

The Burden of Chronic Disease, Injury, and Environmental Exposure

California, Second Edition



The Burden of Chronic Disease, Injury, and Environmental Exposure, California, Second Edition

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MESSAGE FROM THE DEPARTMENT

The purpose of this second edition of *The Burden of Chronic Disease, Injury, and Environmental Exposure* is to provide a snapshot of the burden of chronic conditions, injuries, and environmental exposures in California.

While the focus of this report details the current status in our state, it showcases successes in moving towards healthy communities and serves as a stepping stone to accelerate progress in areas that need improvement. The first step to prevent disease, injury, illness, and disability is to measure the extent of the problem.

The content of this report is divided into four sections. Section One, “An Introduction to Chronic Conditions, Injuries, and Environmental Exposures in California,” describes the impact of chronic conditions, injuries, and environmental exposures in California and its influence on Californians. Section Two, “Health Begins Where We Live, Learn, Work and Play,” shows how the road to good health is not just about individual behavior or access to health care, but is also about living and working in a safe, healthy, and supportive community. Section Three, “Portraits of Chronic Conditions, Injuries, and Environmental Exposures,” explains the facts and illustrates how these may impact some communities more than others. Lastly, Section Four, “The Road Ahead,” explores new ways that the public health workforce and communities can work to prevent chronic conditions, injuries, and environmental exposures.

We encourage you to look at the “Program Resources” page at the end of this report, which gives the online locations of state and national programs that are working on the issues addressed in this report.

Decades of progress have brought us powerful tools to prevent chronic conditions, injuries, and environmental exposures, including improvements in housing, safety equipment, and working conditions; environmental and food regulations; vaccination and population-based screening tests; dental sealants and water fluoridation; medications, lifestyle change programs, and behavioral and physical therapy. Public health uses data to track changes and identify trends to guide new programs and policies, shift social norms, and measure the effectiveness of our work. However, much remains to be done to ensure that all communities in California have equal opportunity to reap the benefits of this progress. We welcome the use of this report to optimize the health and well-being of all Californians.

Sincerely,



Mónica Morales, MPA
Deputy Director, Center for Healthy Communities
California Department of Public Health

EXECUTIVE SUMMARY

The Burden of Chronic Disease, Injury, and Environmental Exposures, California, Second Edition provides a snapshot of chronic conditions, injuries, and environmental exposures in California.

Chronic conditions and injuries accounted for over 75% of deaths in California in 2016. Roughly 40% of California adults report having at least one of five chronic conditions: serious psychological distress, high blood pressure, heart disease, diabetes, or asthma. Millions of these adults have multiple chronic conditions to manage at the same time. Natural disasters in California, like an extended drought, or everyday exposures, such as air pollution can worsen existing chronic conditions and increase injuries.

Despite improvements, heart disease, cancer, stroke, and unintentional injuries are still among the leading causes of death in California. Heart disease and cancer cause nearly half of all deaths in the state (approximately 25% each). Stroke is the third leading cause, accounting for 6% of deaths. One in every six California children, and one in three teens, are already overweight or obese, which is a risk factor for cardiovascular disease, cancer and other chronic diseases. Another major risk factor, tobacco use, although decreasing overall, is seeing an increase in youth use of electronic smoking devices.

Education, housing, transportation, and the workplace all play an essential role in health. Yet not all Californians have the same opportunities for a healthy life; chronic conditions, injuries, and environmental exposures affect families and communities unequally. These inequalities in health manifest in many ways. For example, life expectancy can vary by race/ethnicity, place of residence, and educational attainment. Latino, Native American, and African American adults and children are more likely to live below the poverty line than White adults and children. Living in poverty influences environmental exposures vital to health, including diet, air quality, housing conditions, and availability of safe, open spaces to be active.

As California's population grows and ages, health care costs will increase. Money could be saved with evidence-based preventive measures at the individual, community, and state level. This report intends to promote collaboration and capacity-building to create healthy and safe environments, improve clinical and community preventive services, and achieve health equity.

This second edition incorporates fifteen new topic areas to better address the chronic conditions, injuries, and environmental exposures that impact healthy communities in California. Some, such as the opioid and cannabis use epidemics, are emerging issues. Others are included to highlight the impact that environmental and occupational exposures have on health. In alphabetical order, these new topics are: Anxiety Disorders; Autism Spectrum Disorders; Work-Related Asthma; Cannabis (Marijuana, Weed, Pot); Depression; Environmental Emergencies; Exposures to Pesticides; Fatal Occupational Injuries; Gambling Disorder; Hepatitis; HIV; Lead Poisoning in Workers; Opioid Overdose; Preterm Birth and Violence. In total, this report contains 31 topic areas presented in Section Three, "Portraits of Chronic Conditions, Injuries, and Environmental Exposures." The data presented in this report come from a variety of sources, such as telephone surveys, surveillance systems, hospital record databases and disease registries. Data collection is done by a variety of entities, including programs at the California Department of Public Health (CDPH), other

state departments, county health departments, nongovernmental entities and universities. A “References” section at the end of the report details where particular data came from, and is a resource for those seeking more information about particular topics.

WHAT'S NEW?

This second edition of *The Burden of Chronic Disease, Injury, and Environmental Exposure, California* is an exciting expansion of the content covered in the 2013 report. Fifteen topics, listed below, have been added. Some, such as the opioid epidemic, are emerging issues. Others are included to highlight the impact that environmental and occupational exposures have on health.

- Anxiety Disorders
- Autism Spectrum Disorders
- Work-Related Asthma
- Cannabis (Marijuana, Weed, Pot)
- Depression
- Environmental Emergencies
- Exposure to Pesticides
- Fatal Occupational Injuries
- Gambling Disorder
- Hepatitis
- Human Immunodeficiency virus (HIV)
- Lead Poisoning in Workers
- Opioid Overdose
- Preterm Birth
- Violence



Another emerging issue is the legalization of recreational use of cannabis by adults in 2017. Its impact on population health is unknown, and it will be important to monitor closely. Acknowledging this need, the Governor proposed – and the Legislature approved – a \$12 million investment in 2019-20 to establish a public health surveillance system for cannabis and continue public health education efforts. HIV was previously a deadly infectious disease without an effective treatment. Now, people who receive the appropriate care can live with HIV nearly as long as those without it. It is also important to note that the line between “chronic” and “infectious” disease is now blurred. For example, hepatitis C is infectious in origin, transmitted primarily through exposure to infected blood, but can eventually cause chronic liver disease, including cirrhosis and liver cancer.

Thus, as the understanding of chronic conditions, injuries, and environmental exposures in California changes, so too will the content and nature of this report.

COUNTY MAP OF CALIFORNIA



1. AN INTRODUCTION TO CHRONIC CONDITIONS, INJURIES, AND ENVIRONMENTAL EXPOSURES IN CALIFORNIA

Highlights

- Chronic conditions and injuries accounted for over 75% of deaths in California in 2016.
- Education, housing, transportation and the workplace all influence health.
- Poor diet and physical activity have surpassed tobacco as the leading attributable cause of death in the United States (U.S.).
- Not all Californians have the same opportunities for a healthy life; some communities are more at risk for developing chronic conditions, suffering injuries, experiencing violence, and being exposed to environmental hazards.

The leading causes of death:

- Heart Disease
- Cancer
- Alzheimer's Disease
- Stroke
- Respiratory Disease
- Unintentional injuries

What are Chronic Conditions, Injuries and Environmental Exposures?

Chronic Conditions are long-lasting or recurrent medical conditions that shorten lives and limit the ability of people to engage in normal activities. Most chronic conditions cannot be cured by medication or prevented by vaccines. These diseases are manageable through early detection, improved diet and exercise, smoking cessation, and medical treatment.

Injuries occur when a person's body is damaged unintentionally (in an "accident") or by intent (violence). Injuries can be prevented in many ways, including safer work practices, safety equipment (hard hat, seat belt) and safer home, school, and community environments.

Environmental Exposures can lead to health problems when parts of the environment, like air, water or soil, become polluted. For example, asthma attacks can result from pollutants and chemicals in the air, home or workplace. Some environmental exposures are a part of the natural world, like radon in the soil. Others result from human activities, like lead from paint and asbestos or mercury from mining or industrial use.

What is in this Section?

The introduction discusses how chronic conditions, injuries, and exposures affect our health, our economy and our quality of life.



A CENTURY OF CHANGE IN CAUSES OF DEATH

In 2016, over 75% of deaths in California were caused by chronic disease and injury.¹ A century ago, when infectious diseases were common, chronic disease was responsible for approximately half of all deaths.² Chronic diseases are largely preventable. Up to 80% of heart disease, stroke and type 2 diabetes and over 30% of cancers could be prevented by eliminating tobacco use, unhealthful diet, physical inactivity, and the harmful use of alcohol.³ Many of these health risks are largely shaped by community environments and neighborhood design, which influence whether healthful, accessible and affordable food; opportunities for exercise; safe housing, transportation, work, and community environments; good education; good jobs with living wages; safe water; and clean air are a part of everyday life.⁴



Figure 1a. Leading causes of death, California, 1910

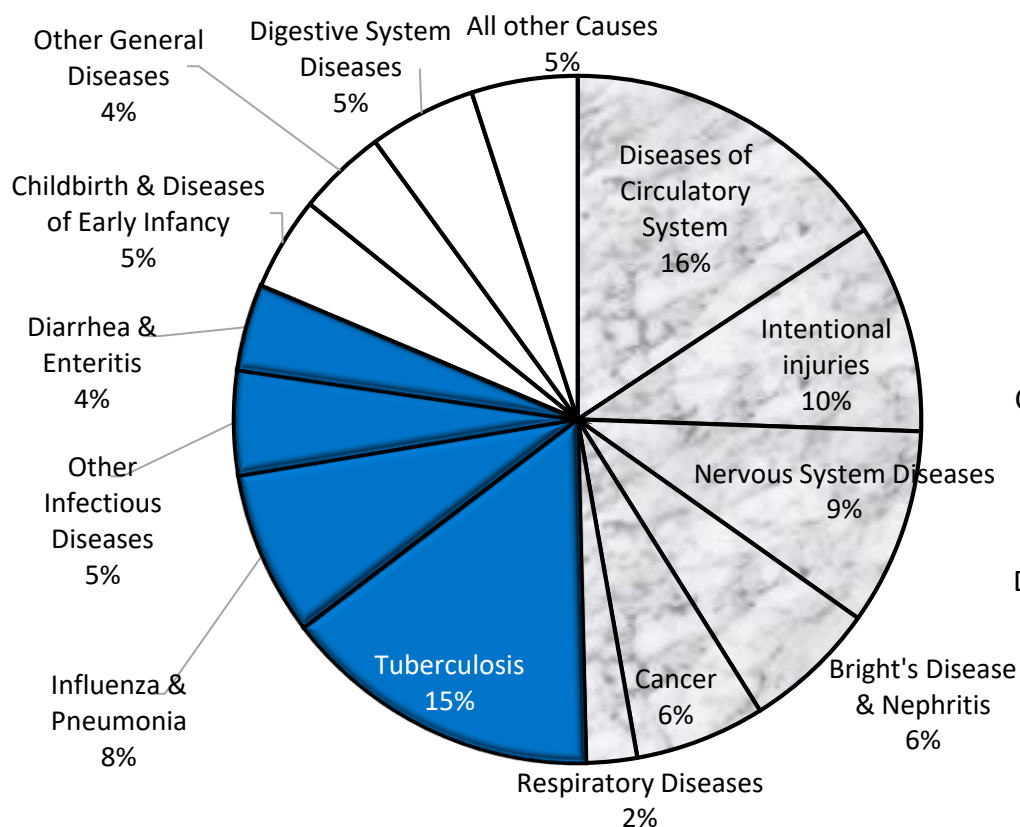
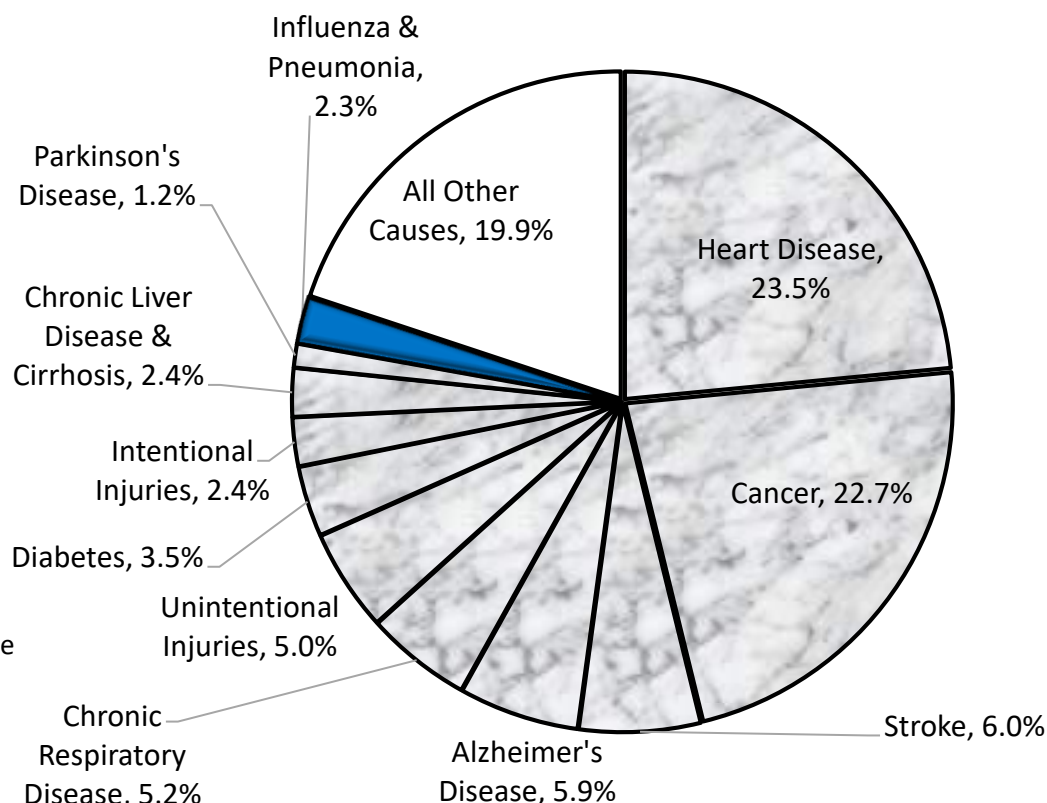


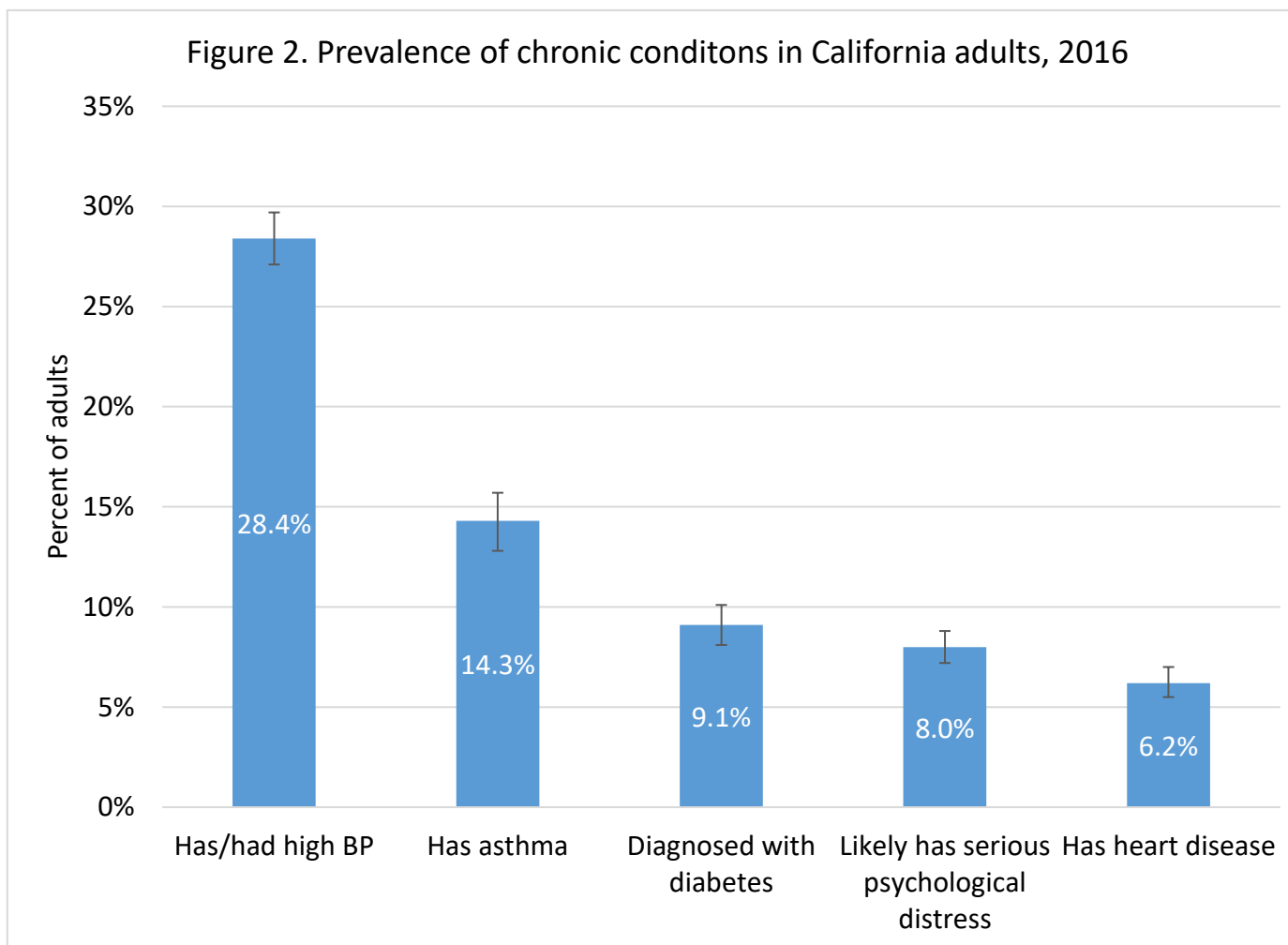
Figure 1b. Leading causes of death, California, 2016



Sources: 1a. California State Board of Health. Twenty-Second Biennial Report. Sacramento, CA 1913. 1b. Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. Compressed Mortality File, 2016. CDC WONDER Online Database, released December 2017. Available at <http://wonder.cdc.gov/cmfi-icd10.html>. Exported on Mar 15, 2018.

MILLIONS OF CALIFORNIANS ARE LIVING WITH CHRONIC DISEASE

Many Californians have chronic conditions; this puts them at greater risk for other chronic conditions, limits their ability to exercise or be a member of the workforce, and can portend an early death.⁵ Figure 2 illustrates the prevalence of several chronic diseases among California adults. Roughly 40% of California adults reported having at least one of these five chronic conditions (serious psychological distress, high blood pressure (BP), heart disease, diabetes, or asthma).⁶



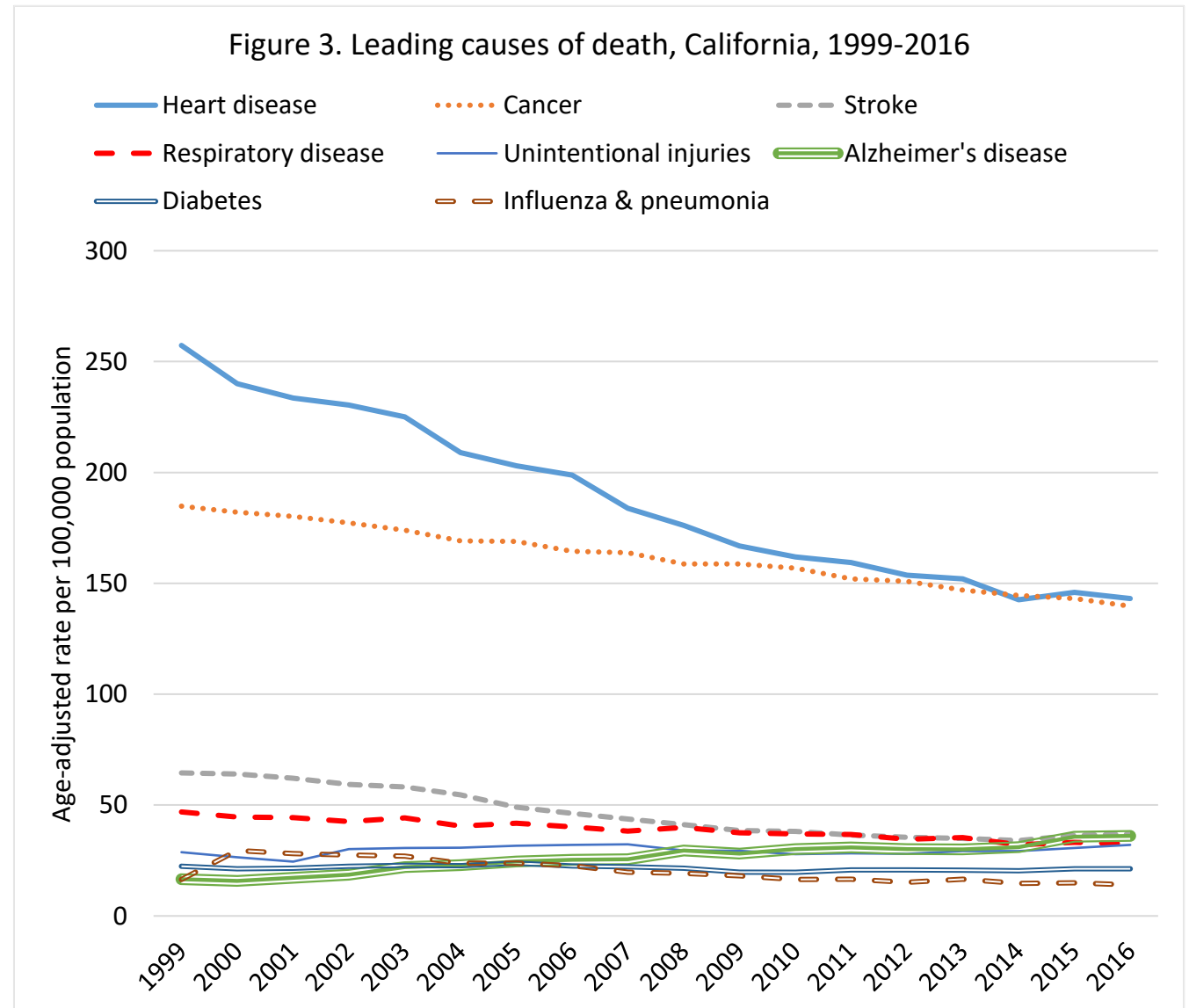
BP = blood pressure. Error bars represent 95% confidence interval. Source: University of California, Los Angeles (UCLA) Center for Health Policy Research. AskCHIS 2016. Available at <http://ask.chis.ucla.edu>. Exported on Feb 13, 2018.

MOST CALIFORNIANS DIE FROM CHRONIC DISEASE

Despite advances in treatment, death rates resulting from preventable chronic conditions and injuries have remained high (Figure 3).

- Heart disease (solid blue line) is the leading cause of death, and cancer (dotted orange line) is the second leading cause of death.
- Alzheimer's disease (wide green line) mortality rates have increased markedly, matching stroke (short dashed grey line) as the third leading causes of death in 2015 and 2016.

Source: CDC, National Center for Health Statistics. Compressed Mortality File. 1999-2016 on CDC WONDER Online Database, released December 2017. Available at <http://wonder.cdc.gov/cmfi-icd10.html>. Exported on Mar 15, 2018.



