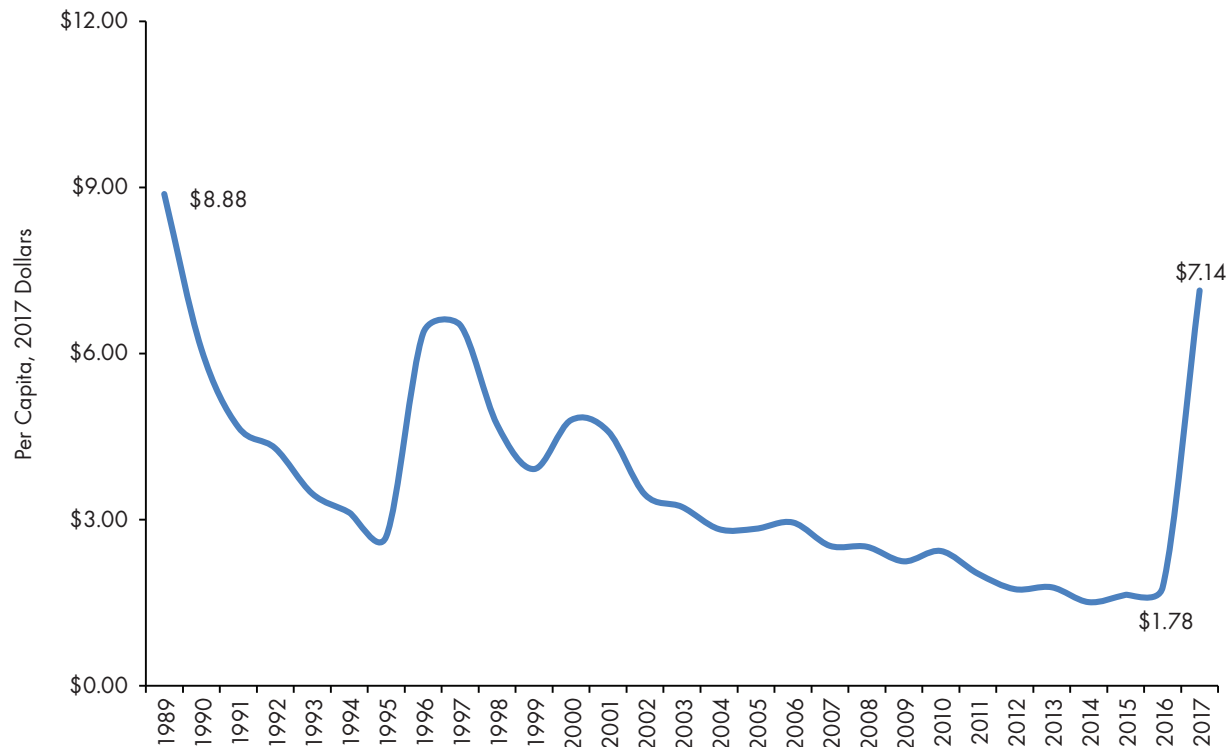
Tobacco Industry Expenditures

Nationally in 2016, the tobacco industry spent \$9.5 billion on cigarette and smokeless tobacco advertising and promotional expenditures.^{68,69} Advertising expenditures for electronic smoking devices are estimated to be \$115.3 million in 2014.⁷⁰ The tobacco industry provides direct contributions to state legislators, constitutional officers, political committees, and candidates in addition to the industry's lobbying efforts.⁷¹ Opponents of Proposition 56 contributed approximately \$71.0 million, with \$69.3 million coming from the two largest cigarette manufacturers and their affiliates.⁷²

California Tobacco Control Expenditures

In fiscal year 1989-1990, the California Tobacco Control Program was allotted \$95.3 million (\$6.45 per capita in 2017 dollars) and the California Department of Education was allotted \$36.0 million (\$2.44 per capita in 2017 dollars) for tobacco control efforts. In fiscal year 2017-2018, the overall tobacco control allocation was \$282.3 million (\$7.14 per capita in 2017 dollars as depicted in Figure 16) which is 4.1 times higher than the previous fiscal year's allocation of \$68.4 million (\$1.78 per capitain 2017 dollars) due to Proposition 56.⁷³

Figure 16. Per capita expenditure for tobacco control in California, 1989 to 2017



Note: Tobacco control expenditures are expenditures from only the Health Education Account for the California Tobacco Control Program and California Department of Education, standardized to the United States 2017 dollar based on the Consumer Price Index. Source: (1) Health Education Account. Sacramento, CA: California Department of Public Health; 2016. (2) California Department of Public Health. California Department of Public Health Funding for the California Tobacco Control Program. 2017; <https://www.cdph.ca.gov/Programs/CCDC/DCIC/CTCB/CDPH%20Document%20Library/AboutUS/ProgramBudget/Prop9956Budget20172018.PDF>.