CHRONIC CONDITIONS LOWER HEALTH STATUS

Californians with chronic conditions, such as asthma and diabetes, report more days of poor health. Figures 4a and 4b show that California adults with asthma or diagnosed with diabetes report their health as “fair” or “poor” with a higher frequency than adults without these chronic conditions. Poor health can affect a person’s mental well-being and productivity in school or at work. Both mental and physical poor health can lead to job loss, increased school dropout rates, and ultimately, economic hardship.⁷

Figure 4a. Health status by asthma status, California, 2016

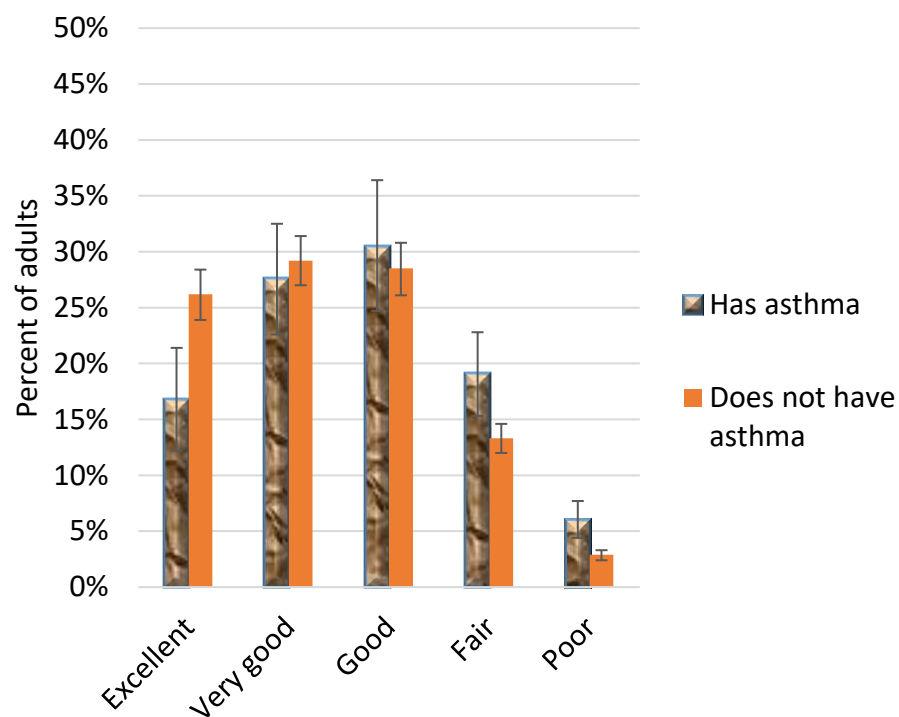
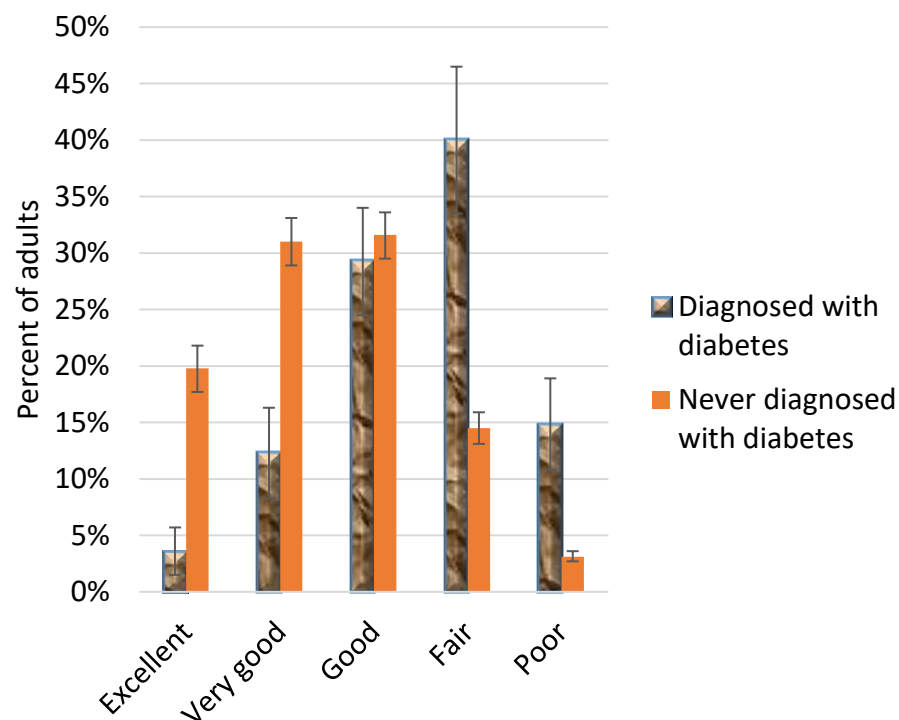


Figure 4b. Health status by diabetes diagnosis, California, 2016



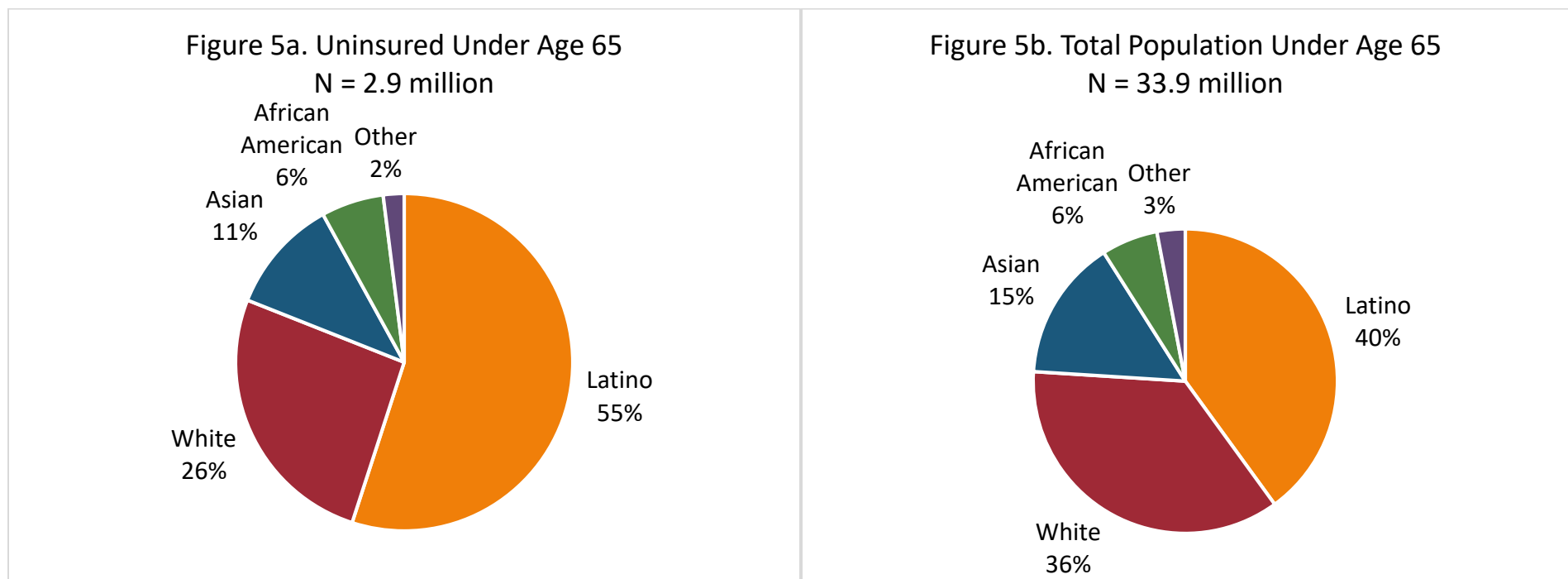
Response to the survey question, "In general, would you say your health is excellent, very good, good, fair or poor?" Error bars represent 95% confidence interval. Source: UCLA Center for Health Policy Research. AskCHIS 2016. Available at <http://ask.chis.ucla.edu>. Exported on Feb 12, 2018.

NOT ENOUGH CALIFORNIANS HAVE ACCESS TO QUALITY HEALTH CARE

Quality care is essential for prevention of disease and injury. Heart disease and stroke are two of the most common causes of death, but many people who are at high risk are not aware that these conditions can be prevented and treated.

High blood pressure is one of the leading causes of heart disease and stroke.⁸ One in three U.S. adults has high blood pressure, but only half of these individuals undergoing treatment have achieved a normal blood pressure level.⁹ Half of adults with high cholesterol, another risk factor for heart disease and stroke, are not treated appropriately.¹⁰ People who are not optimally treated have an increased risk of severe disease and subsequent poor quality of life.⁸

Access to adequate treatment for these conditions can be even more difficult for those without health insurance. People of color make up 74% of California's uninsured population. More than half of these uninsured are Latino (Figure 5a). However, Latinos make up 40% of the total California population under 65 (Figure 5b).



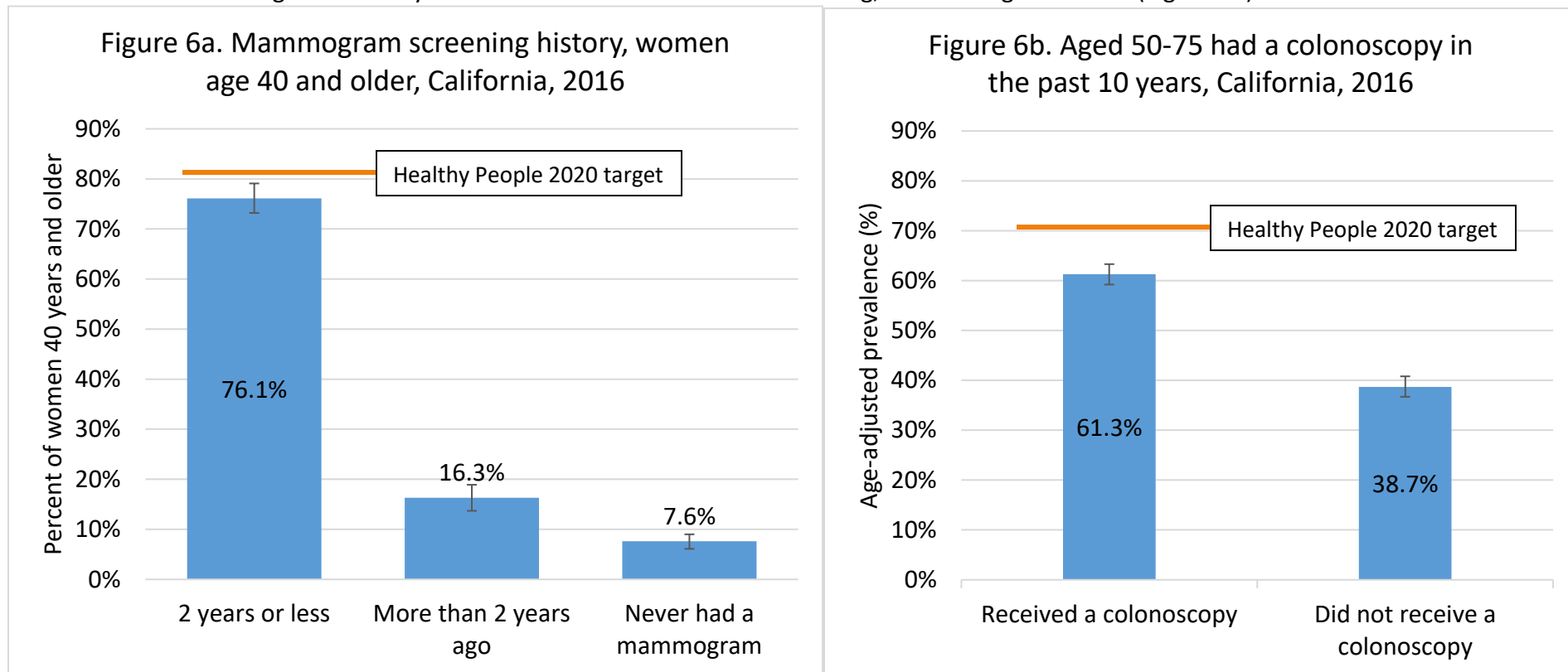
Source: California Health Care Foundation. *California's Uninsured: As Coverage Grows, Millions Go Without*. 2016.

NOT ENOUGH CALIFORNIANS ARE GETTING CLINICAL PREVENTIVE SERVICES

Many cancers, such as breast, colorectal, and cervical, are preventable, treatable and beatable. However, not enough Californians are getting the screening tests to detect these cancers early.¹¹ Lack of access to medical care, lack of awareness about the recommended tests, and fear of the result or fear of the testing procedure are common barriers to the utilization of clinical preventive services.¹²

Screening rates in California are lower than the CDC's *Healthy People 2020* targets:

- 76.1% of females receive a breast cancer screening in California, but the target is 81.1% (Figure 6a); and
- 61.3% of adults aged 50 to 75 years receive a colorectal cancer screening, but the target is 70.5% (Figure 6b).



Error bars represent 95% confidence interval. Sources: 6a. UCLA Center

for Health Policy Research. AskCHIS 2016. Mammogram screening history. Available at <http://ask.chis.ucla.edu>. Exported on Feb 13, 2018. 6b. CDC, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data 2015. Available at <https://www.cdc.gov/brfss/brfssprevalence/>. Exported on Feb 13, 2018.

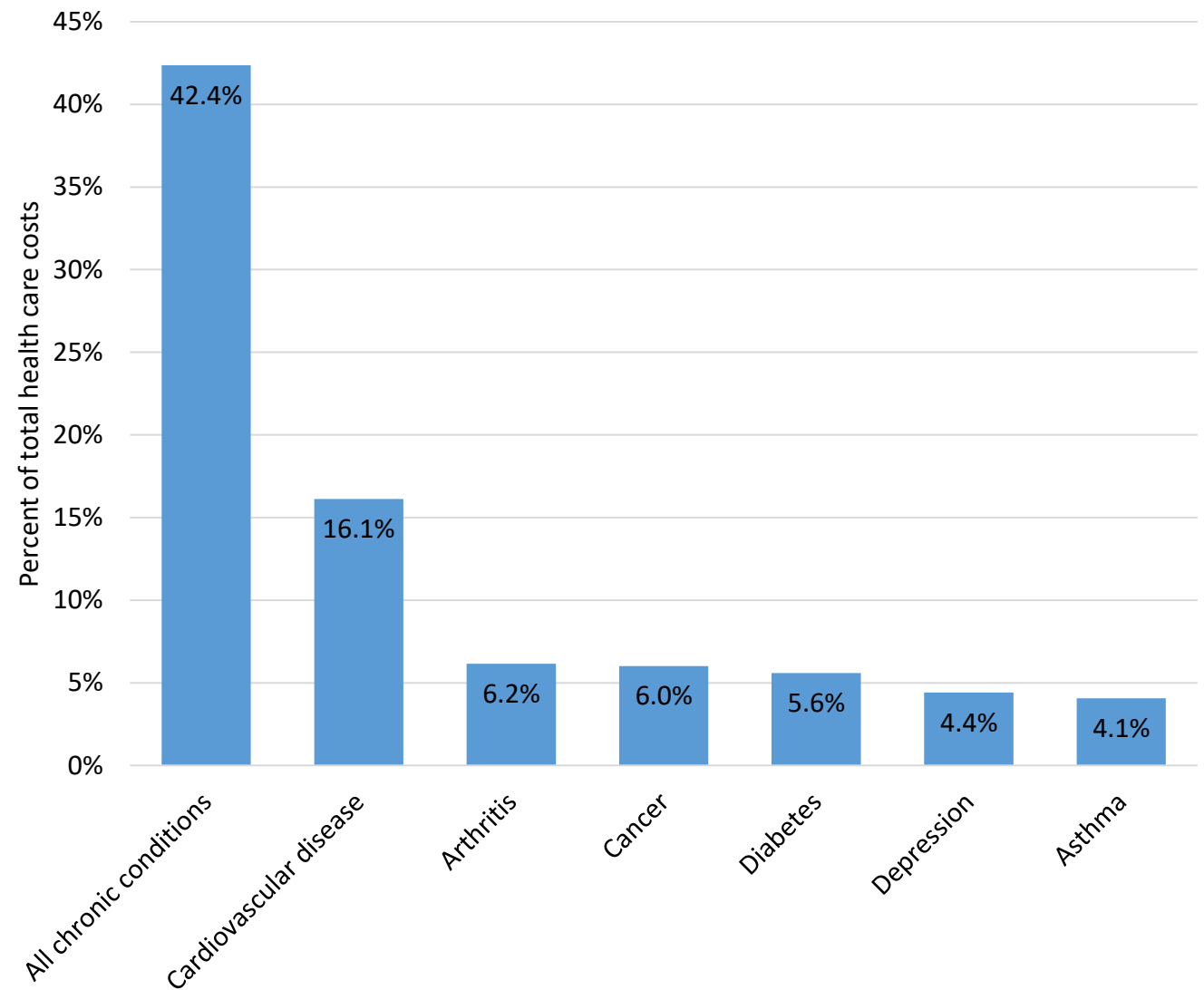
POOR HEALTH IS COSTLY

Poor health increases direct medical costs (such as emergency room visits and hospitalizations) and indirect costs (lost productivity due to absenteeism).⁵ Costs have rapidly increased over the past decade.⁵ An estimated \$141 billion in direct costs was spent treating the six chronic conditions (listed in Figure 7) in 2016 in California.¹³

Figure 7 shows the percentage of health care costs by common chronic condition. Percentages were calculated by the estimated total cost of each chronic condition divided by the reported health care expenditure in 2016 in California.^{14,15}

Source: Brown PM, Gonzales M, Dhau RS. Cost of Chronic Disease in California: Estimates at the County Level. *Journal of Public Health Management & Practice* 2015;21(1):E10-E19.

Figure 7. Estimated percent of total health care costs in California, by chronic condition



MANY CHRONIC CONDITIONS HAVE PREVENTABLE RISK FACTORS

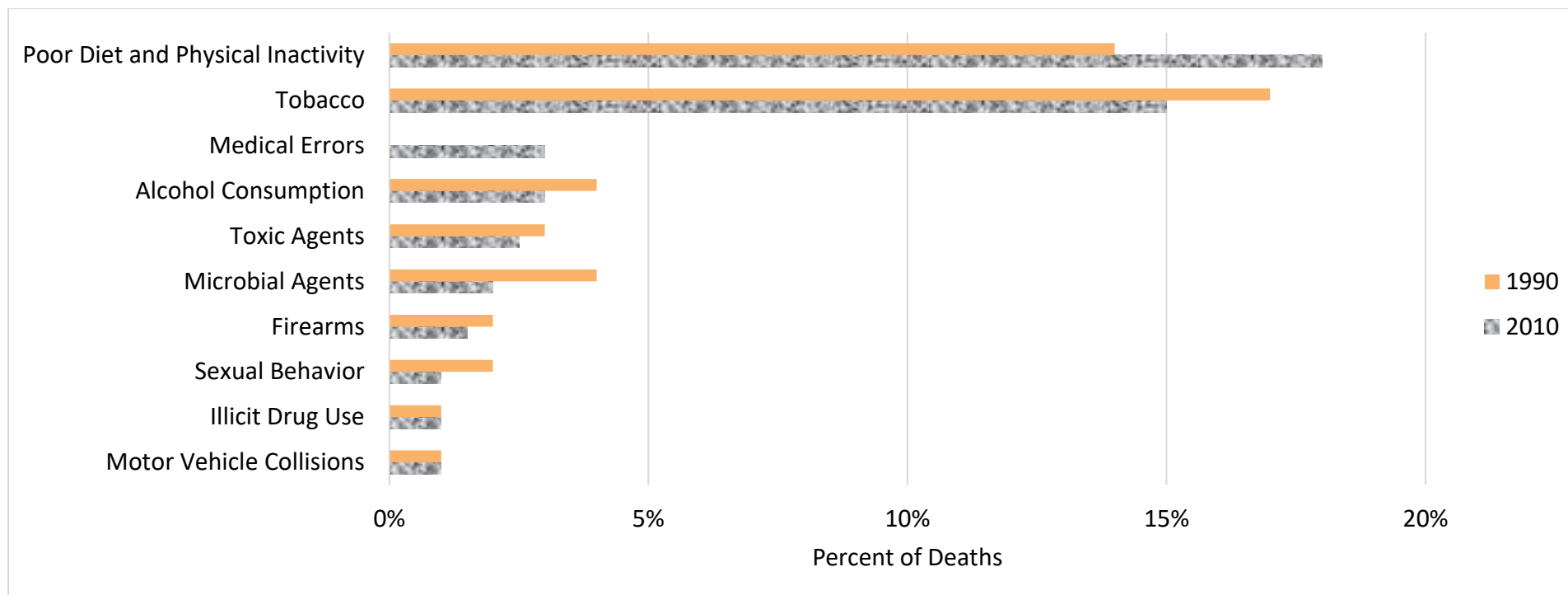
According to a unique study of upstream risk factors by the National Research Council and Institute of Medicine¹⁶, almost half of all deaths that occurred in the U.S. in 2010 could be attributed to a limited number of largely preventable behaviors and environmental exposures (Figure 8).

The leading attributable causes of death in 2010 were poor diet and physical inactivity (400,000 deaths) and tobacco (350,000). Deaths from illicit drug use and motor vehicle collisions have not decreased since 1990.¹⁶

Many chronic diseases have these top risk factors in common, so creating healthy environments and adopting healthy behaviors would decrease premature death and disability, especially for Californians with chronic disease.

The percentage of deaths attributed to poor diet and physical activity increased 28% from 1990 to 2010, surpassing tobacco as the leading attributable cause of death.¹⁶ Figure 8 depicts the leading attributable causes of death in the U.S. in 1990 and 2010.

Figure 8. Leading attributable causes of death, United States, 1990 & 2010



Source: National Research Council, & Institute of Medicine (2015). *Measuring the Risks and Causes of Premature Death: Summary of Workshops* (H. G. Rhodes Ed.). Washington, DC: The National Academies Press.

PUBLIC HEALTH EFFORTS: TOBACCO CONTROL SUCCESSSES AND CHALLENGES

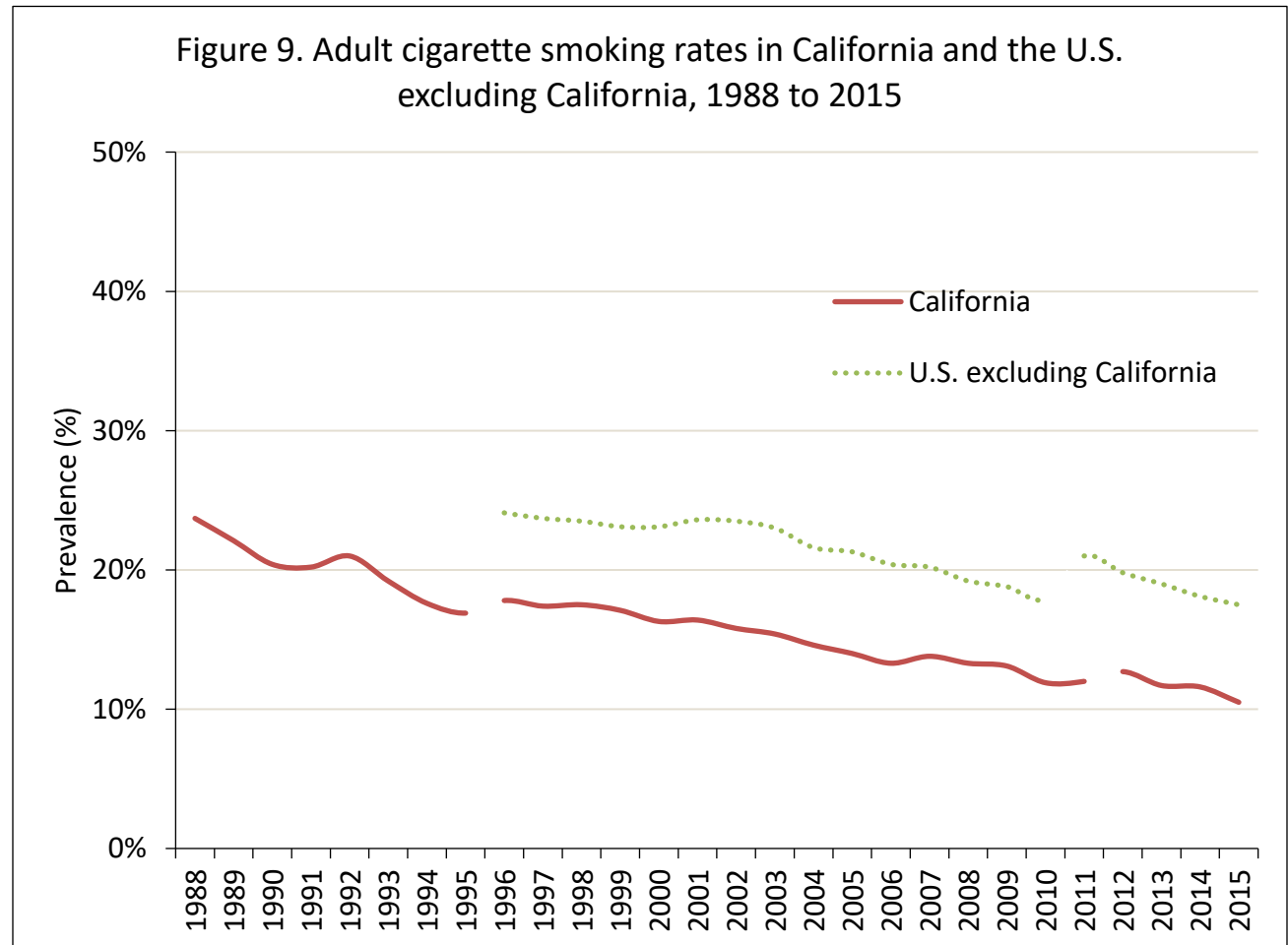
Tobacco use is one of the greatest public health threats and is one of the leading causes of preventable disease, disability, and death in the U.S.¹⁷

The California Tobacco Control Program's tobacco-free policies, media campaigns, and tobacco-cessation services serve as an example of what works in tobacco control:

- Smoking rates in California adults have declined 56% between 1988 and 2015 as shown in Figure 9.¹⁸ The adult smoking rate is the second lowest statewide rate in the nation;¹⁹
- One million Californian lives have been saved;²⁰
- \$134 billion in health care costs have been saved;²¹ and
- Lung cancer incidence and death rates have decreased.²²

While California has made significant progress, tobacco use continues to take a toll on California families.