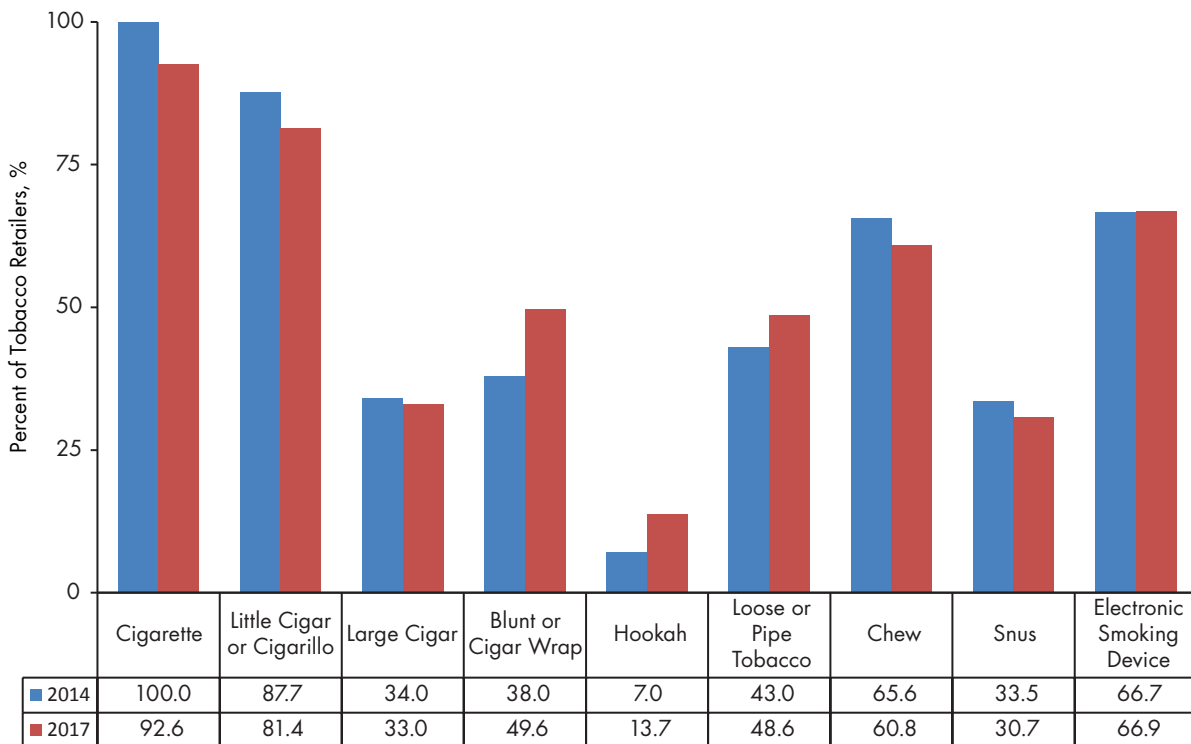
The Tobacco Retail Environment

There are over 33,000 tobacco retailers located in California, which includes vape shops.⁷⁴ Limiting the number of tobacco retailers is important in de-normalizing tobacco use.⁷⁵ Two areas commonly highlighted in reducing tobacco retailer density include reducing the number of pharmacies selling tobacco, including grocery stores with a pharmacy counter, and reducing the number of tobacco retailers near youth-sensitive areas such as schools and parks.⁷⁵⁻⁷⁷ In California, 32.5 percent of California pharmacies continue to sell tobacco products.^{78,79} Almost one in four California public schools (23.2 percent) are within 500 feet of a tobacco retailer according to the Stanford Prevention Research Center.⁸⁰

Product Availability and Retail Marketing

Cigarettes remain the most widely available tobacco product in the retail environment, followed by little cigars or cigarillos and electronic smoking devices (Figure 17).⁸¹ The availability of both menthol cigarettes and flavored tobacco products remains an issue. A majority of California tobacco retailers continue to sell flavored products.^{81,82}

Figure 17. Product type availability at tobacco retailers in California, 2014 to 2017



Note: Adapted with permission from the Stanford Prevention Research Center. Sampling criteria changed from 2014 and 2017, with eligibility change from retailers selling cigarettes to retailers selling any tobacco product. Source: Schleicher N, Johnson T, Rigdon J, Desai M, Ababseh K, Henriksen L. California Tobacco Retail Surveillance Study, 2017. Stanford, CA: Stanford Prevention Research Center; 2017.

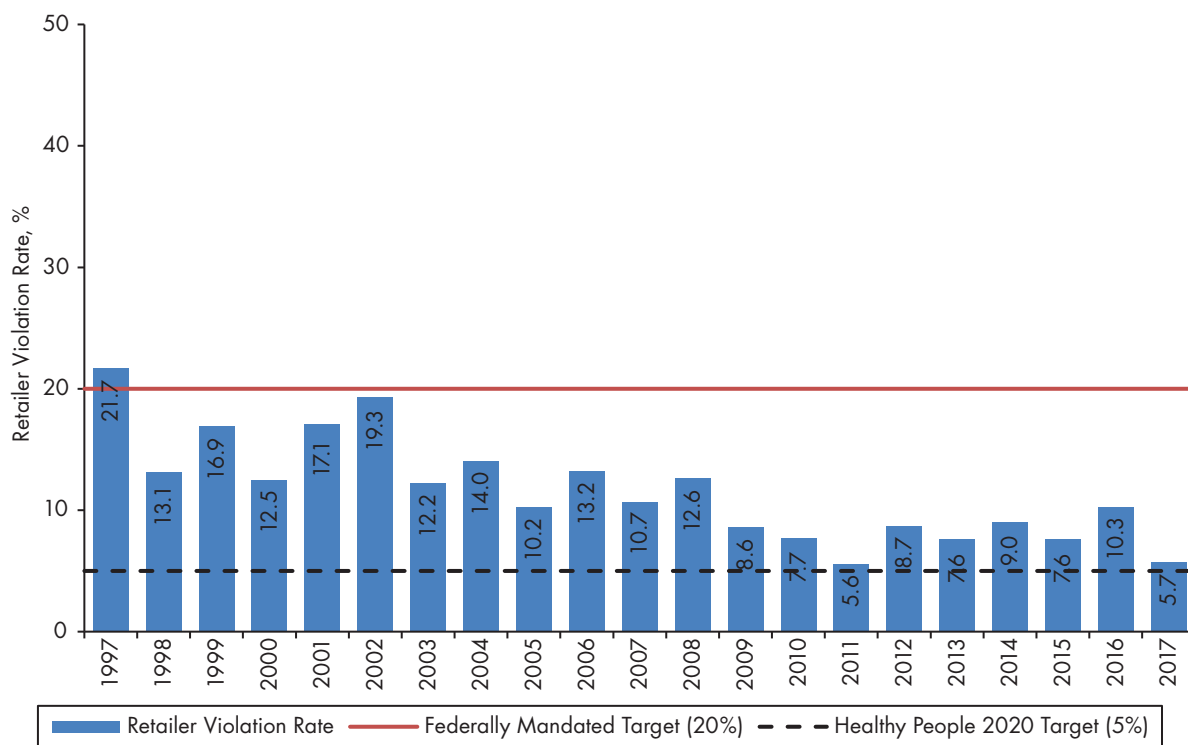
The tobacco industry spends more of their marketing dollars on in-store marketing than any other industry.⁸³ Because in-store marketing is visible to everyone, these materials remain a point-of-contact between non-smokers and the tobacco industry and is a factor in smoking initiation.⁸⁴ The placement of these advertisements makes them easy for children to see. The percentage of tobacco retailers in California displaying interior tobacco advertising below three feet is at 25.4 percent in 2017.⁸¹ Furthermore, retailers located in neighborhoods with an above average proportion of African Americans/Blacks contained more tobacco marketing materials.⁸³ This was not found in neighborhoods with high populations of other race/ethnicity groups, suggesting tobacco companies tailor marketing strategies to target specific populations.