- Approximately one in eight California adults use tobacco.²³
- Nearly 40,000 Californian adults die annually from a tobacco-related disease.²⁴



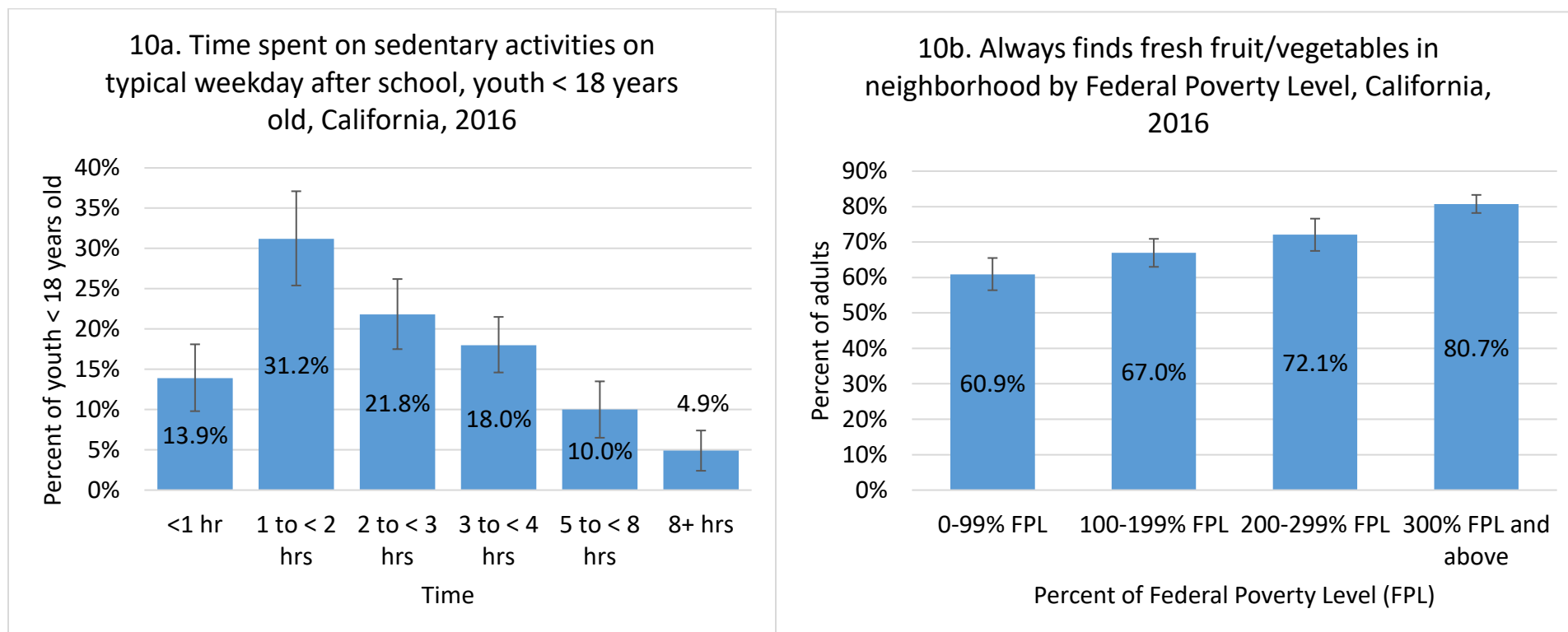
Notes: Break in the trend lines are to illustrate methodology change and caution should be used when comparing trends. An adjustment was made to address the change of smoking definition in 1996 that included more occasional smokers. The weighting methodology changed in 2012 for California but changed for the rest of the U.S. in 2011. 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. (2016). *Behavioral Risk Factor Surveillance System, 1988-2015*.

PUBLIC HEALTH CHALLENGE: POOR DIET AND PHYSICAL INACTIVITY

People who do not engage in adequate amounts of physical activity or have a calorie-dense diet are at increased risk for overweight/obesity, type 2 diabetes, heart disease, stroke, some types of cancer, and other chronic diseases.⁵

In California, over 50% of children younger than 18 report more than two hours of sedentary activities on a typical weekday (Figure 10a). Studies have shown that sedentary behavior over two hours per day in adolescents is associated with decreased fitness, lower self-esteem scores and decreased academic achievement.²⁵ CDC guidelines recommend children and adolescents aged 6 to 17 years old should have one hour or more of physical activity each day.²⁶

Diet and exercise choices can be constrained by the environment. Adults who live below 100% of the Federal Poverty Level (FPL) are less likely than those living above 300% FPL to always be able to find fresh fruits and vegetables in their neighborhood (Figure 10b).



Error bars represent 95% confidence interval. Sources: A - UCLA Center for Health Policy Research. AskCHIS 2016. Time spent on sedentary activities on typical weekday after school. Available at <http://ask.chis.ucla.edu>. Exported on Feb 16, 2018. B - UCLA Center for Health Policy Research. AskCHIS 2016. How often able to find fresh fruits and vegetables in neighborhood. Available at <http://ask.chis.ucla.edu>. Exported on Feb 16, 2018.

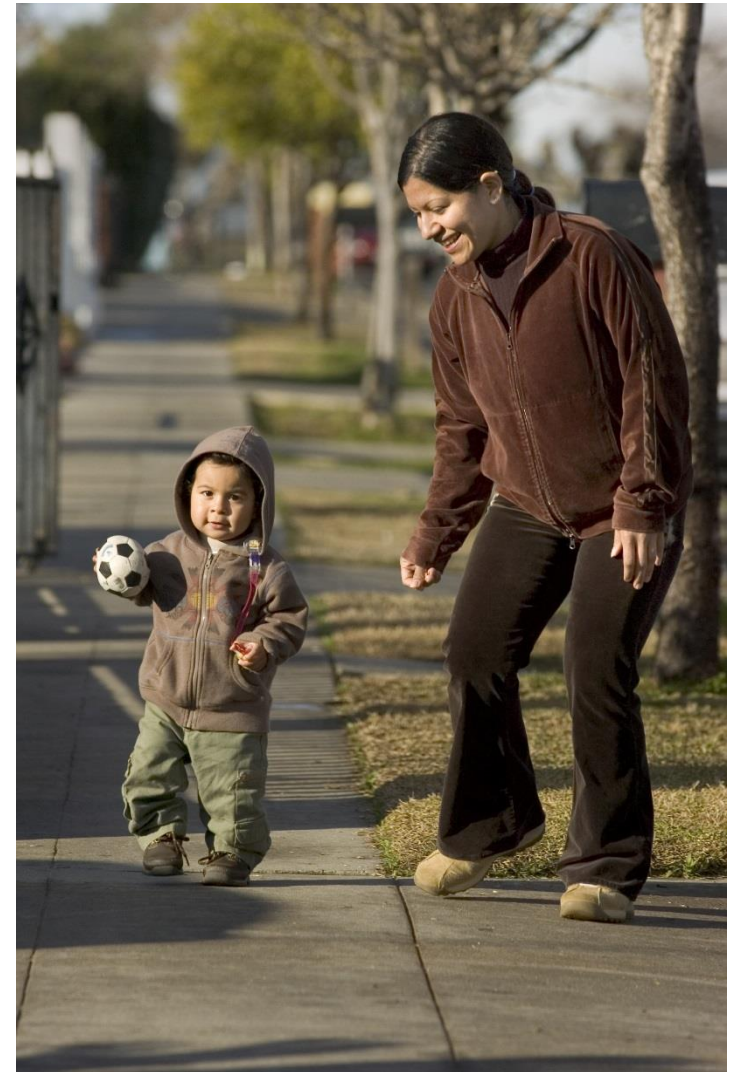
2. HEALTH BEGINS WHERE WE LIVE, LEARN, WORK, AND PLAY

Highlights

- A racial/ethnic gap persists in life expectancy in California, with Asian Americans generally having the highest life expectancy (86.9 years) and African Americans the lowest (75.6 years). Life expectancy also varies by place of residence and educational attainment.
- Low income and minority neighborhoods are less likely to have access to recreational facilities and full-service grocery stores, and are more likely to have higher concentrations of stores selling tobacco, alcohol, and fast food.
- Latinos have the highest adult and child poverty rates in California.

What is in this Section?

Chapter two discusses the influence of our surroundings on our health – sometimes for better, and sometimes for worse.



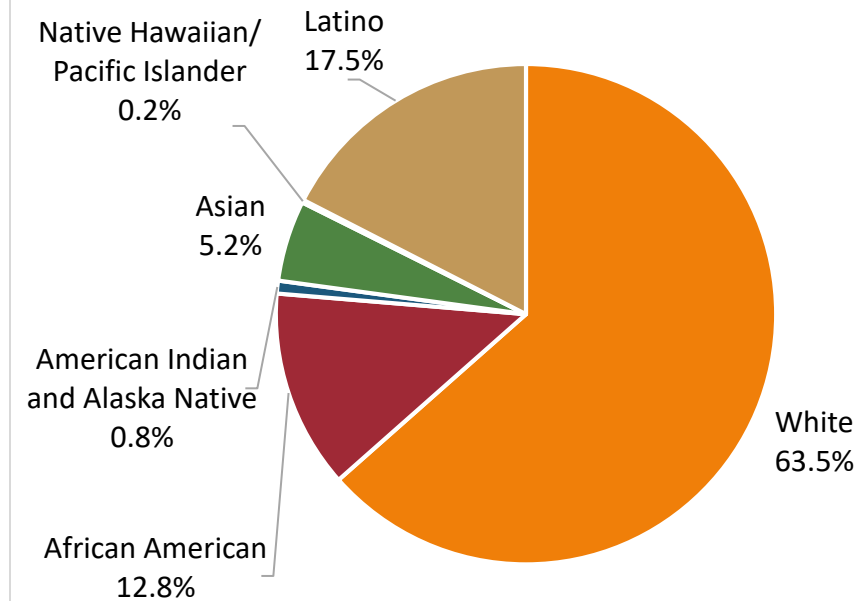
THE DIVERSITY OF CALIFORNIA

California's population is the most diverse in the U.S. and the world, including immigrants from more than 60 countries.²⁷ There are over 200 languages spoken and read in California.²⁸ California is a majority – minority state, meaning that no ethnic group within the state is a majority. Latinos and Whites are the two largest racial/ethnic groups in California. The fastest population growth is projected to be among multiracial and Latino populations.²⁹

We embrace our diversity, yet millions of Californians face social inequities that contribute to health inequity.

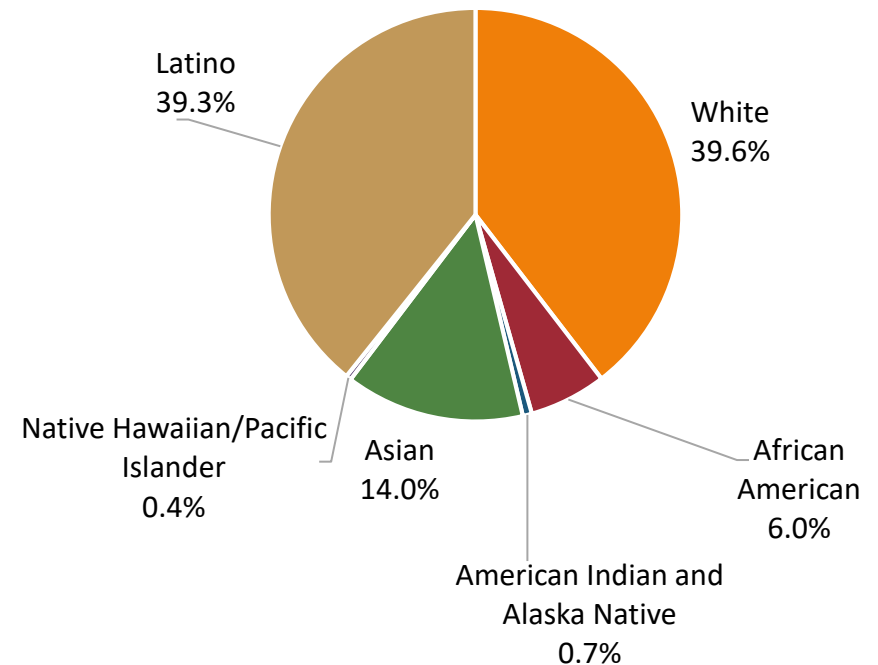
- The median income of White households (\$72,741) is nearly 50% greater than the median income of African American (\$43,053), American Indian (\$45,841) or Latino (\$47,393) households.³⁰
- African American (34%), Native American (34%) and Latino (28%) children are more than twice as likely to live in poverty as White children (12%).³¹

Figure 11a. United States population by race/ethnicity, 2015



Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-year Estimates. Available at <https://factfinder.census.gov>. Exported on Feb 14, 2018.

Figure 11b. California population by race/ethnicity, 2015



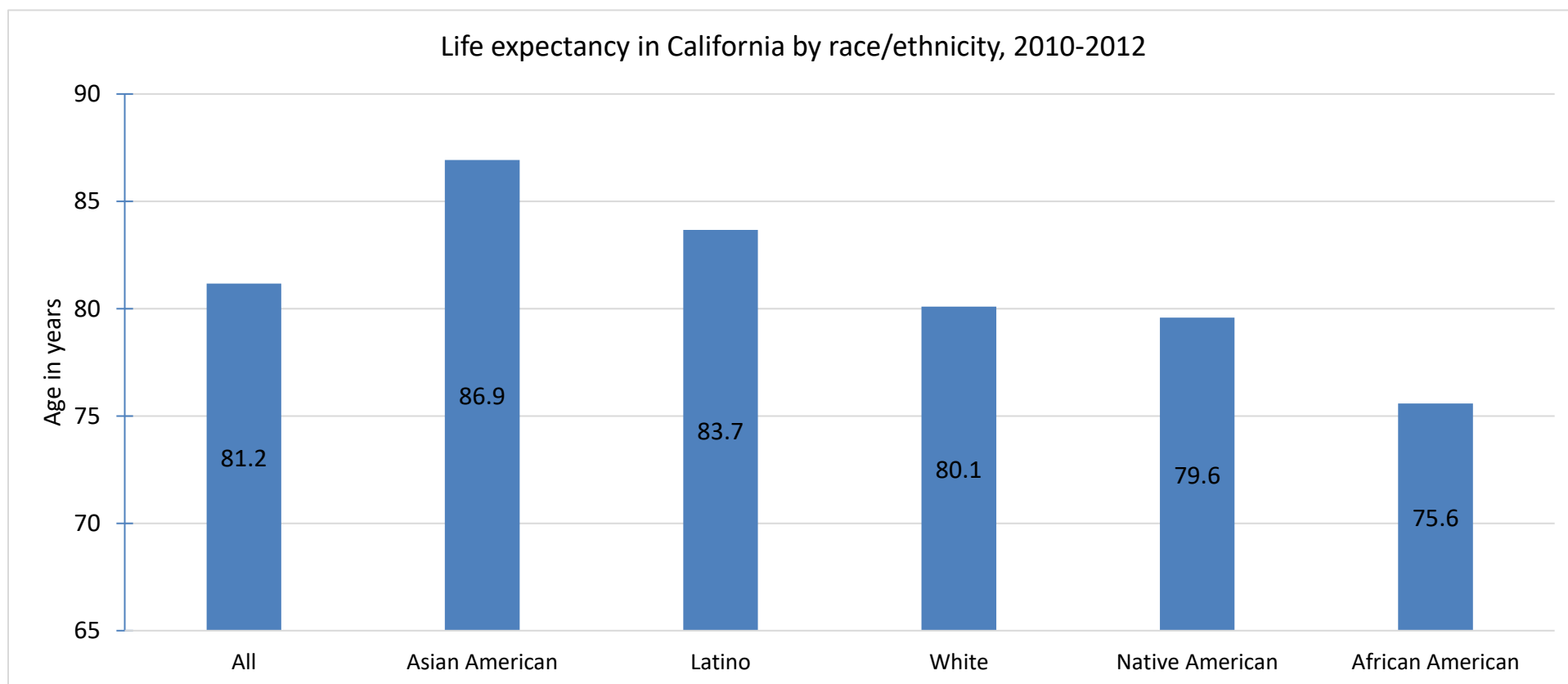
LIFE EXPECTANCY HAS INCREASED BUT A RACIAL/ETHNIC GAP PERSISTS

California ranks fourth in the U.S. in terms of life expectancy. At birth, the average Californian is expected to live 81 years.³²

Life expectancy is not the same for all racial/ethnic groups. In general, Asian Americans are expected to live the longest (86.9 years), and African Americans the shortest (75.6 years). Native Americans have an average life expectancy of 80 years. Women are expected to live longer than men (84 years versus 79 years).³²

Life expectancy depends on where you live. Among people living in the ten most populous metropolitan areas in California, people in San Jose have the greatest life expectancy (84 years), and people in the Bakersfield metropolitan area have the shortest (78 years).³²

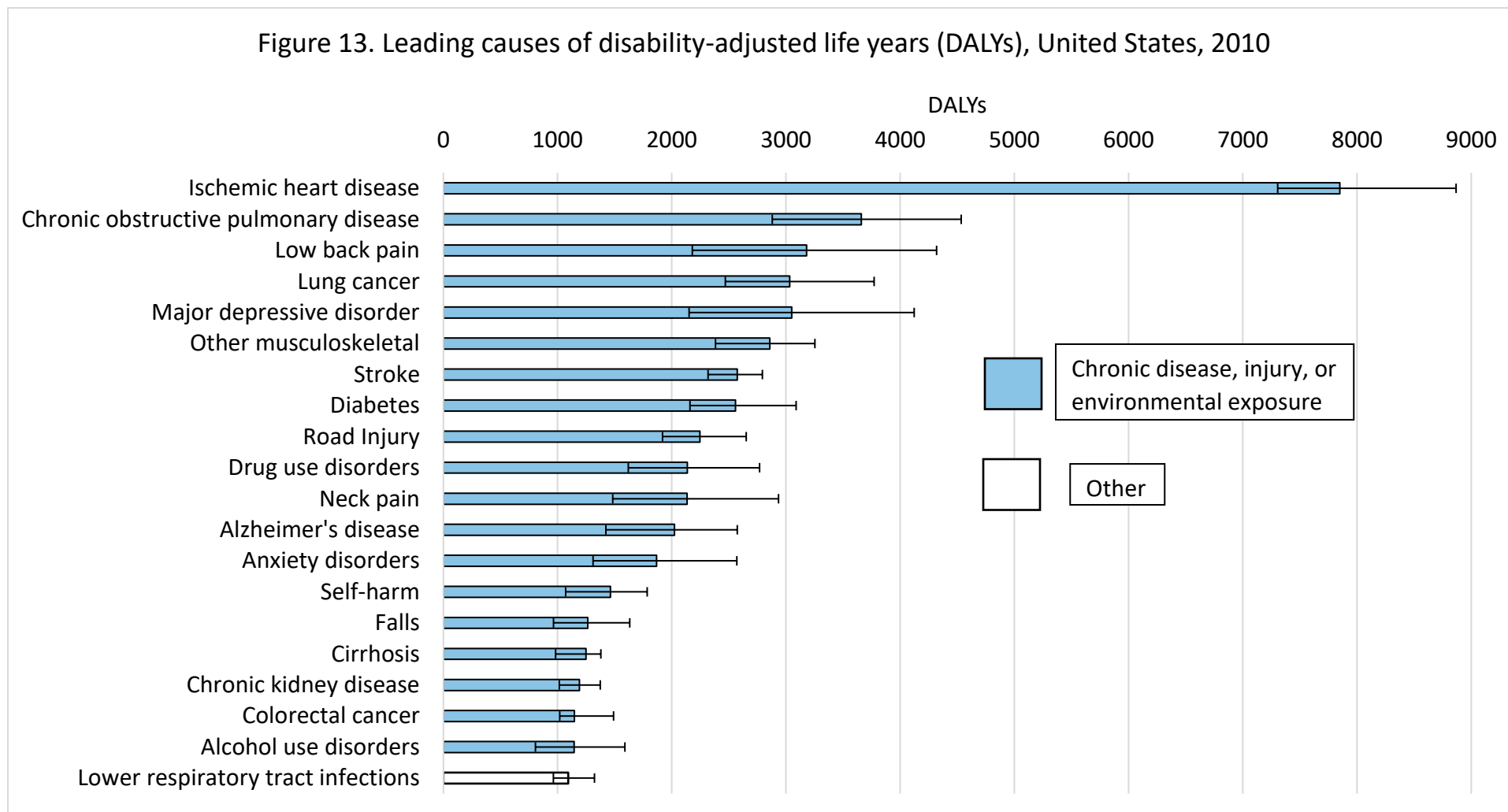
The three strongest predictors of life expectancy include race/ethnicity, place of residence, and educational attainment.³² The differences in life expectancy by educational attainment continue to widen, and it has begun to surpass the effect of gender and race differences on life expectancy in recent decades.³³



Source: Lewis K, Burd-Sharps S. *A Portrait of California 2014-2015*. 2014.

CHRONIC CONDITIONS, INJURIES AND ENVIRONMENTAL EXPOSURES IMPACT QUALITY OF LIFE

The disability-adjusted life year (DALY) is the most widely used measure of overall disease burden.³⁴ One DALY is equivalent to one year lost of “healthy life,” as defined by the World Health Organization (WHO).³⁵ Chronic conditions, injuries, and exposures accounted for the top 19 causes of DALYs in the U.S. in 2010, while ischemic heart disease, chronic obstructive pulmonary disease (COPD), low back pain, lung cancer, and major depressive disorder accounted for the top five.³⁶ See Figure 13.



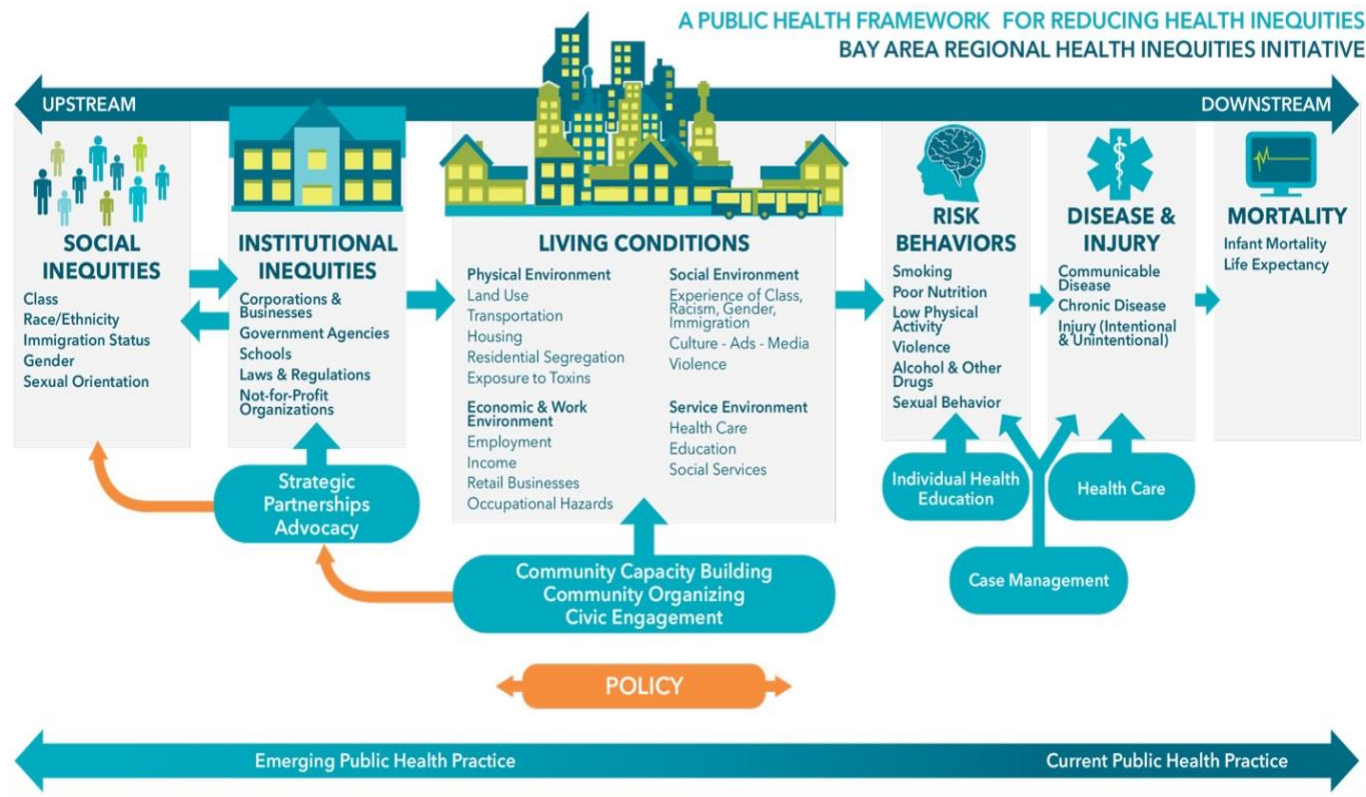
Error bars represent 95% confidence interval. Source: U.S. Burden of Disease Collaborators. The State of US Health, 1990-2010: Burden of Diseases, Injuries, and Risk Factors. JAMA. 2013;310(6):591-608.

SOCIAL DETERMINANTS OF HEALTH

The conditions and settings in which we live, work, learn, and play, often called the “Social Determinants of Health,” influence health and quality of life. Social determinants of health shape the choices people make daily, as well as influence the ability to obtain resources that could improve health outcomes.⁴ Due to variations in California’s physical, economic, and social environments, the health of individuals is driven by the health of the communities in which they live.³²

The Bay Area Regional Health Inequities Initiative model in Figure 14 illustrates how health is shaped by living conditions, along with many other factors. It shows that access to a doctor, although important, is not the biggest factor influencing health. It also provides insight into the actions that can be taken within communities to improve the health and quality of lives of those most impacted.

Figure 14. A public health framework for achieving healthy communities. Source: Bay Area Regional Health Inequities Initiative. Framework. 2015; <http://barhii.org/framework/>. Accessed May 1, 2018.



Social Determinants of Health: Physical Environments

Globally, the World Health Organization (WHO) estimates that 25% of all deaths are caused by exposure to unhealthy environments.³⁷ Maintaining healthy physical environments in California means keeping homes, schools, workplaces, play spaces, and neighborhoods free of environmental hazards. Environmental hazards that contribute to chronic conditions and injuries in California include air pollution, unhealthy or unsafe housing and workplaces, pesticide use, drinking water pollution, lead contamination, and changes resulting from an increasingly hotter climate. The health of Californians is greatly impacted by the environmental quality of the living environment.

California has the worst air quality in the U.S., with more than 90% of the state's residents living in counties with unhealthy air, according to the American Lung Association.³⁸ California has the highest ozone levels of any state.³⁸ Exposure to air pollution increases the risk for asthma, heart disease, lung cancer, and premature mortality, among other conditions.³⁸ California is also the state with the worst health impact from air pollution, with an estimate of 21,000 early deaths annually from exposure to air pollution.³⁹ Preventable environmental pollution contributes to 30% of childhood asthma and 15% of childhood cancer in the U.S.³⁹ Reducing the environmental hazards that lead to childhood health conditions, including asthma, lead poisoning, cancer, and neurobehavioral disorders, could save California \$254 million every year.⁴⁰ Climate change, by causing or contributing to extreme weather events, also increases costs to the health care system.⁴⁰ The California heat wave of 2006, for example, resulted in 655 excess deaths and \$5.4 billion in total health and health care cost.^{41,42}



As many people spend the majority of their time at work or at home, the physical characteristics of these environments are vital to health. Occupational exposures, injuries, and deaths can be prevented by “engineering out” health and safety hazards, training workers about the hazards and how to work safely, and using protective equipment where needed. While the rates of fatal occupational injuries in California has been consistently below the national average, over 300 people have died from an occupational injury every year since 2010.⁴³ Housing can be a source of exposure to allergens and air pollutants, including dust, mold, and tobacco smoke.

The physical makeup of the surrounding neighborhood has an impact on health. Low income and minority neighborhoods are less likely to have access to recreational facilities and full-service grocery stores, and are more likely to have higher concentrations of stores selling tobacco,⁴⁴ alcohol, and fast food.⁴⁵ Adolescents who grow up in neighborhoods characterized by concentrated poverty are more likely to be victims of violence; use tobacco, alcohol and other substances; and become obese.⁴⁶ Neighborhood poverty is also associated with asthma prevalence, as residents of poor neighborhoods may have increased risk of asthma through exposure to tobacco smoke, indoor allergens, and outdoor air pollution.⁴⁷

The affordability of housing in neighborhoods also has important impacts on health. In 2015, a typical California home cost more than double the typical home in the U.S.⁴⁸ High housing costs can lead to housing insecurity, which has been shown to have a negative effect on mental health⁴⁹ and is associated with measures of poor health, growth, and development in children.⁵⁰

Social Determinants of Health: Quality Education and Economic Opportunity

Californians die at a younger age in neighborhoods where:

- Educational attainment is lower;
- Unemployment is higher; and
- Poverty is more widespread.³²

In California, 17.9% of the population has less than a high school diploma. This is higher than the U.S. average of 13.0%.⁵¹ Educational attainment, or years of schooling a person has, is linked to important health outcomes. Birth weight increases and infant mortality declines with higher maternal education, though these outcomes vary by race/ethnicity of the mother and sex of the infant.⁵² In California, there are racial disparities in high school graduation rates. In 2016, 88% of White students, 80% of Latino students, and 73% of African American students graduated with a regular high school diploma within four years of starting 9th grade.⁵³ On average, a college education is correlated with a longer life expectancy.³³ Forecasting tools predict that if every California adult were to move up one education level, life expectancy for the state would increase by 1.6 years, and nearly one million fewer Californians would be living in poverty.⁵⁴



Employment also has an important impact on health. Employment opportunities that provide a living wage, and benefits such as health insurance and paid sick leave, are vital to the short and long-term health of communities.

Unemployment and job insecurity are significant social and economic stressors. Studies have found that both have a negative effect on mental health, increase hypertension rates, and increase mortality, especially among men.⁵⁵

The working poor are people who spent at least 27 weeks in the labor force, but had an income below the poverty level. In 2015, 8.6 million people the U.S. were among the working poor, were more likely to be women, African American or Latino, and have children under 18 years old.⁵⁶ In California, 36.1% of people who are employed full-time (21 or more hours per week) fall below 100% of the Federal Poverty Level.⁵⁷ Additionally, 62% of the state population without health insurance in 2015 were employed.⁵⁸ Without health insurance, accessing a doctor and preventive medical care is more difficult and more likely to be delayed.

For millions of families, patterns of economic inequality at the community level can continue from generation to generation, with few opportunities to break out of the cycle of poverty. Decades of mandated racial segregation and institutional racism, followed by the structural racism that has allowed these practices to outlive their explicit legality, have had the result that that many residents of communities experiencing economic disinvestment are people of color.

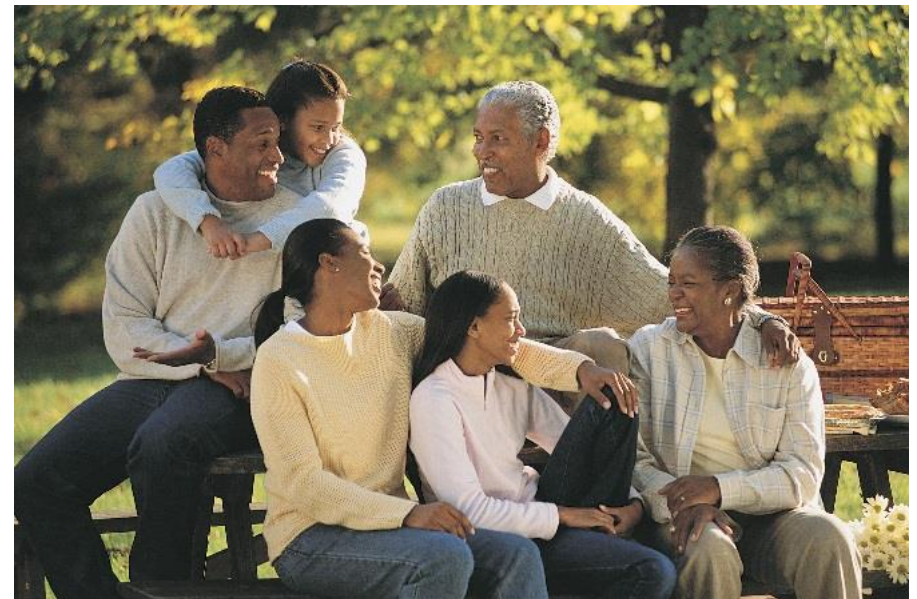
Social Determinants of Health: Social Environments

The social environments of communities influence the safety and support necessary to fully participate in the daily activities of life, so that all have the opportunity to reach their full potential.

Ensuring community safety involves measures to reduce both intentional injuries, including homicide, suicide, sexual and intimate partner violence, and unintentional injuries, including those from motor-vehicle incidents, pedestrian deaths, and drownings. In 2016, there were 6,312 violent deaths in California, and 12,969 deaths due to unintentional injuries.¹ Many intentional and unintentional injuries are predictable and preventable.⁵⁹ Economic and social disinvestment in a community limits the resources available for community upgrades that can protect residents from intentional and unintentional injuries, such as sidewalks, bike paths, lighting, and public transit systems. Studies have repeatedly shown that residents of low income neighborhoods suffer higher rates of homicide, motor vehicle collisions and other external causes of injury than residents of higher income neighborhoods.⁶⁰⁻⁶³ The chronic stress from living in an unsafe community can cause anxiety, depression, accelerated aging, and adverse birth outcomes.⁵⁹ In addition, there is a growing consensus that exposure to traumatic stressors in childhood, termed adverse childhood experiences (ACEs), increase the risk of unhealthy behaviors, chronic disease, and both unintentional and intentional injuries.⁶⁴

Social support and engagement within a community is also an important part of a healthy social environment. In 2016, 11.2% of California adults and 46.5% of teens engaged in formal volunteer work or community service in the past year.⁶⁵ Community social networks can be especially important for single-headed households with children and the elderly, which make up 12.7% and 13.7% of California adults, respectively.⁶⁶ Social isolation can be a source of chronic stress, which may come in addition to the stresses of living in an unsafe environment. Social isolation has been linked to cardiovascular disease mortality,⁶⁷⁻⁶⁹ depression,⁷⁰ and lower self-rated health,⁷¹ among other negative outcomes.⁷²

Finally, the social environment of a community is influenced by the media and advertisements that may target specific communities and social groups. Studies have shown tobacco marketing strategies specifically target women of low socioeconomic status,⁷³ lesbian/gay/bisexual/transgender populations, and homeless communities,⁷⁴ and target menthol cigarette marketing to African Americans and young people aged 18-24 years.⁷⁵ The food and beverage industry also uses a wide variety of highly-effective strategies to target children and teens, and promotes sugar-sweetened beverages, sugary breakfast cereals, and other foods of low or negligible nutritional value to children aged 2-11 years and adolescents aged 12-17.⁷⁶ Studies have shown that advertising influences food choice in children⁷⁷ and adolescents.^{65,78}



PLACE AND NEIGHBORHOOD MATTER FOR HEALTH

It is almost impossible to prevent or manage chronic conditions, injuries, and exposures to hazards in a neighborhood without:

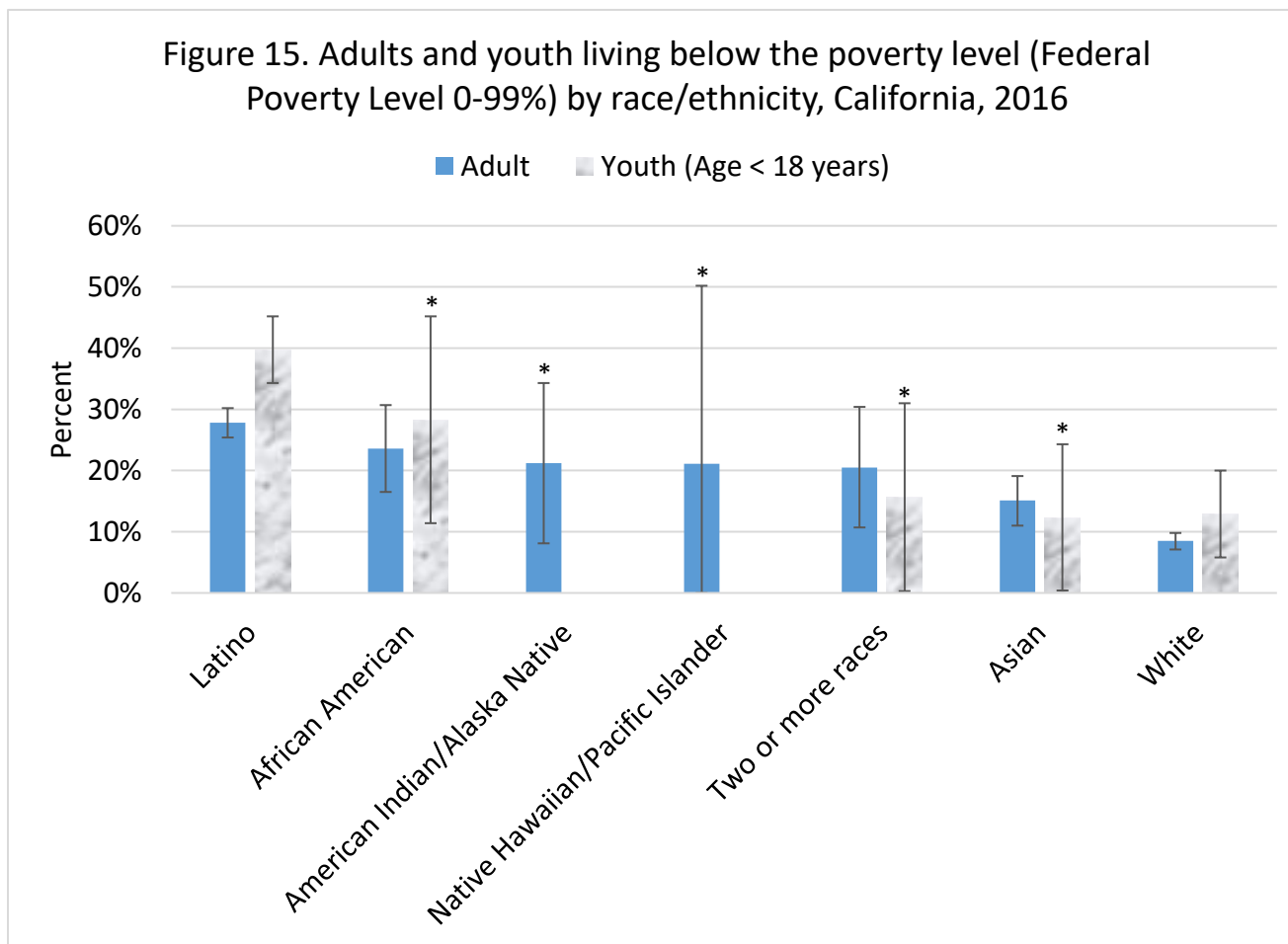
- Safe streets and transportation, including safe intersections, traffic lights, crosswalks, sidewalks, and bike lanes;
- Opportunities for physical activity, including safe playgrounds, parks, and other walkable areas;
- Safe and healthy work environments;
- Equitable employment opportunities with fair wages and benefits;
- Access to conveniently located nutritious, affordable food;
- Quality schools;
- Safe and affordable housing;
- Clean air, water, and soil; and
- Resources, such as cooling centers, that mitigate the impacts of climate change.

Where you live is a larger determinant of your health than access to health care.⁷⁹



RACIAL AND ETHNIC MINORITIES OFTEN LIVE IN UNHEALTHY ENVIRONMENTS

Individuals act in the context of their families, neighborhoods, workplaces, social networks, and communities. Communities with a high concentration of poverty and disinvestment are often unhealthy, and often are where racial and ethnic minorities live. These environments are in turn influenced by regional, national, and global policies and are opportunities to improve the health of those most disadvantaged, and in whom health disparities exist. Latinos and African Americans are more likely to live in poverty. Latinos have the highest adult and child poverty rates (Figure 15).



*Estimates are unstable due to small sample sizes. American Indian/Alaska Native and Native Hawaiian/Pacific Islander youth counts have been suppressed due to small sample sizes. Error bars represent 95% confidence interval. Source: UCLA Center for Health Policy Research. AskCHIS 2016. Federal Poverty Level by Race/Ethnicity. Available at <http://ask.chis.ucla.edu>. Exported on Feb 14, 2018.

3. PORTRAITS OF CHRONIC CONDITIONS, INJURIES, AND ENVIRONMENTAL EXPOSURES

Highlights

- Despite improvements, heart disease and cancer are still the leading causes of death in California.
- Natural disasters in California, like an extended drought, can worsen existing chronic conditions.
- Some infectious diseases, such as HIV, are now chronic conditions due to effective therapy. However, chronic conditions like HIV can make people more susceptible to, or more likely to develop, other chronic conditions.
- Adult gamblers in California are more likely than other California adults to report poor health.

What is in this Section?

This chapter provides the facts and figures behind 31 common chronic conditions, injuries, and exposures in California, listed in alphabetical order. A closer look at which Californians are most affected by chronic diseases, injuries, and exposures is displayed in some cases, entitled, “Unequal Impacts.”



ALZHEIMER'S DISEASE

What is Alzheimer's disease?

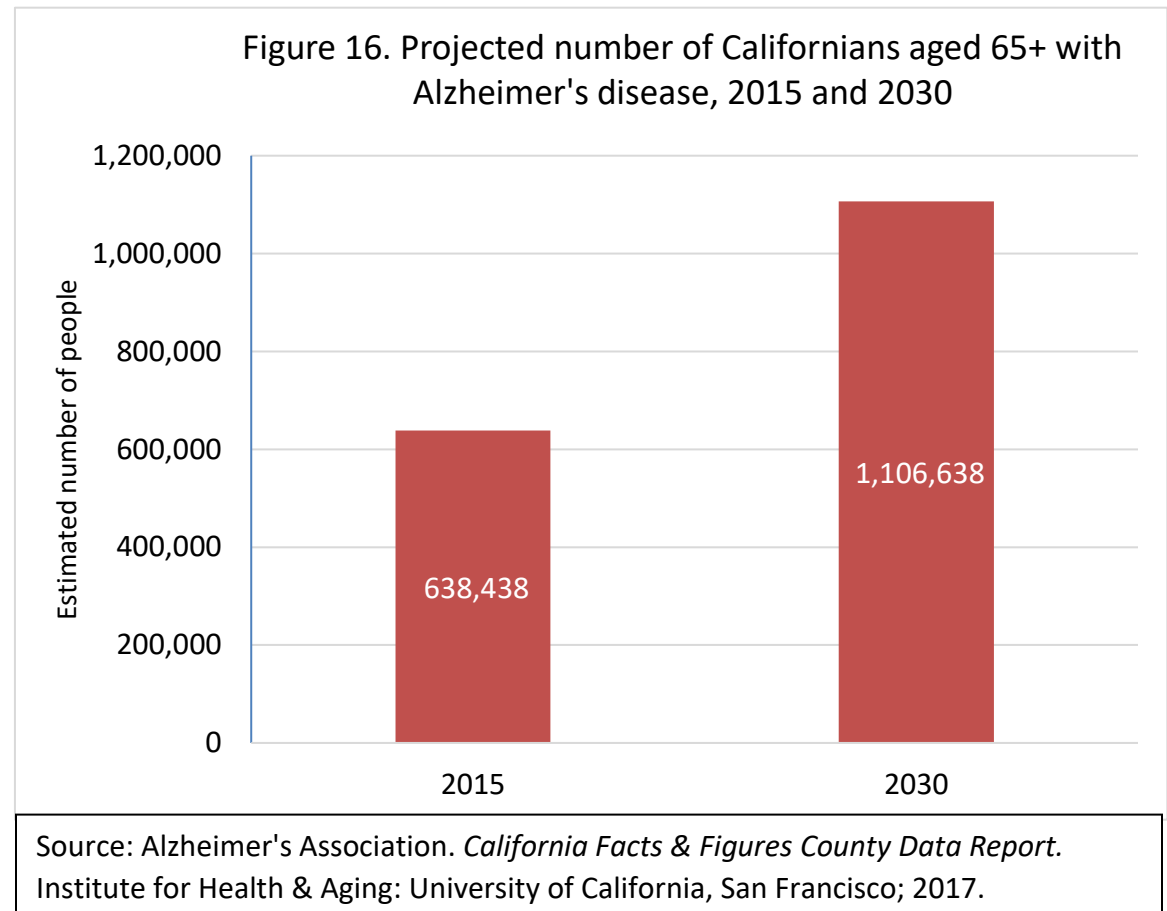
Alzheimer's disease is the most common form of dementia, a clinical syndrome of loss or decline in memory and other cognitive abilities. Dementia is caused by various diseases and conditions that result in damaged brain cells. There are three stages of Alzheimer's disease. The first is the preclinical phase (where symptoms are not yet apparent), the second is mild cognitive impairment, and the third stage is Alzheimer's disease.

The second most common cause of dementia is stroke, followed by other diseases and conditions, such as Parkinson's disease, head injuries, drug and alcohol abuse, and nutritional deficiencies.

Alzheimer's disease is not normal aging; it is a progressive and fatal brain disease for which cause and cure are unknown.

- Alzheimer's disease was the third leading cause of death in California in 2015.⁸⁰
- One in eight California baby boomers who reach age 55 will develop Alzheimer's disease.⁸¹
- The cost for caring for people with Alzheimer's disease is a major concern. Employers in California face as much as \$1.4 billion in lost productivity each year as family caregivers miss work, reduce their hours, or change jobs.⁸¹
- In California, Medi-Cal spending for Alzheimer's patients will exceed \$5 billion by 2025.⁸² Much of these costs are driven by nursing home expenditures.
- Within the next 20 years, the number of Californians living with Alzheimer's disease is expected to double to over 1.1 million (Figure 16).

Although the most predictive risk factors of dementia are advancing age and family history, choosing a healthy lifestyle, and effectively managing other health conditions may decrease risk.



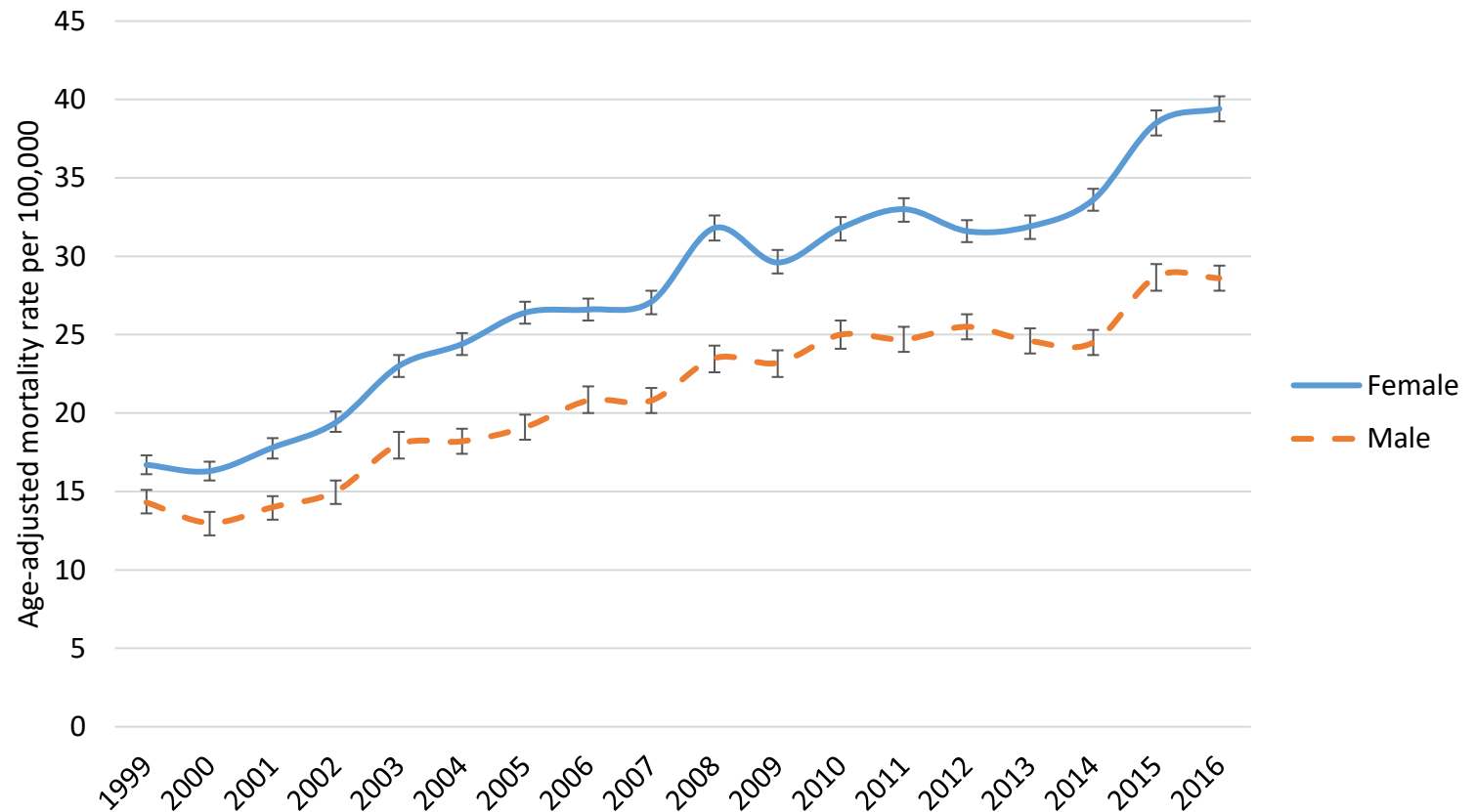
Alzheimer's Disease: Unequal Impacts

African Americans, Latinos, and women are disproportionately impacted by Alzheimer's disease.⁸² People of color are often diagnosed at a later stage of Alzheimer's disease, as the identification of Alzheimer's disease in ethnically diverse populations can be challenging due to the limited availability of culturally and linguistically appropriate diagnostic tools.⁸³ This not only limits our understanding of the impact of Alzheimer's disease within the racially and culturally diverse communities of the state, but also can directly affect the individual living with Alzheimer's disease, since the effectiveness of medications and psychological or social interventions depends on early intervention.