Synar Amendment and STAKE Act Compliance

Most adult smokers reported that they began smoking cigarettes while they were minors.¹⁹ Preventing the sale of cigarettes to minors is thus important in reducing the number of adult cigarette smokers. California tracks retailer violations of tobacco sales to minors under 18 years old using the Youth Tobacco Purchase Survey

(YTPS), in compliance with Section 1926 (Synar Amendment) of the Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act of 1992. In 1997, 21.7 percent of retailers sold tobacco to minors, just above the federally mandated target of 20.0 percent, though this was about half the national rate. The rate has been below the federally mandated target since 1998 (Figure 18).⁸⁵ The rate observed in 2017 is 5.7 percent, a statistically significant decrease from 10.3 percent in 2016. Looking more in-depth, tobacco-only stores continue to have the highest retailer violation rate (12.0 percent) when compared to other retailers (4.9 percent).

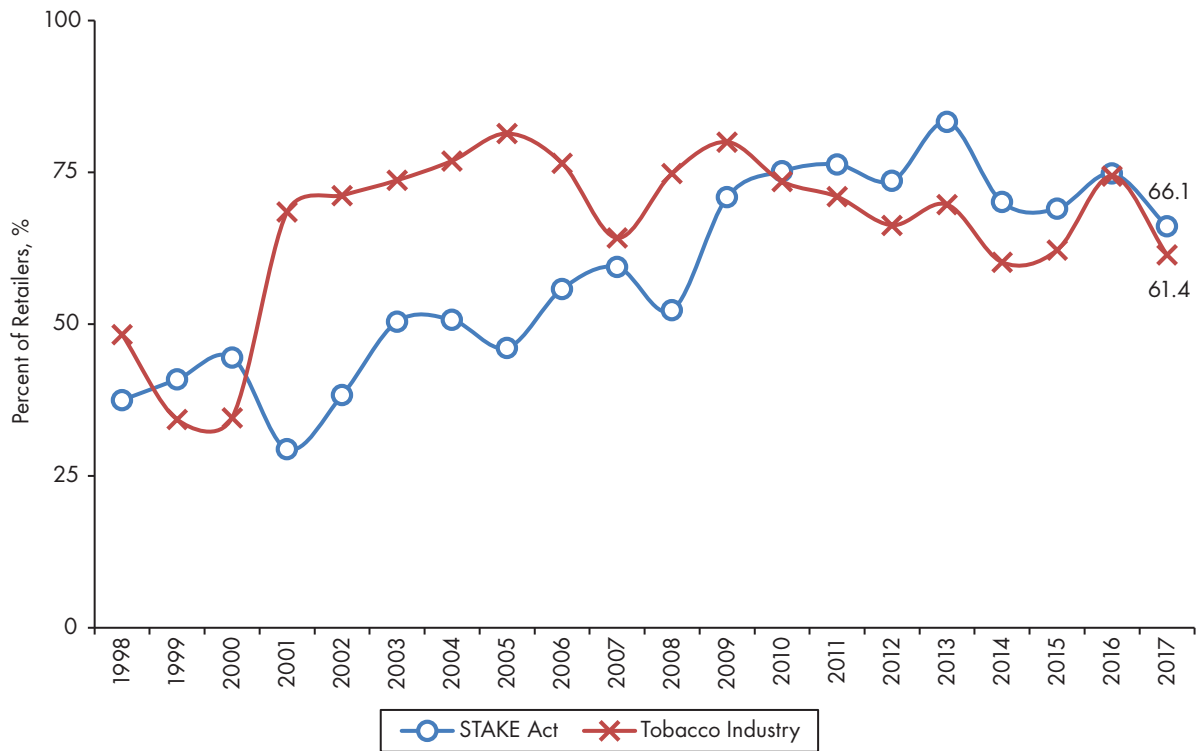
Figure 18. Percent of tobacco retailers selling tobacco to minors under the age of 18, 1997 to 2017



Note: The protocol is based on actual buys and not attempted buys. YTPS 2016 was conducted before the effective date that changed the minimum purchase age from 18 to 21. Source: California Department of Public Health, California Tobacco Control Program. Youth Tobacco Purchase Survey, 1997-2017. Sacramento, CA: California Department of Public Health; December 2017.