Women live with and die from Alzheimer's disease at a higher rate than men. This is mainly because women live longer than men do. However, this gap between female and male death rates due to Alzheimer's disease has been growing since 1999 (Figure 17), despite a decrease in the life expectancy gap between women and men.

Error bars represent 95% confidence interval. Source: CDC, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database, released December, 2017. Available at <http://wonder.cdc.gov/ucd-icd10.html>. Exported on May 8, 2018.

Figure 17. Age-adjusted mortality rate of Alzheimer's disease by sex, California, 1999-2016



ANXIETY DISORDERS

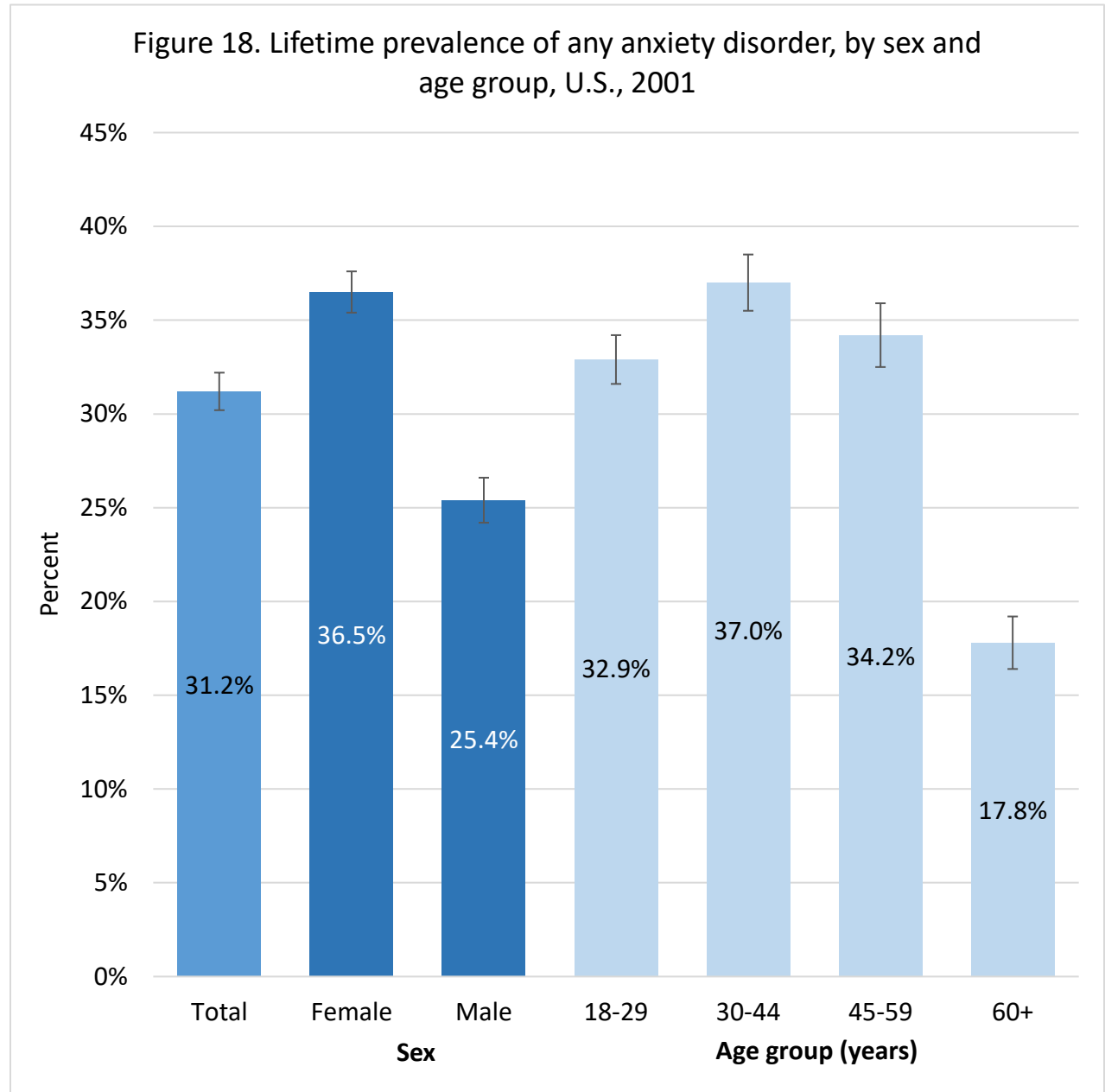
Anxiety disorders are characterized by persistent anxiety that does not go away and can get worse over time. There are several types of anxiety disorders, including:

- Generalized anxiety disorder;
- Panic disorder; and
- Social anxiety disorder.

Anxiety disorders were the 13th leading cause of disability-adjusted life years (DALYs) in the U.S. in 2010.³⁶

An estimated 31.1% of adults in the U.S. experience any anxiety disorder in their lifetime.⁸⁴ Prevalence of anxiety disorders varies by sex and age group. Females are more likely to experience an anxiety disorder than males (Figure 18).

Error bars represent standard error. Source: Harvard Medical School. National Comorbidity Survey (NCS). In: Data Table 1: Lifetime prevalence DSM-IV/WMH-CIDI disorders by sex and cohort, ed 2007.



ARTHRITIS

What is arthritis?

Arthritis literally means “joint inflammation,” but the term is often used to refer to any of the more than 100 diseases that affect the joints.

The most common types of arthritis are:

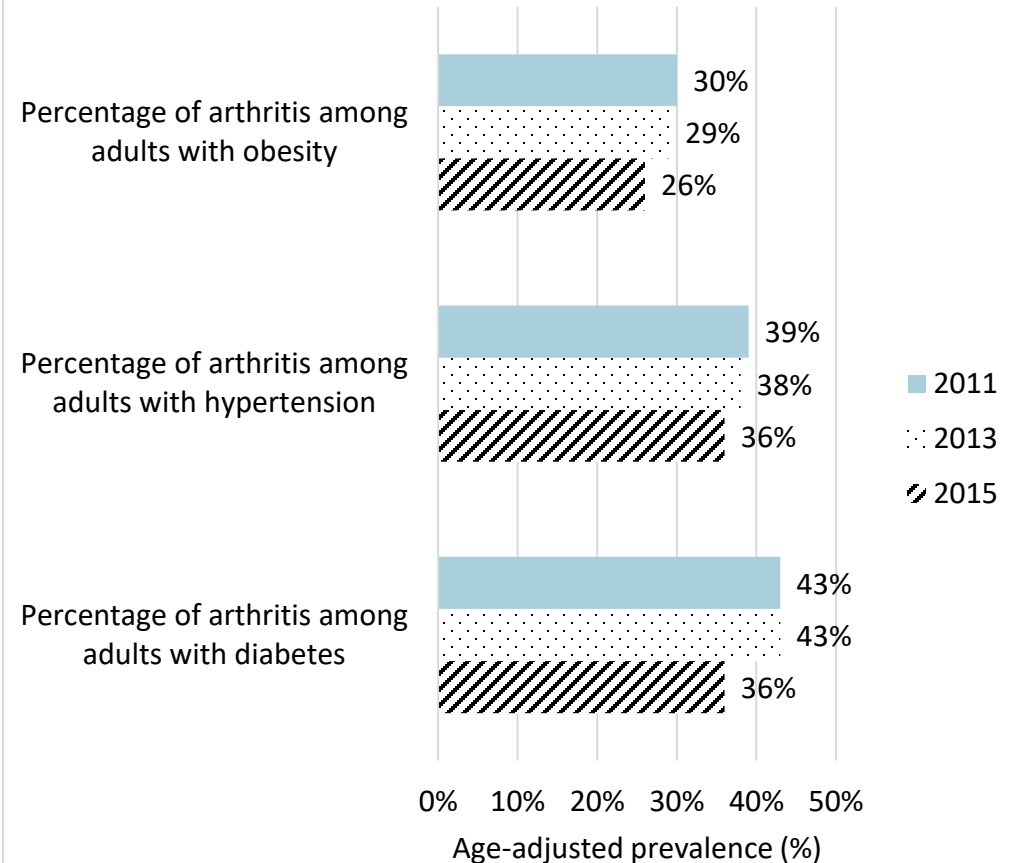
- **Osteoarthritis:** a condition in which the joint cartilage breaks down, causing pain and stiffness; and
- **Rheumatoid arthritis:** a condition in which the body’s immune system attacks the thin membrane that lines the joints, causing pain, swelling and, if not treated, joint destruction.

Arthritis is debilitating and common, especially in those who already have chronic diseases.⁸⁵ Arthritis often occurs simultaneously with other chronic diseases, such as obesity, hypertension, and diabetes (Figure 19).⁸⁵

In 2015, about 5.7 million, or 19% of California adults had arthritis.⁸⁶

Of adults with arthritis, two in five, or 2.4 million, have activity limitation resulting from arthritis.⁸⁶

Figure 19. California adults with arthritis and other chronic conditions, 2011, 2013 and 2015



Source: CDC. Arthritis: California State Data Tables. 2015.

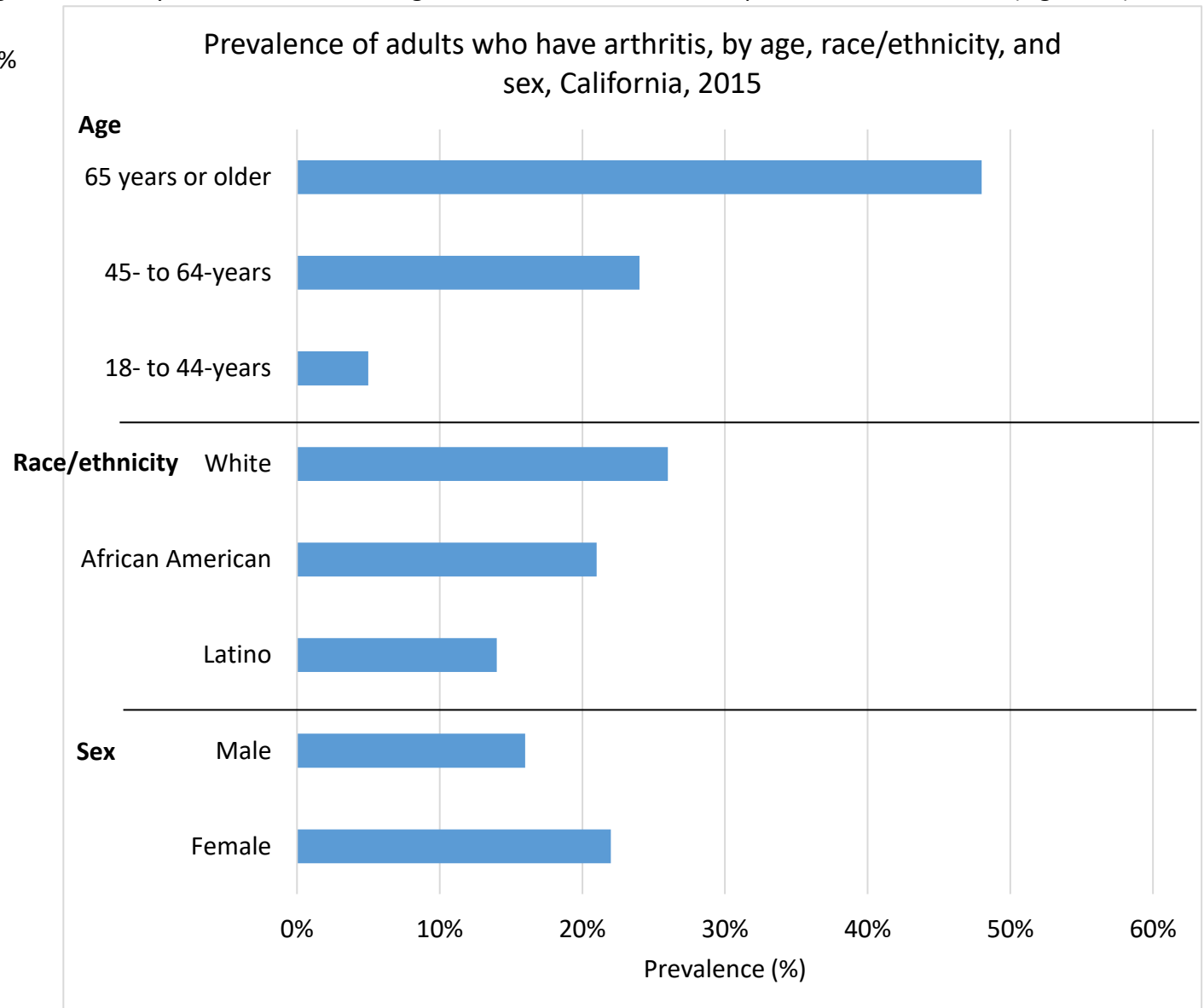
https://www.cdc.gov/arthritis/data_statistics/state-data/California.html.

Accessed Jan 31, 2018.

Arthritis: Unequal Impacts

Social determinants of health, including race/ethnicity, and factors such as age and sex, influence arthritis prevalence in California (Figure 20).

- In California, 38% of African Americans with arthritis and 55% of Latinos with arthritis reported fair/poor health or limited activity in the previous 30 days, versus 26% of Whites.⁸⁶
- Arthritis affects more women (22%) than men (16%).⁸⁶
- Arthritis affects older adults: 48% of adults 65 years or older have arthritis, whereas only 24% of adults between 45 and 64 years of age have arthritis.⁸⁶



Source: CDC. Arthritis: California State Data Tables. 2015.

https://www.cdc.gov/arthritis/data_statistics/state-data/California.html. Accessed Jan 31, 2018.

ASTHMA

Asthma is a chronic disease that inflames and narrows the airways of lungs. Asthma causes a variety of symptoms that can worsen at any time, making breathing difficult. Asthma that is not adequately controlled with medication can lead to decreased physical activity, thereby contributing to obesity and other chronic diseases.⁸⁷

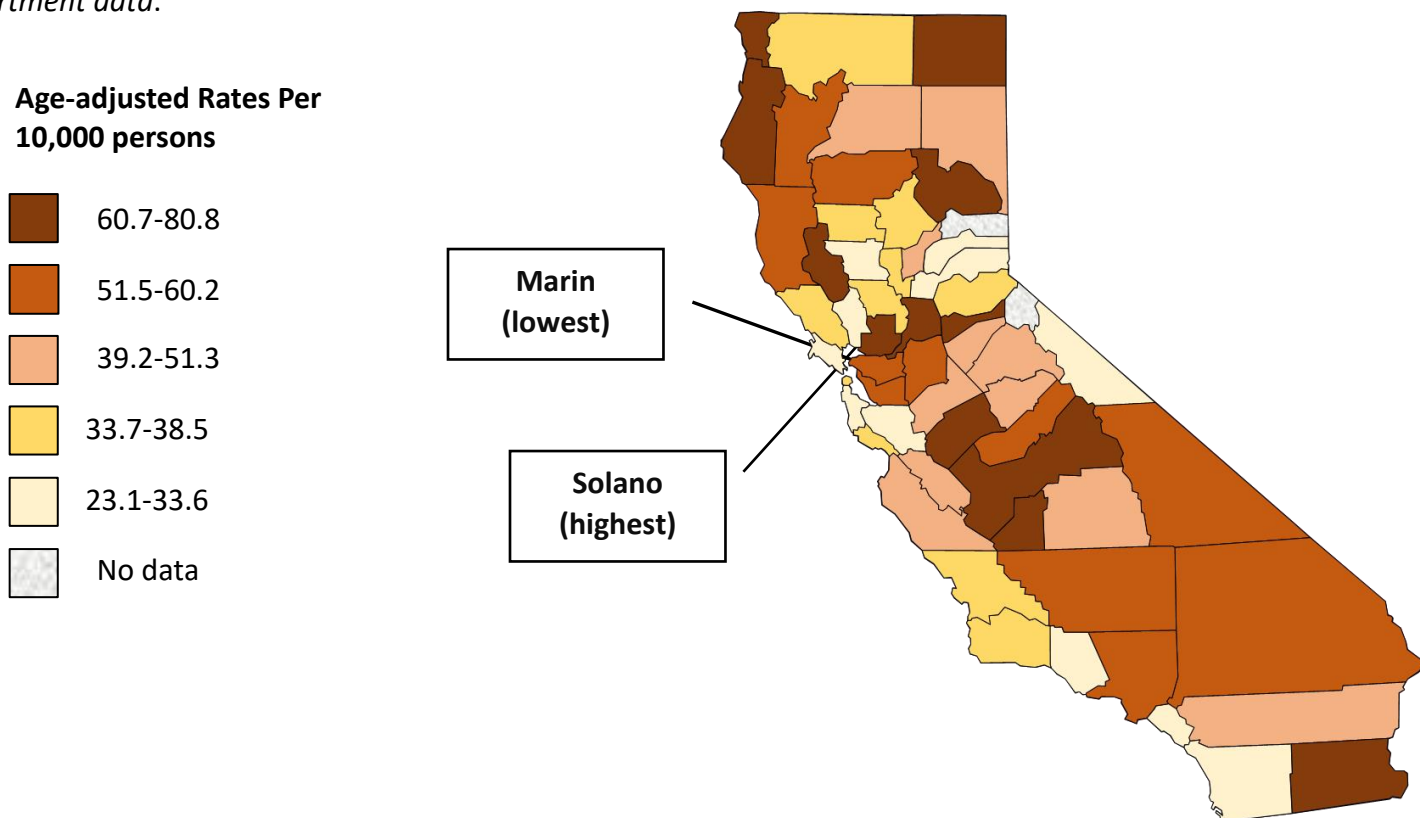
Asthma is on the rise in children and adults.

- Roughly 14%% of adults and 17% of youth under 18 years of age have been diagnosed with asthma in California.⁸⁸
- A majority of adults (92%) and youth under 18 years of age (87%) with current asthma had asthma symptoms in the past 12 months.⁸⁹

Asthma emergency room visits indicate that the disease is not well controlled. Rates of emergency room visits tend to be highest in the Central Valley, several northern counties and Imperial County (Figure 21).

Figure 21. Asthma emergency department visits by county, California, 2016

Source: California Office of Statewide Planning and Development. (2016).
Hospital emergency department data.



Asthma: Unequal Impacts

Poor indoor and outdoor air quality can trigger asthma attacks. Asthma emergency room visit rates are higher among Californians living in low-income areas, in part because these areas are more likely to have deteriorated housing, schools, and are closer to freeways and busy roads.⁹⁰

Figures 22a and 22b illustrate the association between asthma hospitalizations and age and race/ethnicity.

Young children, people living in lower-income neighborhoods, and African Americans have an increased asthma morbidity.⁹⁰ Environmental factors, including mold, dampness, environmental tobacco smoke, and air pollutants, have been found to account for 30% of the burden of childhood asthma in California, resulting in \$208 million direct and indirect costs.⁴⁰



Source: California Office of Statewide Planning and Development. (2016). *Hospital emergency department data*.

Figure 22a. Asthma emergency department visit rates by age group, California, 2016

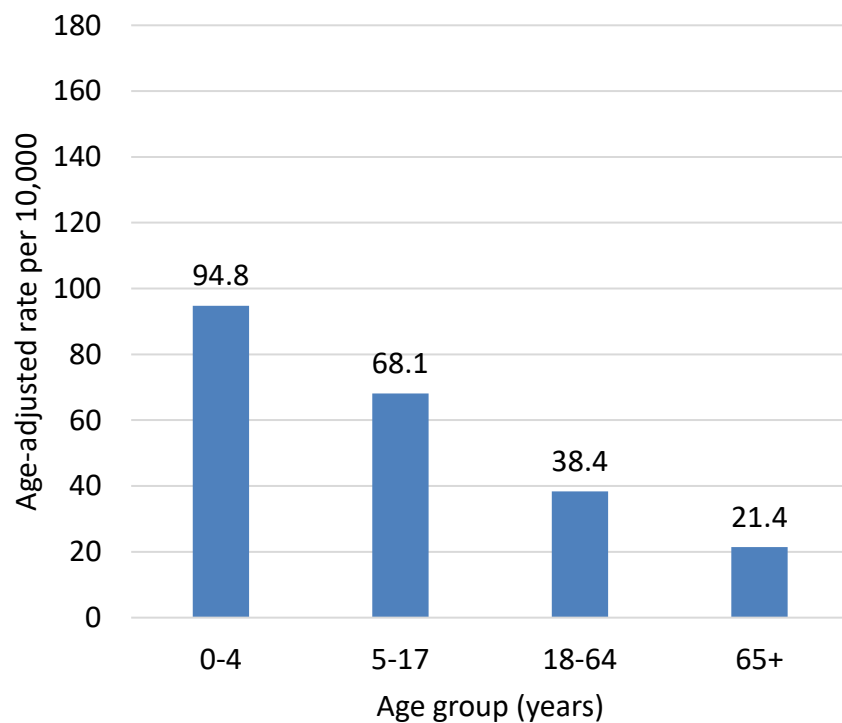
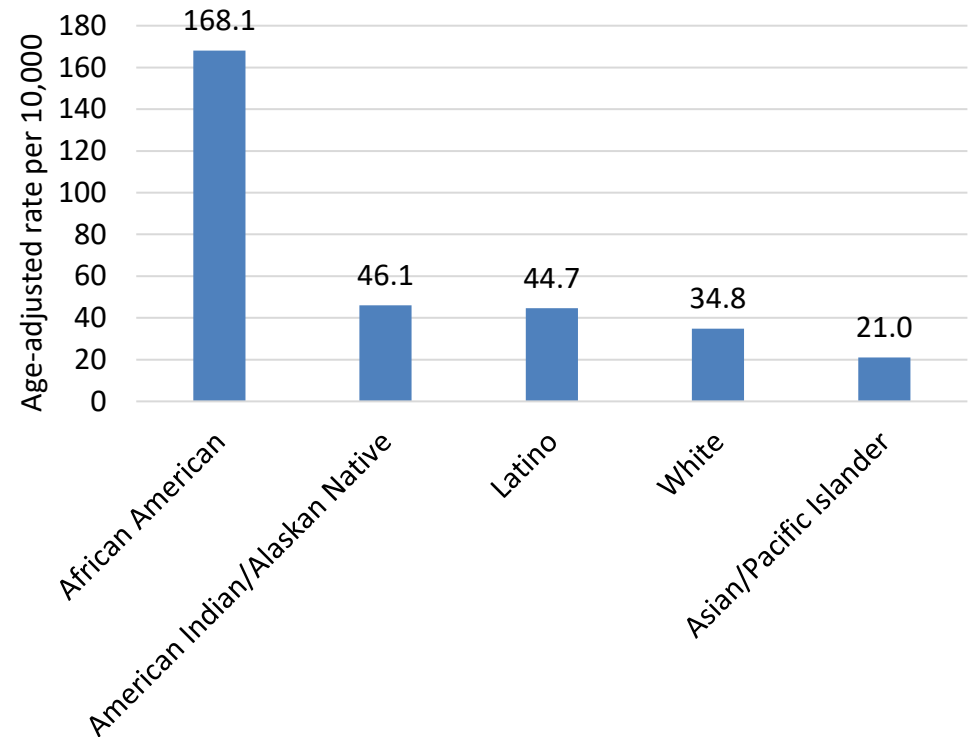


Figure 22b. Asthma emergency department visits by race/ethnicity, California, 2016



WORK-RELATED ASTHMA (WRA)

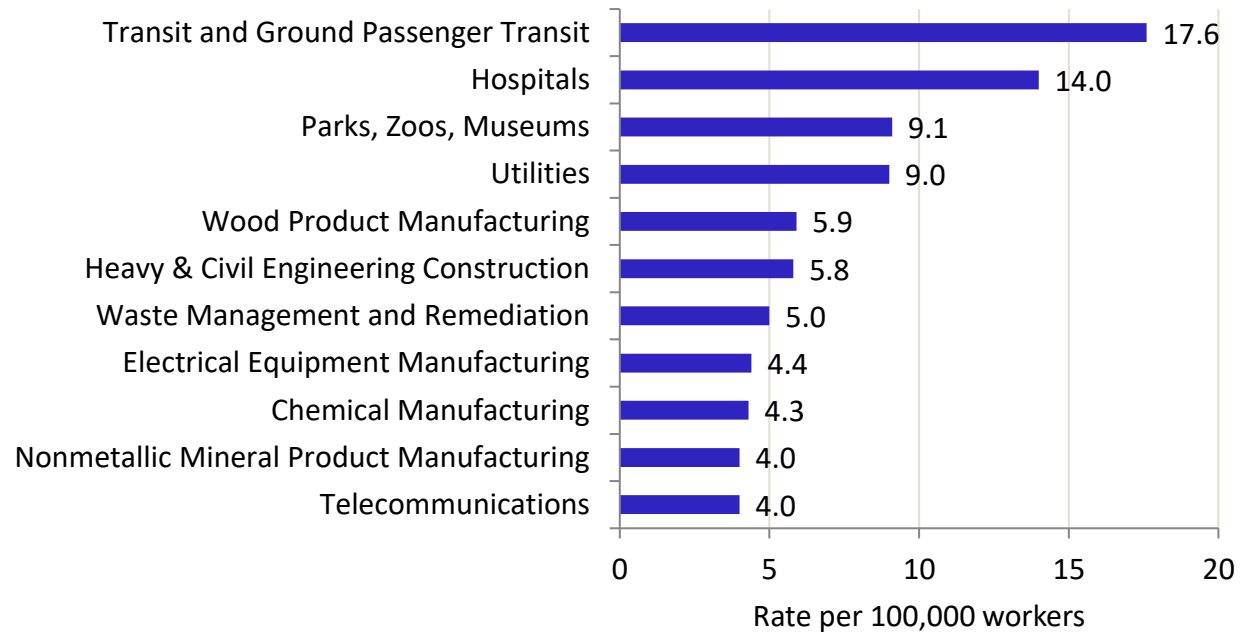
Work-related asthma (WRA) is asthma that is caused or worsened by conditions or substances in the workplace.