YTPS also assesses compliance with the signage requirements in the California Business and Professions Code Section 22952, referred as the Stop Tobacco Access to Kids Enforcement Act (STAKE Act). The STAKE Act, enacted in 1994 and effective in 1995, requires that any retailers selling tobacco products must post a clearly visible sign at each cash register where tobacco products are sold indicating that tobacco sales are limited to adults age 21 and older. The vast majority of tobacco industry signs do not meet STAKE Act sign compliance and may compromise public health and law enforcement goals, in addition to violating article 5.3 of the Framework Convention on Tobacco Control.⁸⁶ Usage of STAKE Act signage has increased steadily since 2001 as shown in Figure 19.⁸⁷

Figure 19. Percent of retailers displaying STAKE Act warning signs and tobacco industry age-of-sale warning signs, 1998 to 2017



Note: The definition of a STAKE Act sign changed in 2006 to include non-California Department of Public Health signs that still met the legal requirements. Source: California Department of Public Health, California Tobacco Control Program. Youth Tobacco Purchase Survey, 1998-2017. Sacramento, CA: California Department of Public Health; December 2017.

Implementation of Tobacco 21

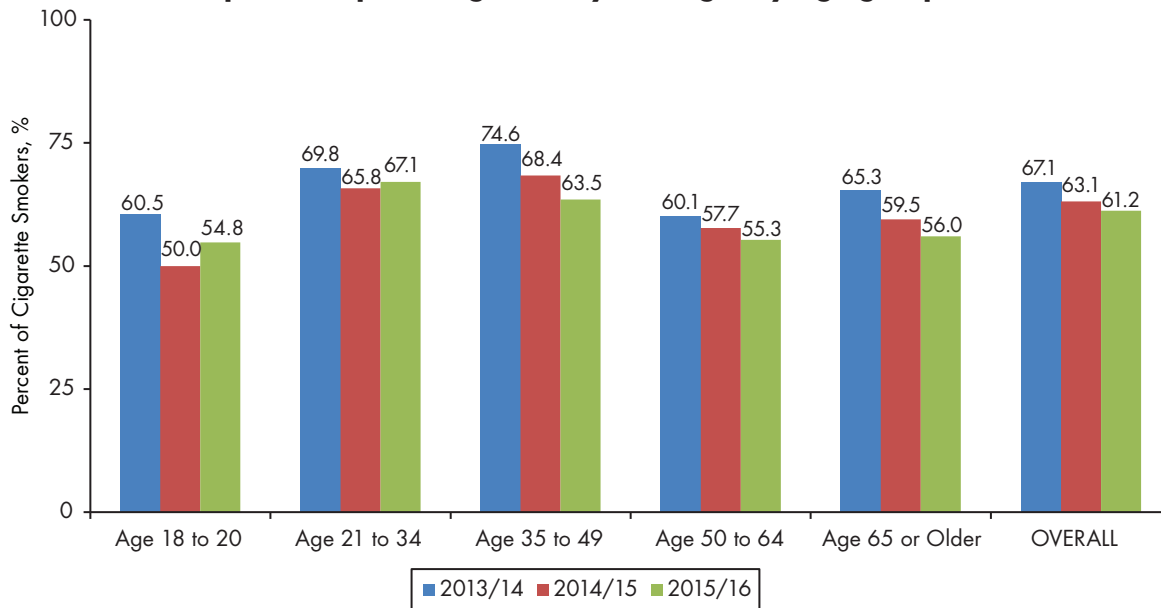
In June 2016, California law increased the minimum legal age of sale for tobacco from 18 to 21, called “Tobacco 21.” In January 2017, approximately seven months after the effective date of the new law, tobacco retailers in California were surveyed to assess the implementation of Tobacco 21, with interviews conducted to owners and workers in management, supervisory, and non-supervisory positions. The survey found that 98.6 percent of retailers were aware of Tobacco 21.⁸⁸ However, despite the high percentage of retailers being aware of Tobacco 21, only 63.6 percent of young adults aged 18 to 24 years old surveyed in the Online CATS indicated that they were aware of the new law.⁸⁸

Furthermore, two additional purchase surveys were conducted using young adults aged 18 and 19 years old to gather retailer violation rates for the underage sale of conventional tobacco and electronic smoking devices. The retail violation rate for sales to young adults was 14.2 percent for conventional tobacco and 13.1 percent for electronic smoking devices.⁸⁸

Tobacco Cessation

Cessation is the goal to prevent or minimize adverse health effects from tobacco. It is also a successful measure of a tobacco control program, policy, or intervention. Quitting successfully is a major challenge for smokers. Past studies found that former smokers recalled an average of 4.7 quit attempts before successful cessation.⁸⁹ According to data from the pooled CHIS 2015-16, 72.6 percent of adult smokers in California thought about quitting in the next six months and 58.3 percent made an attempt in the past year.^{90,91} The percentage of adult smokers in California making a quit attempt is higher among non-daily smokers than daily smokers (68.9 and 52.2 percent, respectively).⁹¹ When quit attempts are examined by Medi-Cal status, 61.2 percent of smokers covered by Medi-Cal in California made an attempt in the past year (Figure 20).⁹¹ Additionally, 45.1 percent of current and former California high school smokers reported making a quit attempt in the past year.²⁵

Figure 20. Percent of current adult cigarette smokers in California covered by Medi-Cal who made a quit attempt lasting one day or longer by age group, 2013-14 to 2015-16



Note: Restricted to respondents aged 18 or older and are current smoker. Respondents were asked if they are currently covered by Medi-Cal. Data from 2013 and 2014 were pooled together. Data from 2014 and 2015 were pooled together. Data from 2015 and 2016 were pooled together. **Source:** UCLA Center for Health Policy Research. AskCHIS 2013-2014, AskCHIS 2014-2015, and AskCHIS 2015-2016: Current Smokers Who Stopped Smoking for One or More Days in Past Year to Quit for Adults Age 18 or Older by Medi-Cal Coverage Status. <http://ask.chis.ucla.edu/>. Accessed February 23, 2018.