WRA is often unrecognized and underreported.

- An estimated 950,000 Californians, or 40% of California adults with asthma, have asthma that is caused or aggravated by their work.⁹¹ The number of people affected is likely higher, as work-related asthma is often not recognized, reported, or diagnosed.
- One quarter, or 25%, of cases are Latino and 13% are African American.⁹¹
- The majority of people with WRA are unable to perform their usual work (57%), and 60% had to visit the emergency department in the time since their breathing problems began at work.⁹¹

The rate of WRA varies widely by industries and occupations. Figure 23 displays the WRA rates for different industries in California. Workers in transit, ground transportation, and hospitals are impacted the most.

Figure 23. Industries with Highest Rates of Work-Related Asthma, California, 1993-2013
(n=7,782)



Source: Occupational Health Branch. California Work-Related Asthma Prevention Program Surveillance Data. California Department of Public Health, 2013.



A hospital worker uses asthma-causing chemicals to clean medical devices.

AUTISM SPECTRUM DISORDERS

What are Autism Spectrum Disorders (ASD)?

Autism, or ASD, is usually identified in childhood, but has lifelong effects, with significant impairments in social communication and interaction, language, and repetitive behaviors, affecting abilities to go to school or work.

How common is autism?

- According to U.S. data from the CDC, autism occurs in 1 of 68 children.⁹²
- Autism has been increasing in the last few decades.⁹³
- Autism has increased about **10-fold** in children born in California from 1987 to 2012, to roughly 1% of all births in California (Figure 24).
- Autism is nearly **5 times more common in boys**, but the rise in prevalence in California is similar in both boys and girls (Figure 24).
- Autism is more frequent among children born to older parents with higher education, although this may reflect diagnoses due to better access to services.⁹³

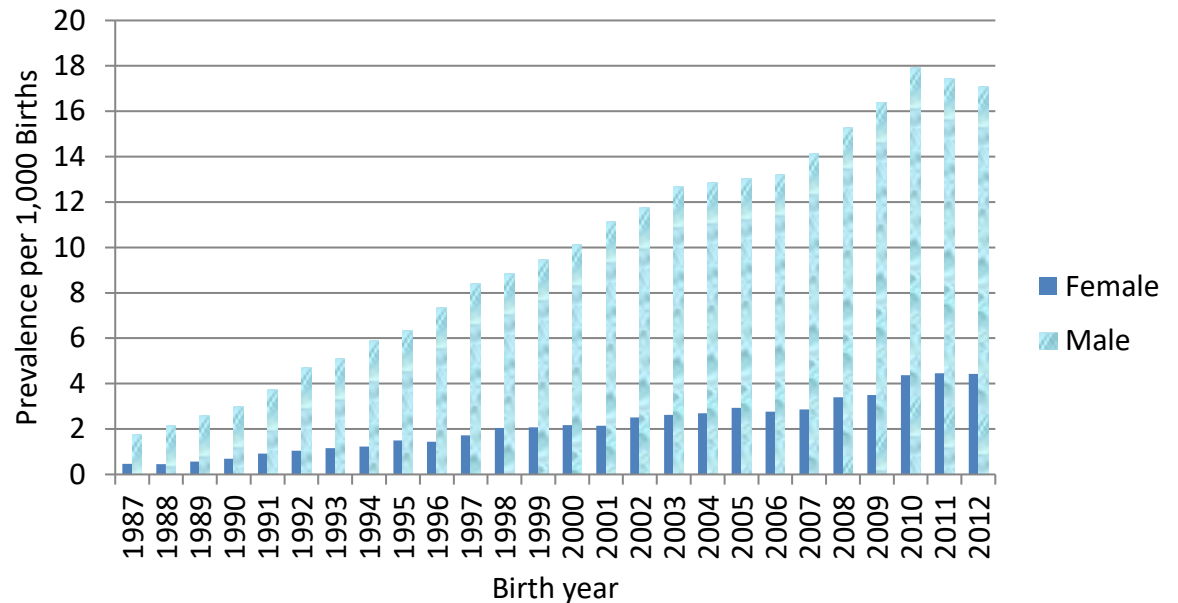
What are the impacts of autism?

- California needs to be prepared to provide lifelong services for health care, education, and job support for up to 6,000 children newly diagnosed with autism each year, at an estimated cost of \$162 billion/year.⁴⁰ About 80,000 people with autism are currently served by California government programs.
- Services, including housing, are needed for the growing population of autistic adults, which is projected to double over the next five years.⁴⁰

What are the risk factors or causes of autism?

- Much remains to be learned, but like other developmental disorders, autism has a complex set of causes that include genetic and non-genetic factors.
- Environmental factors, such as heavy metals like lead and mercury, air pollution, pesticides, chemicals in our diet, and everyday products, have been suggested to contribute to autism. Exposure during pregnancy is considered especially important.^{93,94}

Figure 24. California Autism Prevalence by Sex, 1987-2012



Source: California Autism Prevalence per 1,000 births by sex, years of birth 1987 to 2012. Autism cases were identified from Department of Developmental Services (DDS) data as of August, 2017. Denominators included live births to California resident mothers using Vital Statistics data, excluding infant deaths.

CANCER: AN INTRODUCTION

What is cancer?

Cancer is a large group of diseases characterized by uncontrolled growth and spread of abnormal cells.

The good news: cancer rates are declining, and more Californians are surviving cancer.

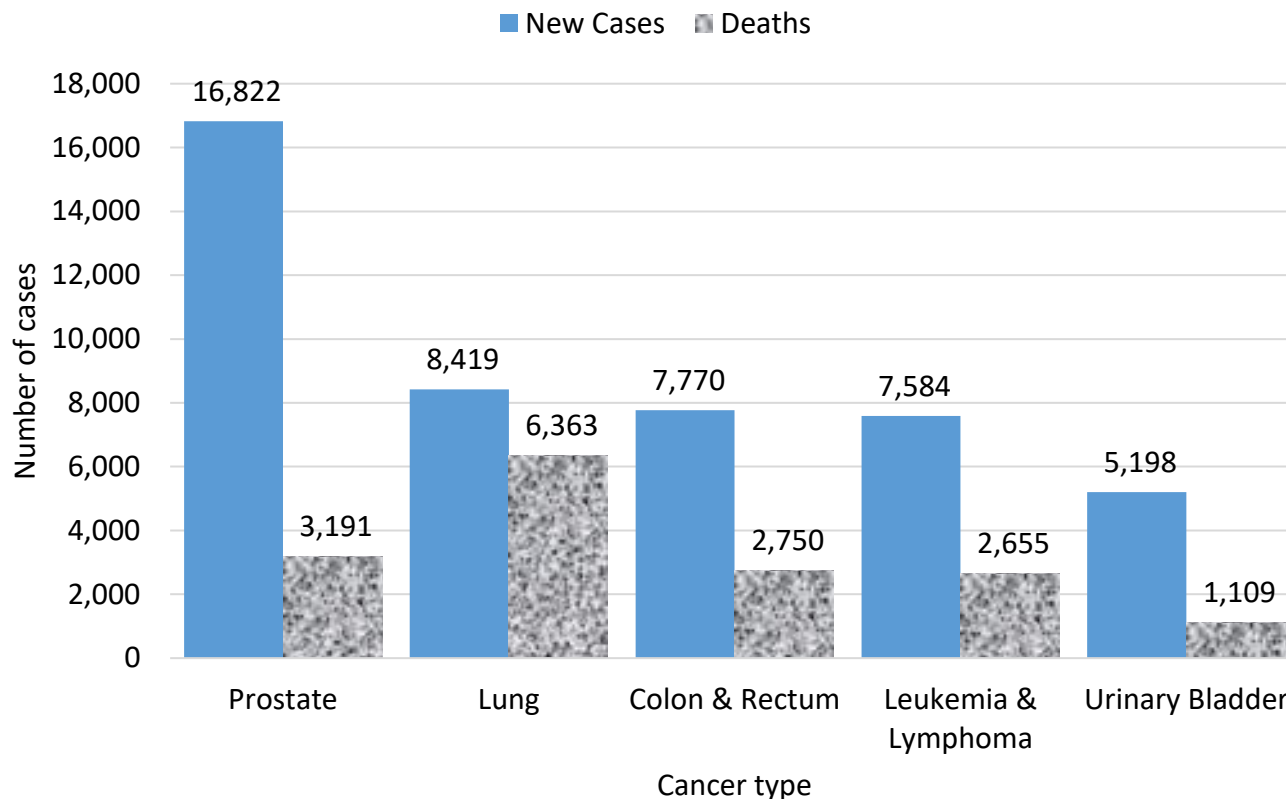
- From 1998 to 2014, cancer incidence rates decreased by 15% and mortality rates by 30%.¹¹
- Nearly 1,492,000 Californians who are alive today have a history of cancer.¹¹

Prevention and early detection are essential.

- Approximately 20% of all cancers diagnosed in the U.S. are caused by a combination of excess body weight, physical inactivity, excess alcohol consumption, and poor nutrition.⁹⁵
- Cancer screening increases the likelihood of detecting cancer early, when treatment is more effective. Screening reduces mortality from colon and rectum, breast, uterine cervix, and lung cancer.⁹⁵

Prostate cancer, the most common cancer among men, accounted for 21% of new cases in 2014. Lung cancer is the most deadly, accounting for 21% of deaths (Figure 25).

Figure 25. New cases and deaths of common cancers among males, California, 2014



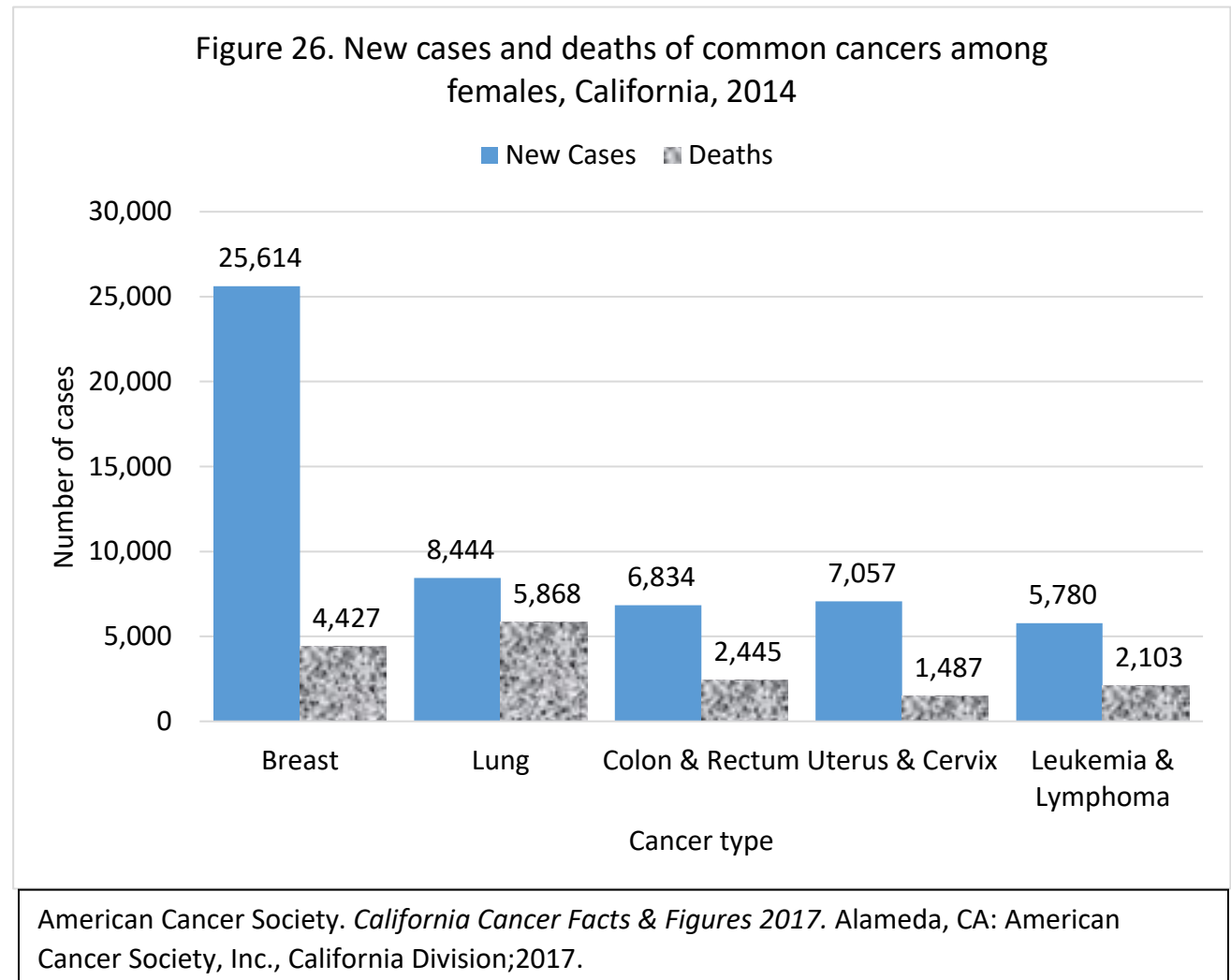
American Cancer Society. *California Cancer Facts & Figures 2017*. Alameda, CA: American Cancer Society, Inc., California Division;2017.

Cancer: An Introduction, continued

The bad news: cancer is still a major killer in California.

- In 2017, it is estimated that 176,140 Californians will be diagnosed with cancer, equivalent to nearly 20 new cases every hour of every day.¹¹
- In 2017, it is estimated that 59,000 Californians will die of cancer.¹¹ People with low socioeconomic status have a higher risk of dying of cancer.⁹⁶
- Exposures in the environment contribute to cancer risk. For example, a report found that environmental factors contribute 15% of the total childhood cancer burden in California and results in \$19 million annually in direct and indirect costs.⁴⁰

Breast cancer is the most common cancer among California women, accounting for 31% of new cases. Lung cancer is the most deadly, accounting for 16% of deaths (Figure 26).



The following pages highlight several types of cancer, along with maps that indicate the rates of each cancer in every county.

BREAST CANCER

Breast cancer is the most common cancer among women in California, regardless of race/ethnicity.

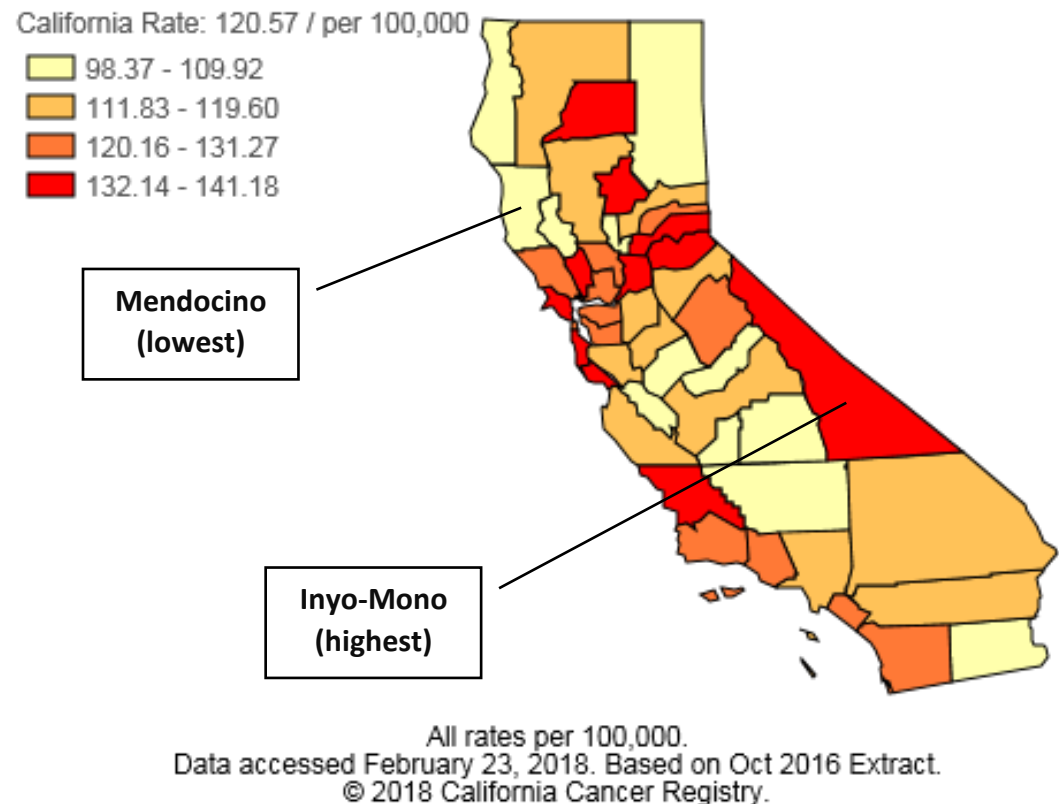
- Breast cancer incidence in California has been fairly stable since 1988.¹¹
- In 2014, 25,801 new cases of breast cancer were diagnosed in California.⁹⁷
- Exposures to toxic compounds have been associated with increased risk of breast cancer, including in everyday personal care products.⁹⁸

Early detection is the best defense against breast cancer.

- In 2014, 77% of women for whom screening is recommended reported that they had a mammogram in the past two years.¹¹
- Breast cancer diagnosed when the disease is localized (not spread to locations outside the breast) has a five-year survival rate of 99%.¹¹ Approximately 71% of female breast cancers diagnosed in California in 2014 were found at an early stage.¹¹

The counties with the highest rates of breast cancer in 2014 were Inyo-Mono (157.32 per 100,000); the county with the lowest rate of breast cancer was Mendocino (75.02 per 100,000) (Figure 27). Rates are reported per 100,000 females in the population.

Figure 27. Age-adjusted invasive breast cancer incidence rates in California by county, Female, 2010-2014



Note: Some counties are combined to reach sufficient sample size. Source: *Age Adjusted Invasive Cancer Incidence Rates by Region in California, 1988 2014*. Based on Oct 2016 Extract. California Cancer Registry. Cancer-Rates.info. Retrieved Feb 23, 2018, from <http://cancer-rates.info/ca/>.

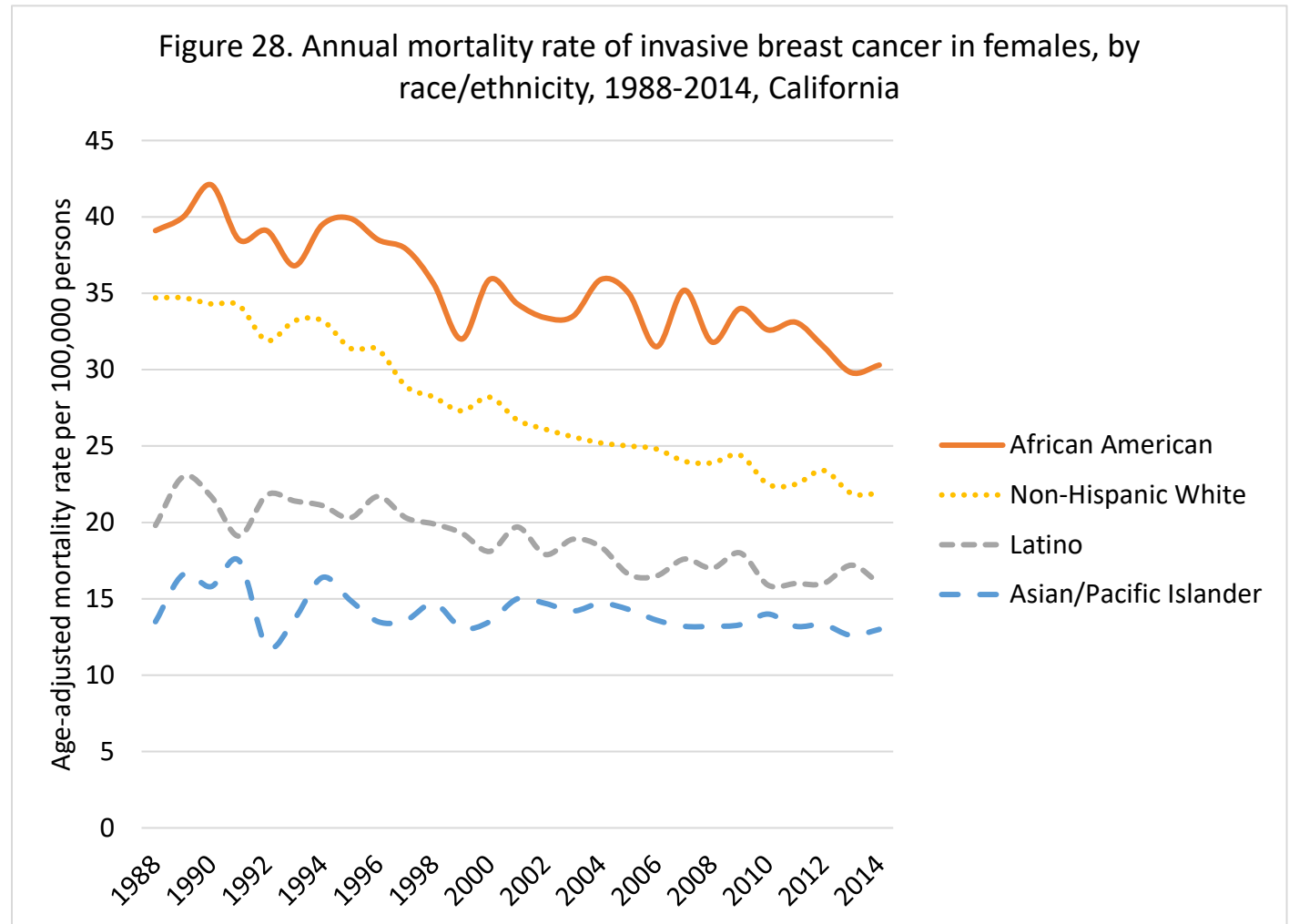
Breast Cancer: Unequal Impacts

Though breast cancer is the most common cancer among women of any race/ethnicity, there are stark differences in mortality rates from breast cancer across racial/ethnic groups (Figure 28). African American women have the highest breast cancer mortality rates.⁹⁹

Social determinants of health influence how often women get mammograms, the screening test for breast cancer, and a woman's individual risk of developing breast cancer.

- Low-income women are less likely to get mammograms.¹⁰⁰
- Latina and Asian/Pacific Islander women are less likely to have had a mammogram in the past year.⁹⁵
- Asian women are experiencing increasing rates of breast cancer upon migrating and assimilating into the U.S.¹⁰¹
- There is a correlation between women who are more educated and have a higher socioeconomic status and a higher risk of breast cancer.¹⁰²⁻¹⁰⁷

Source: Age-Adjusted Invasive Breast Cancer Mortality Rates by Race in California, 1988 - 2014. Based on Oct 2016 Extract. California Cancer Registry. Cancer-Rates.info. Retrieved Mar 26, 2018, from <http://cancer-rates.info/ca/>.



COLORECTAL CANCER

Colorectal cancer is common and deadly.

- In California, there were 10,155 cases of colon and 4,449 cases of rectal cancer in 2014.⁹⁷
- Colorectal cancer is second only to lung cancer in adult cancer mortality. In 2014 there were 4,143 deaths from colon cancer and 1,052 deaths from rectal cancer in California.⁹⁷

The good news: colorectal cancer is preventable and fewer Californians are dying of the disease, in part due to early detection.

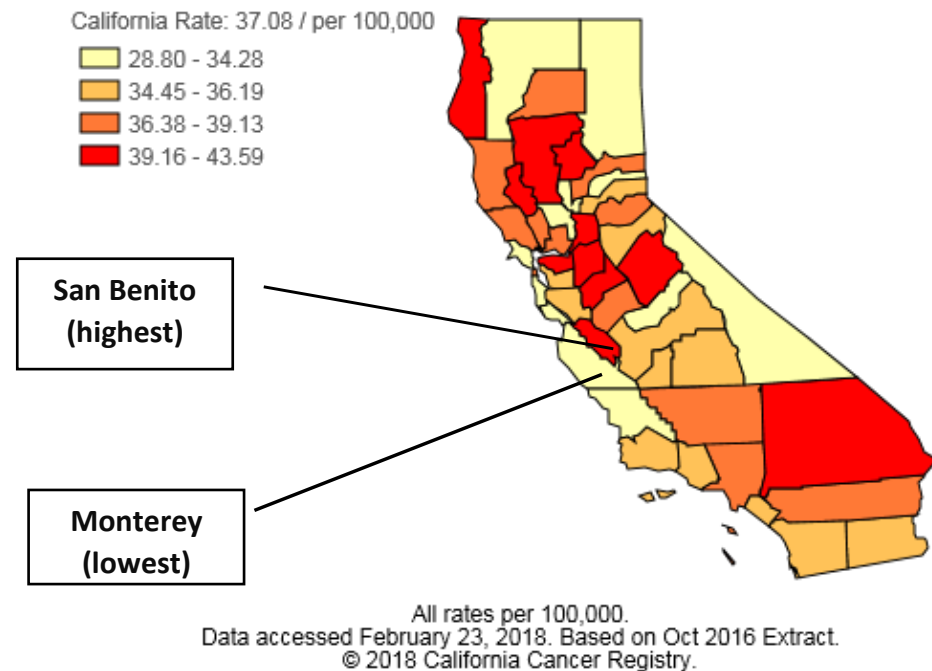
- Colorectal cancer is preventable through screening tests.
- Colorectal cancer incidence rates have declined steadily in California since 1998.¹¹
- Fewer people are dying of colorectal cancer in California; since 1988, death rates have decreased by 44% for all races combined.¹¹

The county with the highest rate of colorectal cancer in 2014 was San Benito (56.76 per 100,000); the lowest colorectal cancer rates was in Monterey (26.99 per 100,000) (Figure 29).

Note: Some counties are combined to reach sufficient sample size. Source: *Age-Adjusted Invasive Cancer*

Incidence Rates by Region in California, 1988-2014. Based on Oct 2016 Extract. California Cancer Registry. Cancer-Rates.info. Retrieved Feb 23, 2018, from <http://cancer-rates.info/ca/>

Figure 29. Age-adjusted invasive colon and rectum cancer incidence rates in California by county, 2010-2014



Colorectal Cancer: Unequal Impacts

Some California communities have more colorectal cancer cases diagnosed at an advanced stage (meaning the cancer has extended beyond the colon wall) than other communities.

Figure 30 identifies communities in California where the percentage of advanced-stage colorectal cancer cases is higher than the state average.

Although the map tells us where the cases are, the underlying reasons are not as clear.

Possible reasons include:

- Social determinants, such as poverty,¹⁰⁸ race, education, or lack of health insurance;^{109 110}
- Inadequate access to medical providers and screening tests, especially in rural and medically underserved areas;¹¹⁰
- High-risk factors, such as family history of colorectal cancer, or inflammatory bowel disease;¹¹¹
- Medium-risk factors, such as lack of regular physical activity, low-fiber/high-fat diet, cigarette smoking, and obesity.¹¹¹

Percent of Colorectal Cancers Diagnosed at Advanced Stage

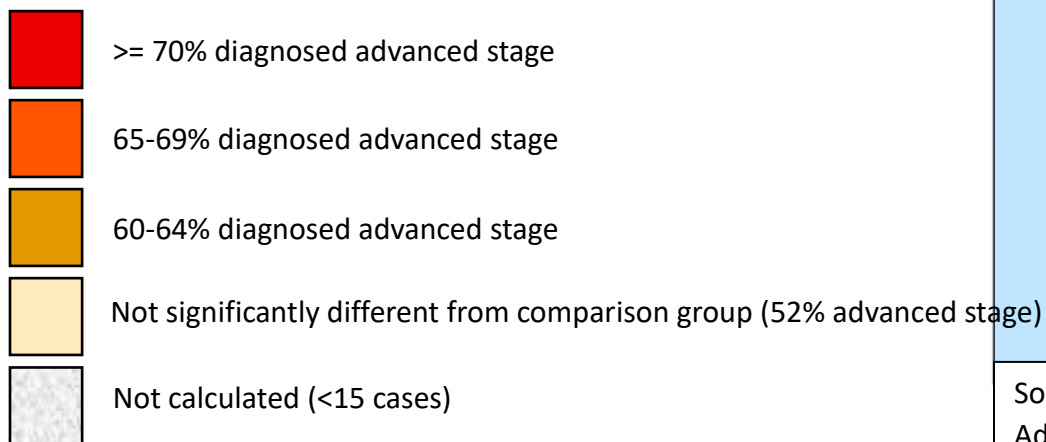


Figure 30. Advanced stage colorectal cancer in California adults 50 years and older, by Medical Service Study Area, 2007-2011



Source: California Cancer Registry. Geographic Variations in Advanced Stage Colorectal Cancer in California. 2007-2011; http://www.ccrca.org/Data_and_Statistics/CRC/index.shtml. Accessed March 9, 2018.

LUNG CANCER AND OTHER TOBACCO-RELATED CANCERS

What are lung cancer and other tobacco-related cancers?

Lung cancer is a type of cancer, caused primarily from smoking, that starts in the lungs or the bronchi. Tobacco use increases the risk of other cancers as well, including cancers of the mouth, nasal cavities, larynx, pharynx, esophagus, stomach, liver, pancreas, kidney, bladder, cervix, and certain blood cells.

Lung cancer kills more than 12,000 Californians each year – more than prostate, breast, and colorectal cancers combined.

- In 2014, there were 16,863 new lung and bronchus cancer cases.⁹⁷
- Incidence rates of lung cancer in California decreased by 40% from 1988 to 2014, reflecting the continued decline in smoking among Californians.⁹⁷
- Rates of other smoking-related cancers are dropping as well.

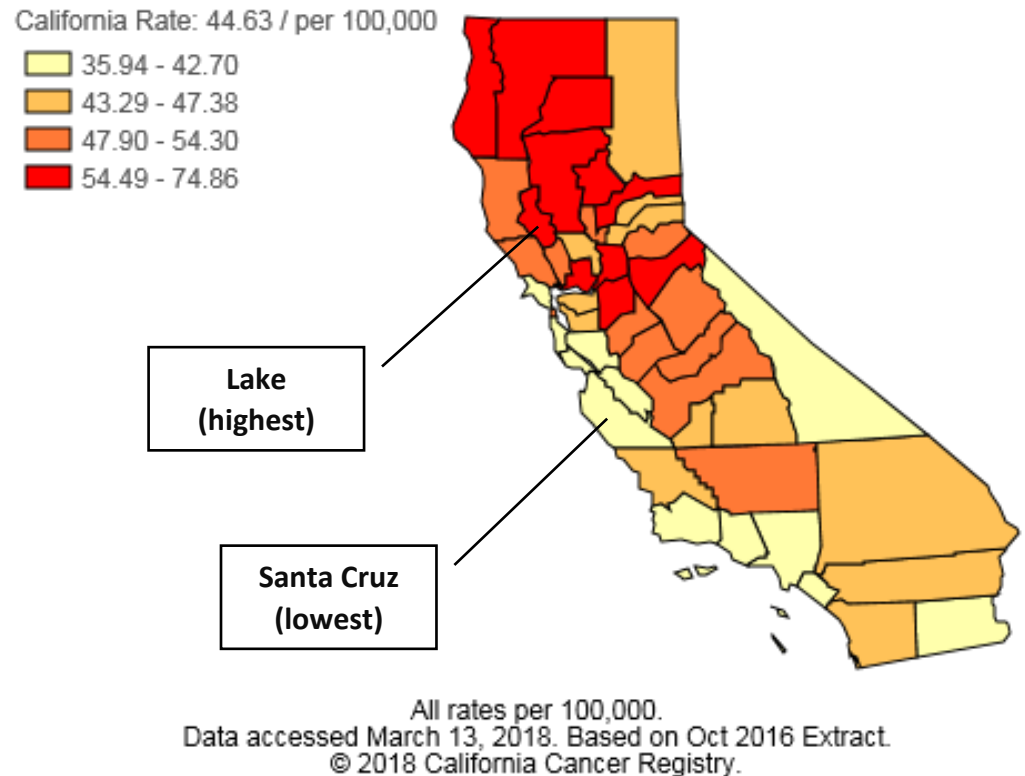
Fewer Californians are smoking cigarettes.

- Cigarette smoking rates have declined steadily from 1989 to 2015, though the trend suggests that the decline has stalled the last few years.
- Approximately 11% of adults currently smoke cigarettes.

The county with the highest mortality rate of lung and bronchus cancer from 2010 to 2014 was Lake (54.37 per 100,000); the county with the lowest rate was Santa Cruz (24.84 per 100,000) (Figure 31).

Note: Some counties are combined to reach sufficient sample size. Source: *Age-Adjusted Invasive Cancer Incidence Rates by Region in California, 1988-2014*

Figure 31. Age-adjusted invasive lung and bronchus cancer incidence rates in California by county, 2010-2014



Lung Cancer: Unequal Impacts

Social determinants, especially race/ethnicity, influence incidence rates of lung and bronchus cancer in California. Statewide, African Americans have the highest lung cancer incidence (Figure 32) and mortality from lung cancer.

Smoking rates differ across race/ethnicity, which can explain some of the disparity in lung cancer incidence.

- African Americans, American Indian/Alaskan Natives,¹¹² and certain Asian subgroups, such as Vietnamese, Korean and Filipino men, and Japanese, Korean, and Filipina women, have higher rates of smoking overall.¹¹³
- Californians of lower socioeconomic status are more likely to be current smokers.¹¹⁴

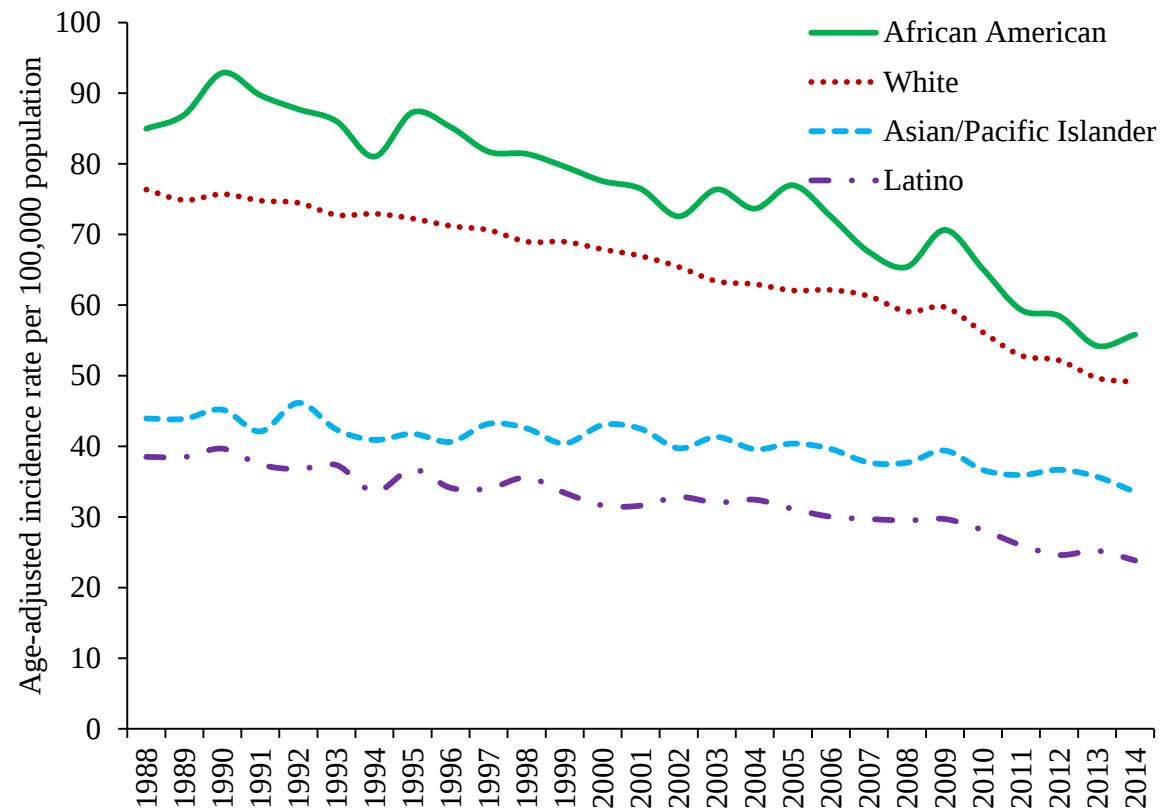
Other risks for developing lung cancer include family history and environmental/occupational exposures, such as second-hand smoke and asbestos.

Source: *Age-Adjusted Invasive Cancer Incidence Rates by Race/Ethnicity in California, 1988-2014*

Based on Oct 2016 Extract. California Cancer Registry. Cancer-Rates.info. Retrieved Jan 29, 2018, from <http://cancer-rates.info/ca/>



Figure 32. Trends in lung and bronchus cancer incidence by race/ethnicity, California, 1988-2014



PROSTATE CANCER

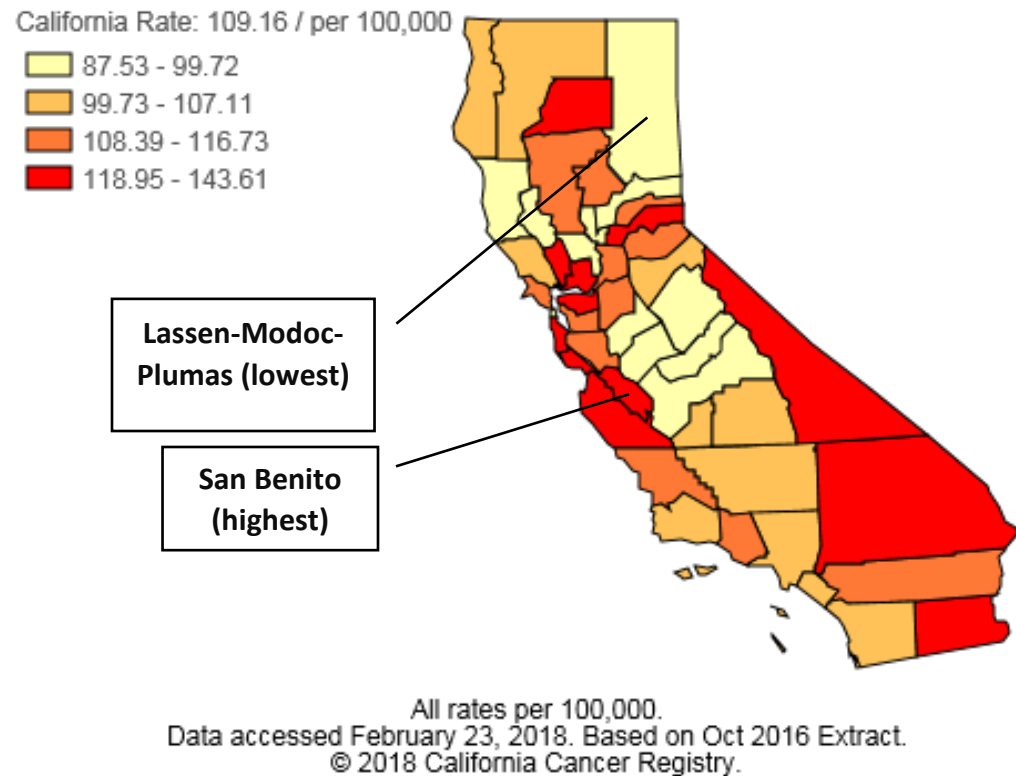
Prostate cancer is the most common cancer among men in California.

- In 2014, there were 16,822 new cases of prostate cancer, and 3,191 deaths from prostate cancer.⁹⁷
- Prostate cancer death rates in California have declined by 44% since 1998.¹¹
- Roughly 60% of prostate cancers are diagnosed among men ages 65 and older.¹¹⁵

The county with the highest rate of prostate cancer from 2010 to 2014 was San Benito (143.61 per 100,000); the counties with the lowest rate of prostate cancer were Lassen – Modoc – Plumas (87.53 per 100,000) (Figure 33).

Note: Some counties are combined to reach sufficient sample size. Source: *Age-Adjusted Invasive Cancer Incidence Rates by Region in California, 1988-2014*. Based on Oct 2016 Extract. California Cancer Registry. Cancer-Rates.info. Retrieved Feb 23, 2018, from <http://cancer-rates.info/ca/>

Figure 33. Age-adjusted invasive prostate cancer incidence rates in California by county, 2010-2014



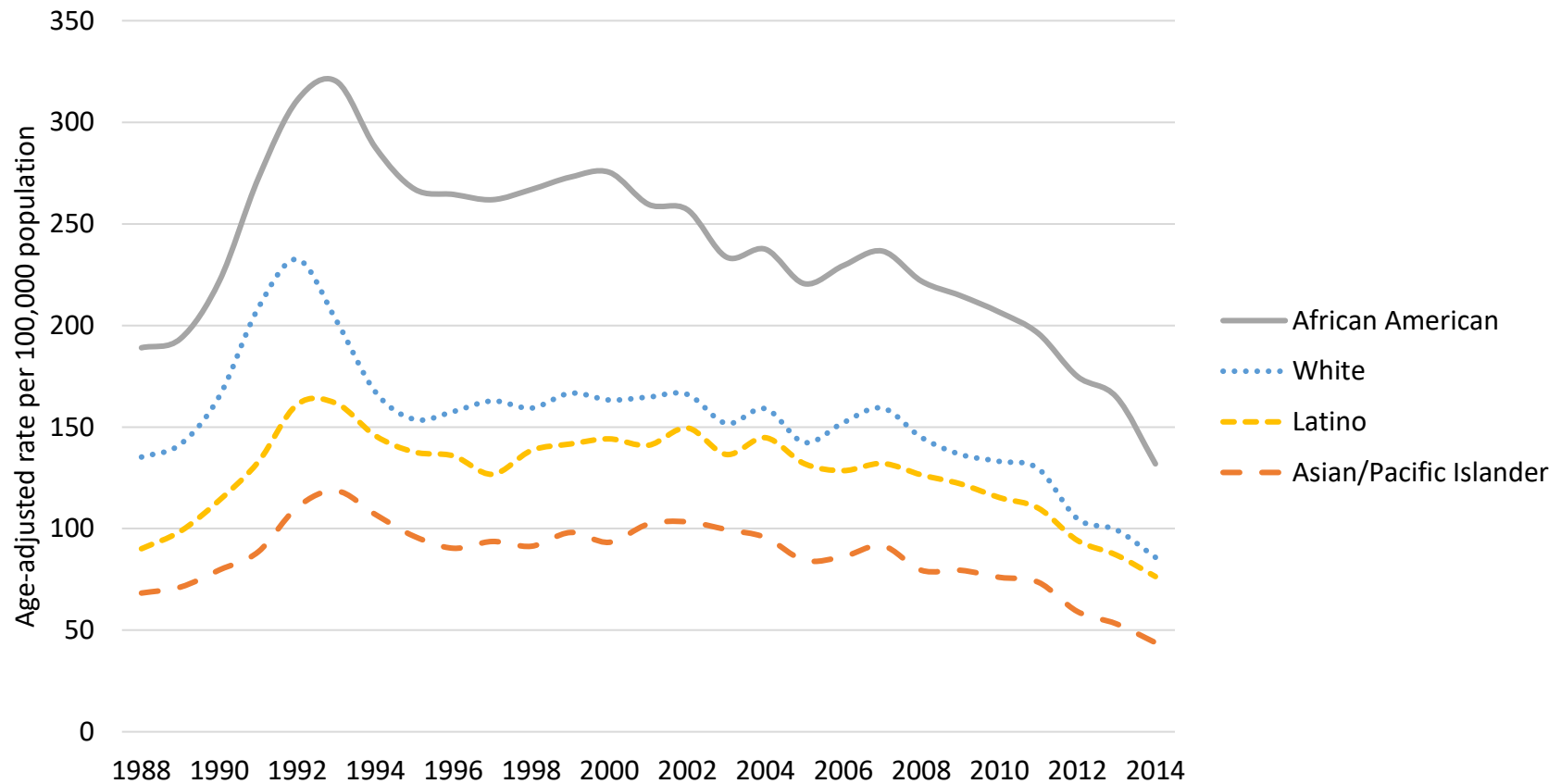
Prostate Cancer: Unequal Impacts

- African American men have a 70% higher risk than White men for developing prostate cancer (Figure 34).¹¹
- African American men are more than twice as likely to die from prostate cancer.¹¹⁶
- Asian/Pacific Islander men have the lowest incidence and highest survival rates (Figure 34).¹¹⁷

Source: *Age-Adjusted Invasive Cancer Incidence Rates by Region in California, 1988-2014*. Based on Oct 2016 Extract. California Cancer Registry. Cancer-Rates.info. Retrieved Feb 23, 2018, from <http://cancer-rates.info/ca/>



Figure 34. Trends in prostate cancer incidence by race/ethnicity, California, 1988-2014



CANNABIS (MARIJUANA, WEED, POT)

- An estimated 12% of California adults reported using cannabis on national surveys.¹¹⁸
- About one in five Californians aged 18-25 reported using cannabis on national surveys.¹¹⁸
- Between 2013 and 2015, five percent of 7th graders, 13% of 9th graders and 20% of 11th graders in California reported using cannabis in the past month (Figure 35).¹¹⁹

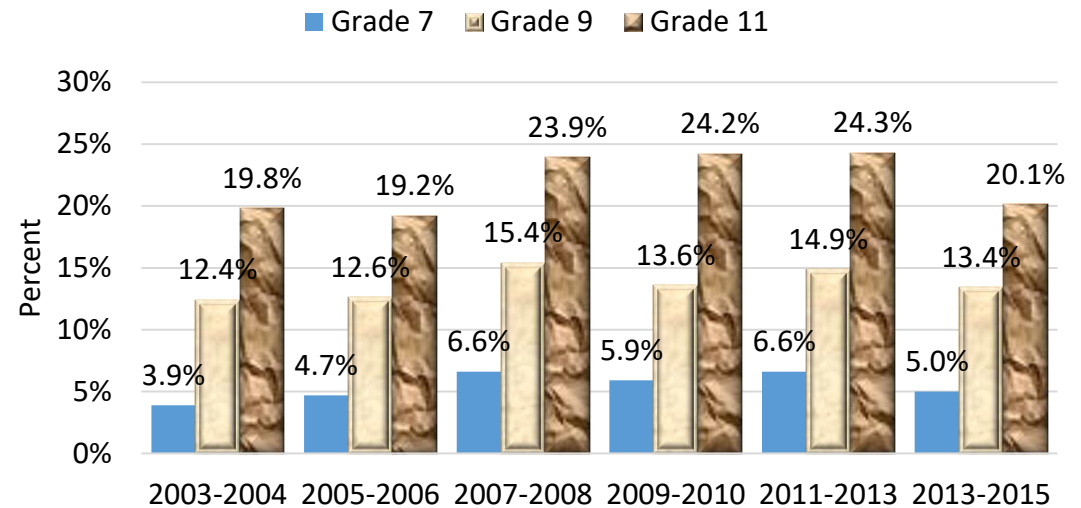
Figure 35 shows that the number of students who reported using cannabis in the past month increased with age. Cannabis use among 11th graders was four times higher than use among 7th graders.¹¹⁹

There are harmful health effects from using cannabis.

- When a pregnant women uses cannabis, THC (tetrahydrocannabinol) is transmitted across the placenta, increasing the chances that her baby will be born with a low birth-weight and experience health problems during the first year of life.¹²⁰⁻¹²²
- The number of pregnant women giving birth in a hospital who used cannabis rose from 4.6% in 2006 to 7.8% in 2014, a 70% increase.¹²³
- In 2016, African American women reported the highest use of cannabis during pregnancy (10.5%), followed by white women (5.7%), and Latino/Hispanic women (3.7%).¹²⁴
- Youth who use cannabis regularly may damage their memory and ability to learn and are at greater risk for mental health disorders, such as anxiety and psychosis.¹²⁵⁻¹²⁸
- Cannabis smoke has many of the same toxins found in cigarettes. Inhaling smoke from cannabis products can lead to bronchitis and other lung problems.¹²⁹⁻¹³⁷
- Edibles (foods that contain cannabis) may have high concentrations of THC but take up to two hours to produce an effect. People who eat large amounts of edibles in order to get “high” quickly are at risk for poisoning, as are children who accidentally eat edibles.¹³⁷⁻¹⁴¹

Driving under the influence of cannabis negatively affects reaction time, coordination, and concentration, increasing the risk of injury from car crashes.¹⁴²⁻¹⁴⁵ Cannabis was the most common substance detected in drivers who tested positive for drugs from 2007-2014.¹⁴⁶

Figure 35. Self-reported cannabis use in the past month among 7th, 9th and 11th graders in California



Source: California Department of Education, WestEd. California Healthy Kids Survey. 2003-2015.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

What is chronic obstructive pulmonary disease?