Cessation Advice and Interventions

Collectively, there has been a steady increase in the use of cessation treatment and/or nicotine replacement therapy nationwide.⁹² As shown in Table 4, in 2017, 67.0 percent of California smokers aged 18 to 64 reported attempting to quit smoking without assistance (“cold turkey”) during the past year.⁴⁴ Furthermore, despite not being an approved method of smoking cessation by the FDA,⁹³ 14.6 percent reported using electronic smoking devices as a quitting method.

Table 4. Method used to quit cigarette smoking in the past year among adults in California aged 18 to 64, 2016 to 2017

Method	2016	2017
Quit Cold Turkey	67.4%	67.0%
Medication (e.g. Chantix, Zyban)	6.7%	5.7%
Nicotine Patches, Gum, or Lozenges	18.5%	19.2%
Counseling	4.1%*	5.6%
Self-Help Materials	5.9%	10.6%
California Smokers' Helpline (1-800-NO-BUTTS)	7.3%*	4.6%*
Electronic Smoking Devices	19.5%	14.6%

Note: Restricted to respondents aged 18 to 64. Respondents were asked the method used to quit smoking cigarettes in their last attempt. Percentages will not add up to 100 percent as smokers could use multiple methods of quitting. Weighted to the 2015 Current Population Survey California population. An asterisk (*) indicates caution should be used when interpreting the data as the relative standard error is between 30 and 50 percent. A dagger (†) indicates data is suppressed as the relative standard error is larger than 50 percent or the analytic sample size was less than 50. Source: California Department of Public Health, California Tobacco Control Program. Online California Adult Tobacco Survey, 2016-2017. Sacramento, CA: California Department of Public Health; October 2017.

Research shows that health care professionals play a critical role in getting patients to quit smoking.^{94,95} In 2017, 72.2 percent of adult cigarette smokers aged 18 to 64 in California reported seeing a physician in the past year but about half (43.4 percent) did not advise them to stop smoking.⁴⁴ It is essential that physicians and other health care professionals be prepared to ask patients about tobacco use, advise patients to quit, assess the patients willingness to make a quit attempt, assist and refer patients to resources to help with quitting, and to arrange for follow up.⁹⁴

California Smokers' Helpline

The California Smokers' Helpline is a free statewide telephone-based tobacco cessation program. In response to changing demographics and technology, the Helpline also offers text messaging, chat sessions, and a free, downloadable mobile app.

Clinical trials consistently demonstrate that telephone counseling doubles the odds of successful long-term quitting.^{96,97} Table 5 presents a demographic profile of the Helpline's 2017 callers.⁹⁸ Most were people between ages of 45 and 64, with only 3.3 percent under the age of 25. Additionally, the most common referral source of calls to the Helpline in 2017 was mass media (42.8 percent), followed by the health care industry (24.4 percent), and friends or family (10.9 percent).⁹⁹

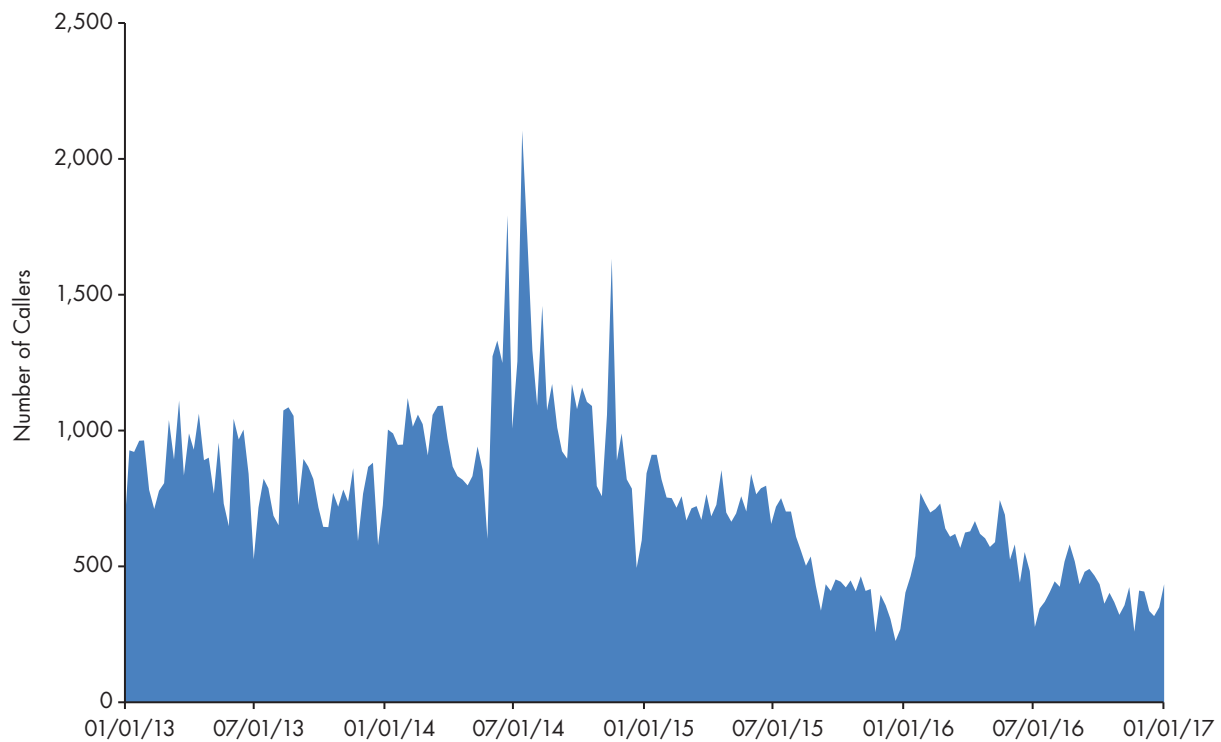
Figure 21 depicts the number of weekly intake calls from 2013 to 2016,¹⁰⁰ with the Helpline documenting roughly 39,000 intake calls annually. In 2014, a large spike in calls was observed which was due to the Medi-Cal Incentives to Quit Smoking program, a major educational outreach campaign targeting Medi-Cal beneficiaries.

Table 5. Demographic profile of adult smokers calling the California Smokers' Helpline, 2017

Demographic	Percent of Adult Smokers Calling Helpline	Percent of Total Adult Smokers
Sex:		
Female	56.3%	36.3%
Male	43.7%	63.7%
Age Group:		
Age 18 to 24	3.3%	11.2%
Age 25 to 44	30.4%	41.8%
Age 45 to 64	52.3%	37.2%
Age 65 or Older	14.1%	9.8%
Race/Ethnicity:		
African American/Black	16.9%	9.4%
American Indian	1.7%	0.9%
Asian/Pacific Islander	6.0%	10.1%
Hispanic/Latino	19.4%	32.7%
White	50.3%	43.7%
Other	5.8%	3.2%

Note: Percentages may not add up to 100 percent due to rounding. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. The American Indian population include Alaska Native. Source: (1) California Smokers' Helpline. Helpline Caller Intake Reports of Adult Smokers, 2017 (unpublished). La Jolla, CA: California Smokers' Helpline; 2018. (2) UCLA Center for Health Policy Research. AskCHIS 2015-2016: Select Demographics by Smoking Status for Adults Age 18 or Older. <http://ask.chis.ucla.edu>. Accessed April 23, 2018.

Figure 21. Number of callers to the California Smokers' Helpline by week, 2013 to 2016



Source: Helpline Caller Intake, 2013-2016 (unpublished). La Jolla, CA: California Smokers' Helpline; 2017.

Technical Notes

Data analysis conducted for this report were generated using SAS version 9.4 (SAS Institute; Cary, NC). Analysis accounted for the sampling design for each survey, including sampling weight, stratification, clustering, and non-response adjustments. The maps in this report were created using the ArcGIS Desktop version 10.5 (Esri; Redlands, CA).

Data Sources

Several data sources are used in this publication. Each data source is based on a different survey or surveillance tool, and therefore may report slightly different estimates. However, these differences are not statistically significant, and represent the most accurate and complete picture of tobacco use in California to the best of our knowledge. Caution should be exercised when comparing data from different surveys.

A brief description of each major survey used in this report is found below; however, a more detailed survey description, methodology, and limitations for each survey can be found elsewhere.

- **Behavioral Risk Factor Surveillance System (BRFSS)**: The California Behavioral Risk Factor Survey is California's component to the nationwide BRFSS. The survey is an annual random-dial telephone health survey that assesses health-related risk behaviors, chronic health conditions, and preventive service usage. More information can be found here: <http://www.csus.edu/research/phsrp/brfss.html>.
- **California Cancer Registry**: The California Cancer Registry is a statewide population-based cancer surveillance system. The State of California mandates that all cancer diagnosed in California to be reported to the registry since 1988. The California Cancer Registry monitors the incidence and mortality of cancer among Californians from patient's medical records. More information can be found here: <http://www.ccrca.org/>.
- **California Health Interview Survey (CHIS)**: CHIS is an annual random-dial telephone health survey. Due to the sample design of CHIS, county-level estimates are available for medium- and large-sized counties and groups of small-sized counties. AskCHIS is a free online query system developed by the UCLA Center for Health Policy Research that allows the public to analyze most variables in the CHIS datasets. Previously reported data using CHIS 2014 and CHIS 2015 may differ due to corrections made by the UCLA Center for Health Policy Research in the summer of 2017. More information can be found here: <http://healthpolicy.ucla.edu/chis/pages/default.aspx>.
- **California Smokers' Helpline (Helpline)**: The Helpline is a free statewide telephone-based tobacco cessation program. Services provided include telephone counseling and providing self-help materials in English, Spanish, Mandarin, Cantonese, Korean, and Vietnamese. Demographical data from participants are collected for population research. More information can be found here: <https://www.nobutts.org/>.
- **California Student Tobacco Survey (CSTS)**: CSTS is a large-scale, in-school survey of tobacco use among California middle (grades 6-8) and high school (grades 9-12) students, typically conducted every two to three years. The purpose of the survey is to assess behavior and attitudes regarding tobacco usage.

- **California Tobacco Retail Surveillance Study (CTRSS)**: CTRSS, formerly the California Tobacco Advertising Survey (CTAS) from 2008 to 2014, is designed to assess retail availability, promotion and placement of tobacco products, and marketing materials for tobacco products. The survey also assesses the availability and promotion of flavored tobacco products as well as electronic smoking devices.
- **Healthy Store for a Healthy Community (HSHC)**: HSHC is a retail environment study measured the availability of a range of unhealthy and healthy products, as well as marketing practices for tobacco, alcohol, food and beverage items, and condoms. The HSHC survey was first conducted in 2013, with a follow-up conducted in 2016. More information can be found here: <http://healthystoreshealthycommunity.com/>.
- **Online California Adult Tobacco Survey (Online CATS)**: Online CATS is an online health survey aimed at assessing tobacco-related behaviors and attitudes of California adults aged 18 to 64. The survey also assesses awareness and attitudes toward electronic cigarettes. The first survey was conducted in 2016.
- **Youth Tobacco Purchase Survey (YTPS)**: YTPS is an annual statewide survey with the purpose of capturing the percentage of retailers who sell tobacco to youth under 18 from a randomly selected sample of tobacco retail outlets. YTPS is performed by underage inspectors who attempt to purchase tobacco in unannounced checks. More information can be found here: <http://www.csus.edu/isr/projects/ytps.html>.

Data Suppression

Data is suppressed following similar guidelines from the National Center for Health Statistics for the Healthy People program.¹⁰¹ Estimates with a relative standard error larger than 50 percent are suppressed as the estimates are unstable to display; estimates with a relative standard error between 30 and 50 percent are presented and marked with an asterisk, unless otherwise noted, and caution should be used when interpreting the data.

Erratum Notice

The percentages for each secondhand aerosol locations in Figure 10 were revised from previous versions of California Tobacco Facts and Figures due to an inadvertent subset of the population of interest. The following percentage change are detailed below:

- Sidewalk changed from 35.5 percent to 34.1 percent
- Home changed from 14.5 percent to 14.0 percent
- Shopping malls or stores changed from 15.8 percent to 15.2 percent
- Workplace changed from 11.9 percent to 11.4 percent
- Outdoor recreation areas changed from 13.1 percent to 12.6 percent
- Other changed from 7.5 percent to 12.6 percent

Fiscal year 2016-2017 and fiscal year 2017-2018 expenditure data in the California Tobacco Control Expenditure section were also revised.

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Appendix

The appendix for the *California Tobacco Facts and Figures 2018* contains additional tables for data used to create maps or data that are not presented in the report.

Appendix Table 1. Adult cigarette smoking rates in California and the rest of the United States, 1988 to 2016

Year	California	Rest of the United States
1988	23.7%	N/A
1989	22.1%	N/A
1990	20.4%	N/A
1991	20.2%	N/A
1992	21.0%	N/A
1993	19.2%	N/A
1994	17.6%	N/A
1995	16.9%	N/A
1996	17.8%	24.1%
1997	17.4%	23.7%
1998	17.5%	23.5%
1999	17.1%	23.1%
2000	16.3%	23.1%
2001	16.4%	23.6%
2002	15.8%	23.5%
2003	15.4%	23.0%
2004	14.6%	21.6%
2005	14.0%	21.3%
2006	13.3%	20.4%
2007	13.8%	20.2%
2008	13.3%	19.2%
2009	13.1%	18.8%
2010	11.9%	17.9%
2011	12.0%	21.0%
2012	12.7%	19.8%
2013	11.7%	19.0%
2014	11.6%	18.1%
2015	10.5%	17.5%
2016	11.4%	17.1%

Note: Restricted to respondents aged 18 or older. Respondents were asked to report cigarette smoking behavior. An adjustment was made to address the change of smoking definition in 1996 that included more occasional smokers. The weighting methodology changed in 2012 for California but changed for the rest of the United States in 2011. Data is weighted to the 2000 California population from 1988-2011 and to the 2010 California population since 2012. Source: California Department of Public Health, California Tobacco Control Program. Behavioral Risk Factor Surveillance System, 1988-2016. Sacramento, CA: California Department of Public Health; March 2018.

Appendix Table 2. Adult cigarette smoking rates in California by county, 2014-16

County	Cigarette Smoking Rate
Alameda	11.5%
Alpine	12.6%
Amador	12.6%
Butte	15.9%
Calaveras	12.6%
Colusa	18.9%
Contra Costa	12.6%
Del Norte	24.7%
El Dorado	15.9%
Fresno	19.1%
Glenn	18.9%
Humboldt	14.4%
Imperial	10.2%
Inyo	12.6%
Kern	14.7%
Kings	13.9%
Lake	25.5%
Lassen	15.3%
Los Angeles	11.6%
Madera	10.6%
Marin	8.9%
Mariposa	19.2%
Mendocino	15.0%
Merced	16.4%
Modoc	15.3%
Mono	12.6%
Monterey	10.6%
Napa	15.6%
Nevada	15.3%
Orange	11.1%
Placer	9.0%
Plumas	15.3%
Riverside	11.8%
Sacramento	15.9%
San Benito	10.5%
San Bernardino	13.8%
San Diego	11.0%
San Francisco	10.8%
San Joaquin	13.8%
San Luis Obispo	13.0%

Appendix Table 2. (Continued)

County	Cigarette Smoking Rate
San Mateo	6.7%
Santa Barbara	11.1%
Santa Clara	8.6%
Santa Cruz	10.5%
Shasta	20.6%
Sierra	15.3%
Siskiyou	24.7%
Solano	11.5%
Sonoma	12.7%
Stanislaus	16.5%
Sutter	14.9%
Tehama	18.9%
Trinity	24.7%
Tulare	16.9%
Tuolumne	19.2%
Ventura	10.4%
Yolo	11.5%
Yuba	22.3%
STATEWIDE	12.2%

Note: Restricted to respondents aged 18 or older. Respondents were asked to report cigarette smoking behavior. Data from 2014, 2015, and 2016 were pooled together. Several counties were grouped together to produce stable estimates: (1) Del Norte, Siskiyou, and Trinity; (2) Lassen, Modoc, Plumas, and Sierra; (3) Colusa and Glenn; (4) Solano and Yolo; (5) Alpine, Amador, Calaveras, Inyo, and Mono; and (6) Mariposa and Tuolumne. Source: California Health Interview Survey, 2014-2016. Los Angeles, CA: UCLA Center for Health Policy Research; December 2017.

Appendix Table 3. Age-adjusted incidence of lung and bronchus cancer among adults aged 35 or older in California and the rest of the United States per 100,000, 1990 to 2014

Year	California	Rest of the United States
1990	135.7	131.6
1991	132.8	134.2
1992	132.2	134.1
1993	129.1	131.2
1994	126.9	130.3
1995	127.3	128.7
1996	124.6	128.9
1997	122.9	128.9
1998	120.7	131.6
1999	119.3	128.2
2000	116.9	124.5
2001	115.0	124.3
2002	112.2	124.8
2003	109.5	125.9
2004	108.1	121.3
2005	106.7	122.5
2006	105.4	120.6
2007	102.7	118.9
2008	99.3	116.7
2009	101.1	115.0
2010	94.3	110.5
2011	88.5	107.2
2012	87.1	105.2
2013	83.5	103.0
2014	81.4	100.3

Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; 2017.

Appendix Table 4. Age-adjusted mortality of lung and bronchus cancer among adults aged 35 or older in California and the rest of the United States per 100,000, 1990 to 2014

Year	California	Rest of the United States
1990	106.1	116.0
1991	106.1	116.3
1992	103.4	116.5
1993	104.3	116.8
1994	103.3	115.7
1995	101.6	115.5
1996	99.0	114.8
1997	98.5	114.0
1998	94.7	113.5
1999	94.1	110.0
2000	92.0	111.2
2001	92.2	110.0
2002	89.2	109.7
2003	86.4	108.3
2004	83.6	106.8
2005	81.8	105.9
2006	79.9	103.6
2007	78.0	101.6
2008	75.5	99.5
2009	74.1	97.1
2010	71.1	95.3
2011	68.1	92.6
2012	64.9	90.6
2013	62.7	87.6
2014	60.1	85.2

Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.

Appendix Table 5. Age-adjusted incidence of lung and bronchus cancer among adults aged 35 or older in California by race/ethnicity per 100,000, 1990 to 2014

Year	African American/ Black	Asian/Pacific Islander	Hispanic/Latino	White
1990	181.2	88.1	77.4	147.7
1991	175.2	82.0	73.0	145.9
1992	171.2	90.3	71.7	145.4
1993	168.0	82.7	72.9	142.1
1994	158.2	79.6	65.5	142.4
1995	170.6	81.7	71.8	141.1
1996	166.5	79.1	66.6	139.1
1997	159.5	84.2	66.4	137.8
1998	159.1	82.8	69.5	134.7
1999	155.5	78.9	65.1	134.8
2000	151.3	83.7	61.7	132.6
2001	149.3	82.9	61.7	130.7
2002	141.7	77.2	64.0	127.6
2003	149.0	80.5	62.4	123.7
2004	143.6	77.3	63.3	123.0
2005	150.1	78.7	60.7	121.1
2006	141.8	77.2	58.4	121.3
2007	131.9	73.4	58.0	119.6
2008	127.9	73.5	57.4	115.3
2009	137.8	76.6	57.9	116.4
2010	127.1	71.4	54.7	109.5
2011	115.6	70.1	50.7	103.1
2012	114.0	71.4	48.0	101.8
2013	105.6	69.5	49.1	97.0
2014	109.0	65.4	46.5	95.7

Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.

Appendix Table 6. Age-adjusted mortality of lung and bronchus cancer among adults aged 35 or older in California by race/ethnicity per 100,000, 1990 to 2014

Year	African American/Black	Asian/Pacific Islander	Hispanic/Latino	White
1990	138.8	61.3	46.2	118.7
1991	147.6	66.5	46.4	117.9
1992	143.3	62.0	45.8	115.3
1993	138.9	64.9	46.5	117.2
1994	137.2	62.6	44.8	116.9
1995	138.3	60.8	46.3	115.1
1996	131.7	59.2	45.4	112.4
1997	139.7	58.3	48.5	111.1
1998	127.6	56.2	44.5	108.5
1999	128.7	61.8	45.1	106.9
2000	122.5	58.9	43.9	105.5
2001	126.8	63.0	43.6	105.7
2002	118.1	55.5	42.4	104.0
2003	116.9	60.0	41.1	99.7
2004	109.4	55.6	43.0	97.1
2005	114.0	54.4	42.5	94.9
2006	114.2	53.9	39.2	93.6
2007	107.4	53.5	38.7	91.7
2008	96.8	53.6	40.3	88.7
2009	101.8	53.4	36.9	87.5
2010	98.3	50.4	37.2	84.0
2011	94.9	51.4	35.8	80.0
2012	87.4	48.4	32.1	77.6
2013	83.7	48.2	32.0	74.8
2014	82.0	47.6	32.7	70.7

Note: Rates are per 100,000 and age-adjusted to the 2000 United States Standard Population (19 age groups - Census P25-1130) standard. The race or ethnicity categories are non-Hispanic/Latino unless otherwise noted. Source: California Cancer Registry. Age-Adjusted Incidence and Mortality Rates of Lung and Bronchus Cancer, 1990-2014. Sacramento, CA: California Department of Public Health; November 2017.