Chronic obstructive pulmonary disease (COPD) refers to two diseases (chronic bronchitis and emphysema) that make breathing difficult. COPD can cause coughing up large amounts of mucus, wheezing, shortness of breath, and chest tightness.

COPD is the fifth leading cause of death in California.¹

The age-adjusted death rate for COPD has fallen from 45.1 in 2001 to 35.0 in 2013. However, disparities exist by race/ethnicity (Figure 36.)

Cigarette smoking is the leading cause of COPD.¹⁴⁷

Long term exposure to lung irritants – such as air pollution, secondhand smoke, chemical fumes, or dust at work or in the community – also may contribute to COPD. According to the WHO, air pollution causes about 8% of COPD deaths globally.¹⁴⁸

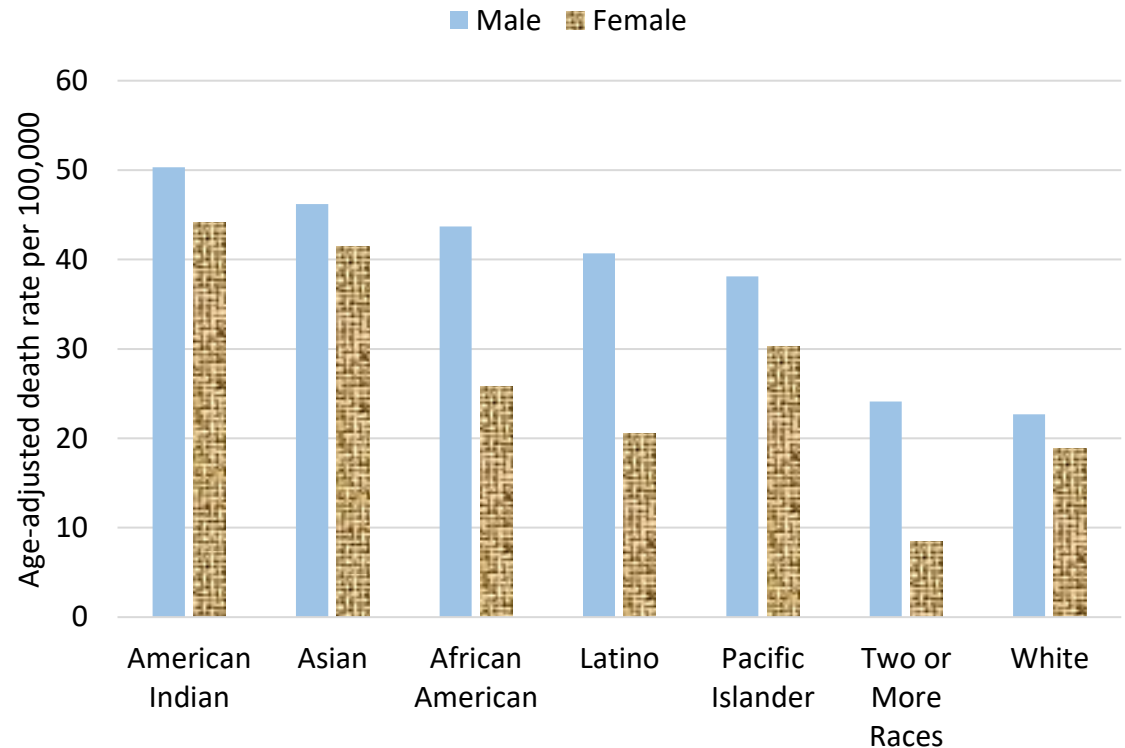
Studies conducted in California estimate that about 15-30% of COPD is attributable to occupational exposures. Importantly, the combination of work-related

exposures and smoking significantly increases the risk of COPD as compared to smoking alone.¹⁴⁹



Silica exposure, from concrete dust, may cause COPD in a construction worker.

Figure 36. COPD death rates by race/ethnicity and sex, California, 2013



Source: Sun R, Chau L, Deem S. CA-Vital Statistics Query. 2015; <http://informaticsportal.cdph.ca.gov/CHSI/VSQS/Default.aspx>. Accessed March 7, 2018.

COPD almost always gets worse over time, and there is no cure. However, people can manage COPD by stopping smoking, eliminating harmful occupational and environmental exposures, and taking medications properly.

DEPRESSION

Depression (major depressive disorder or clinical depression) is a serious mood disorder that affects the ability to function and perform daily activities. Depression causes severe symptoms that last for at least two weeks.¹⁵⁰

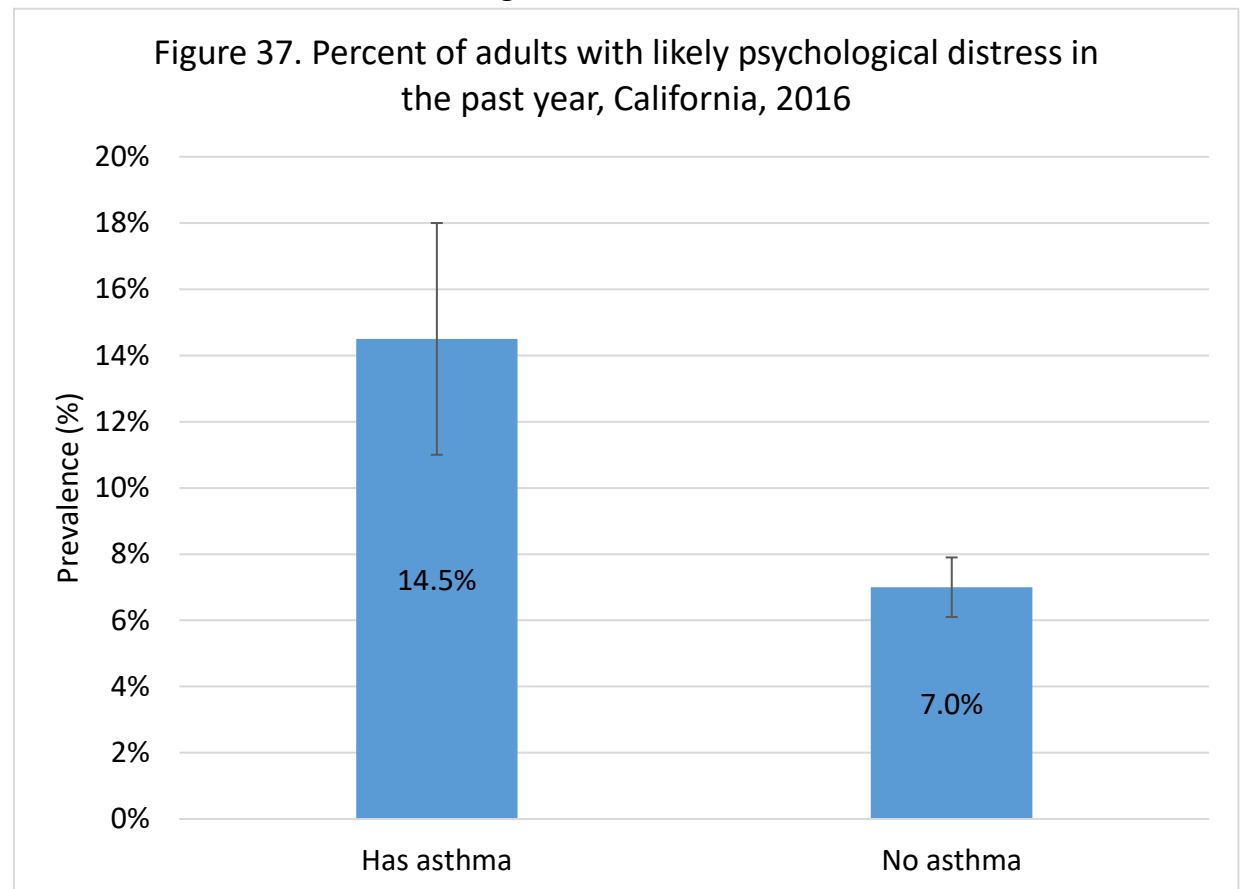
Major depression is a common and treatable condition, but if untreated, can have serious consequences.

- Major depression was the fifth leading cause of disability-adjusted life years (DALYs) in the U.S. in 2010.³⁶
- 13.3% of California adults have been told that they have a form of depression.¹⁵¹
- 9.3% of California adults have ever seriously thought about committing suicide.⁸⁸
- In 2016, 18.7% of California teens felt they needed help in the past year for emotional/mental health problems, while 10.1% received psychological/emotional counseling in the past year.⁸⁸

Depression is more common among persons with chronic disease and can worsen existing chronic diseases.¹⁵²

- Adults in California with asthma are more likely to have had psychological distress in the past year, compared to adults without asthma (Figure 37).
- One in four people with type 2 diabetes have clinical depression.¹⁵³
- One in four people with chronic obstructive pulmonary disease (COPD) have depressive symptoms.¹⁵⁴
- Depression is a risk factor for the development of cardiovascular disease and for adverse outcomes after cardiovascular surgery.¹⁵⁵

Error bars represent 95% confidence intervals.
Source: UCLA Center for Health Policy Research.
AskCHIS 2016. Likely has had serious psychological distress during past year by Ever diagnosed with asthma. 2016; <http://ask.chis.ucla.edu>. Exported on May 15, 2018.



DIABETES

Diabetes is a chronic condition marked by high levels of glucose (sugar) in the blood, resulting from defects in insulin production, insulin action, or both. It is the leading cause of blindness, amputation and kidney failure, and is a major contributor to heart attacks and strokes.

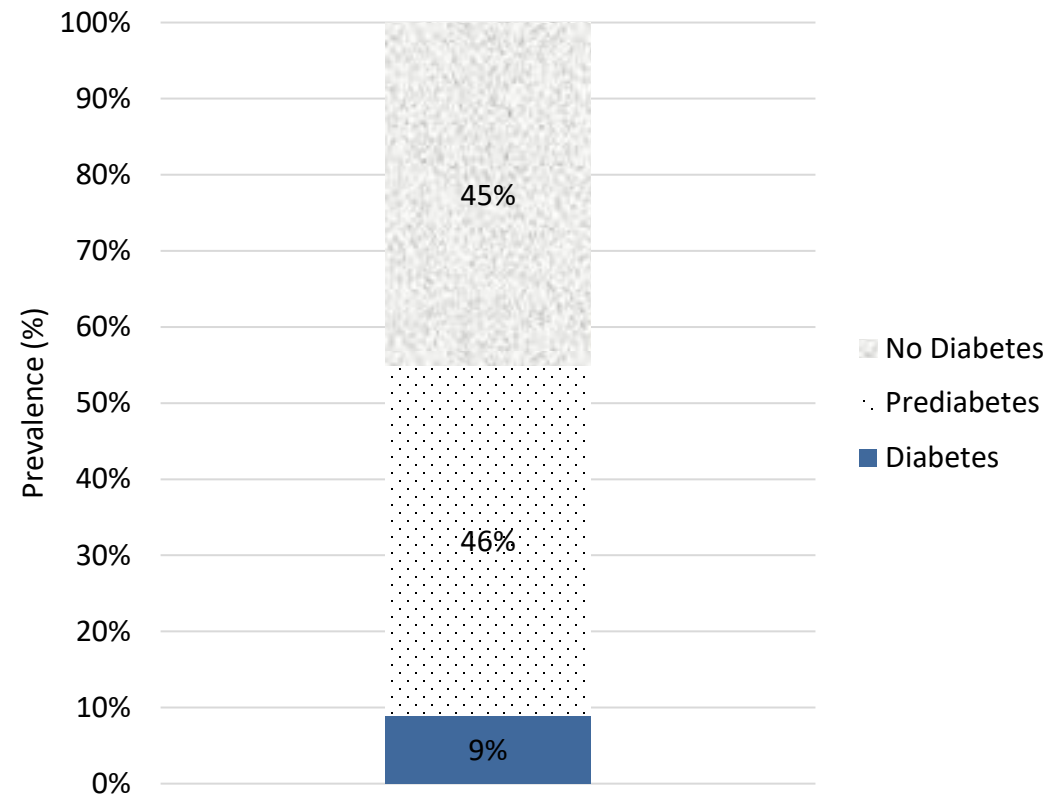
The prevalence of diabetes has increased 34% between 2003 and 2016.⁸⁸

- In 2003, 1.7 million adults in California had diagnosed diabetes. In 2016, 2.6 million adults had diagnosed diabetes, or 9% of all adults (Figure 38).⁸⁸
- Diabetes costs in California exceed \$27 billion each year. This is due to direct medical costs, such as hospitalizations and medical care, and indirect medical costs, such as disability, time lost from work, and premature death.¹⁵⁶
- Treatment costs can be reduced by managing diabetes and preventing complications.

Prediabetes is condition where blood sugar levels are higher than normal, but not yet high enough to be diagnosed as type 2 diabetes.

- More than 13 million California adults have pre-diabetes, or 46% of all adults in the state (Figure 36).¹⁵⁶
- Without intervention, about one in four people with pre-diabetes will develop type 2 diabetes within three to five years, and up to 70% will develop diabetes within their lifetime.¹⁵⁶

Figure 38. Adult diabetes and prediabetes prevalence, California, 2013-2014



Note: Prediabetes includes undiagnosed diabetes. Source: Babey SH, Wolstein J, Diamant AL, Goldstein H. *Prediabetes in California: Nearly Half of California Adults on Path to Diabetes*. Los Angeles, CA: UCLA Center for Health Policy Research and California Center for Public Health Advocacy; 2016.

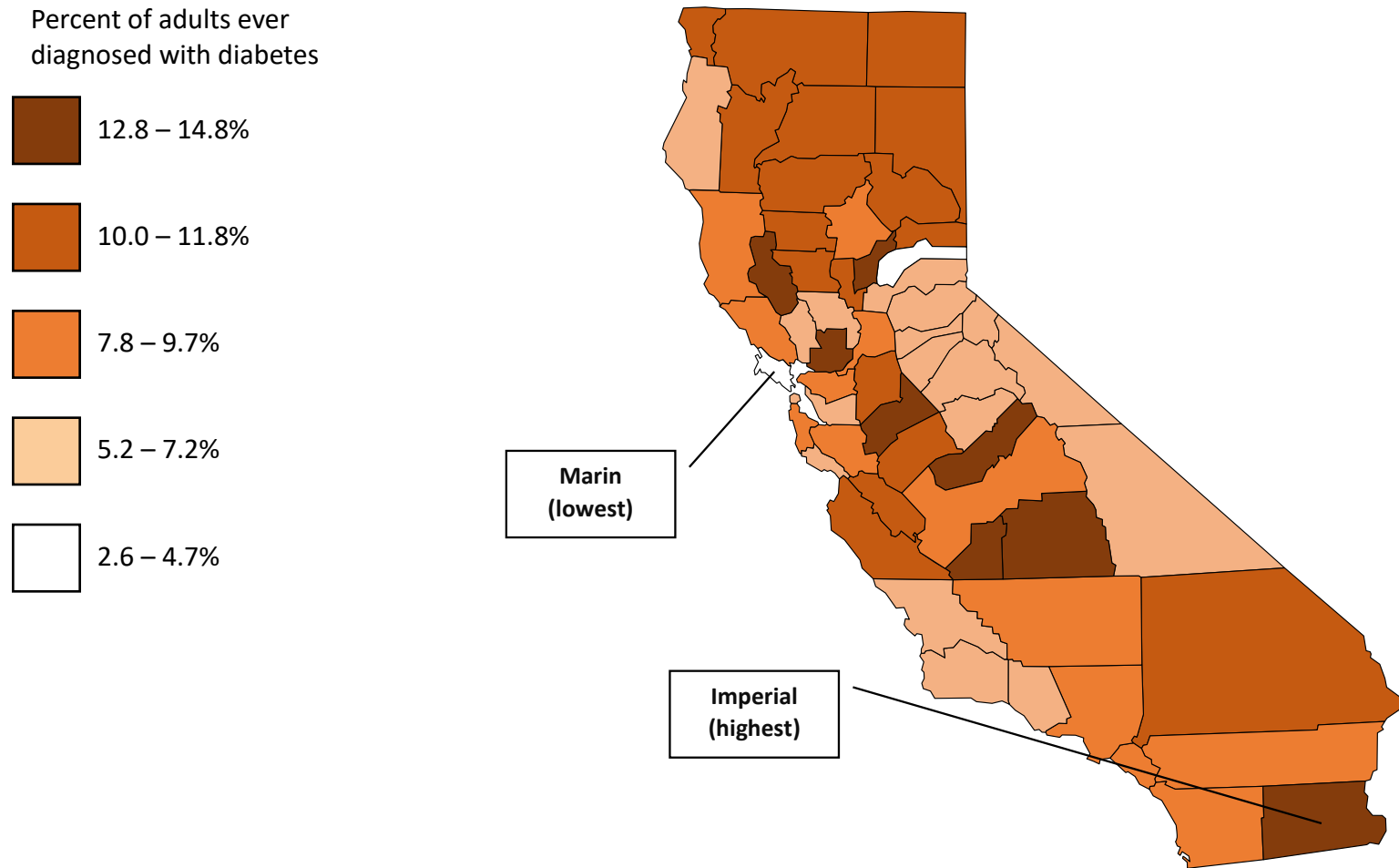
Diabetes, continued

In California, 9% of adults have diabetes. However, diabetes prevalence varies widely by county, as shown in Figure 39.

The county with the highest percentage of adults with diabetes in 2016 was Imperial (14.8%); the lowest was Marin (2.6%).¹⁵⁷

Figure 39. Percentage of adults ever diagnosed with diabetes by county, California, 2016

Source: UCLA Center for Health Policy Research. AskCHIS 2016. Ever diagnosed with diabetes. 2016; <http://ask.chis.ucla.edu>. Exported on March 15, 2018.



Diabetes: Unequal Impacts

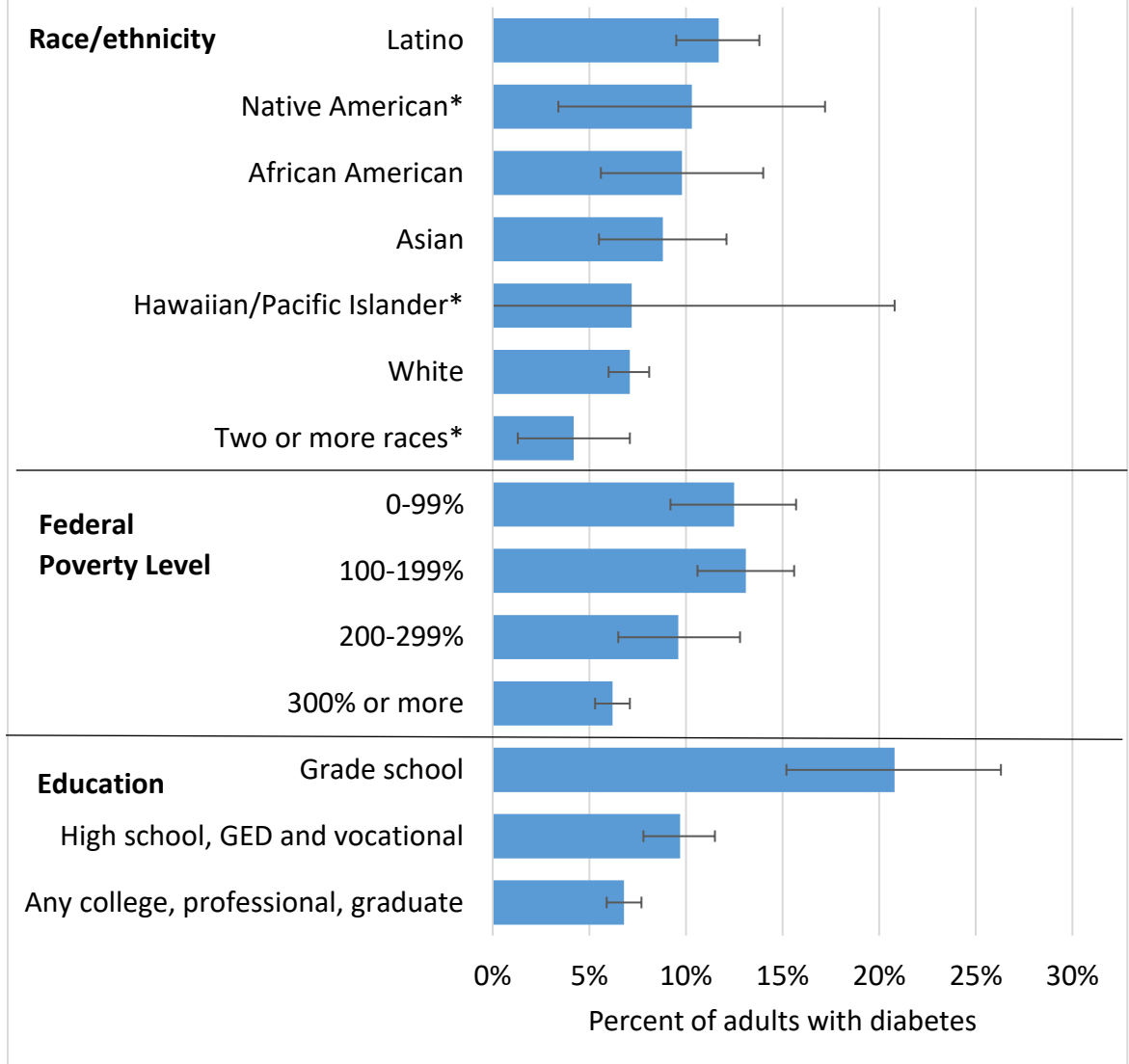
Social determinants of health influence the share of California adults who have ever been diagnosed with diabetes (Figure 40).

- Seven percent of White adults have diabetes, yet, 11% of Latinos and 9% of African Americans have diabetes.⁸⁸
- The rate of diabetes among Californians without a high school diploma is three times the rate for Californians with a college degree.⁸⁸
- The percentage of adults with diabetes is more than two times higher in those with a family income below 100% of the federal poverty level as compared to those whose income is 300% and above the poverty level.⁸⁸



*Two or more races, Native American and Hawaiian/Pacific Islander estimates are unstable due to small sample sizes. Error bars represent 95% confidence interval. Source: UCLA Center for Health Policy Research. AskCHIS 2016. Adults who were ever told by a doctor that they have diabetes. Available at <http://ask.chis.ucla.edu> Exported on Jan 30, 2018.

Figure 40. Adults who were ever told by a doctor that they have diabetes, by race/ethnicity, Federal Poverty Level, and education, California, 2016



ENVIRONMENTAL EMERGENCIES: NATURAL AND HUMAN-CAUSED DISASTERS

Exposures to environmental emergencies, such as hazardous chemical releases and natural disasters, may lead to health effects long after the initial trauma. Additionally, pre-existing chronic conditions can impair a person's ability to prepare for, respond to, or recover from an emergency or a disaster. People will sometimes experience a new chronic disease or a worsening of existing disease after these types of events. Experiencing traumatic events can increase stress, and increase risk of later development of post-traumatic stress disorder (PTSD).

Though the total impact of natural and human-caused disasters on the burden of chronic disease in California is unknown, CDPH emergency responses have demonstrated that worsening of chronic diseases and behavioral health issues are important outcomes to assess. For example, incident follow-ups have shown the links between: a) a toxic chlorine gas release and long-term lung problems and PTSD,¹⁵⁸ b) the 2012–2016 drought and worsening of chronic diseases,¹⁵⁹ and, c) an earthquake and increased stress and risk of PTSD.¹⁶⁰ Recognizing and preparing for the potential long-term health impacts of chemical releases, other environmental emergencies, and natural disasters is critical for improving the resilience of California's communities.

Of persons exposed to a **toxic chlorine gas release** at a scrap metal recycling facility, six months later:

19%

Were still seeing a physician for problems related to the exposure

19%

Screened positive for PTSD

Of households living in **extended drought** in southern Tulare County:

45%

Reported worsening of an existing chronic disease

20%

Reported seeking additional medical care for a worsening chronic disease

Of households in the City of Napa, impacted by the 2014 South Napa **Earthquake**:

41%

Reported seeking mental health help as a result of the earthquake

27%

Experienced a traumatic event associated with increased risk of PTSD



EXPOSURE TO PESTICIDES

Pesticides are substances that are designed to control or destroy specific living organisms. Exposure to pesticides can occur at home when pesticides are used in residences. Workers can also be exposed to pesticides when pesticides are used in offices, agricultural fields, or other workplaces. About 350 pesticides are used on the foods we eat, in our homes, and on our pets.

California leads the nation in the number of pounds of pesticides applied.

- 212 million pounds of pesticides were reported applied statewide in 2015, an increase of 22 million pounds (12%) from 2014 (Figure 41).¹⁶¹
- The most pesticide pounds were applied in Fresno, Kern, Tulare, San Joaquin and Madera Counties in 2015 (Figure 41).¹⁶¹

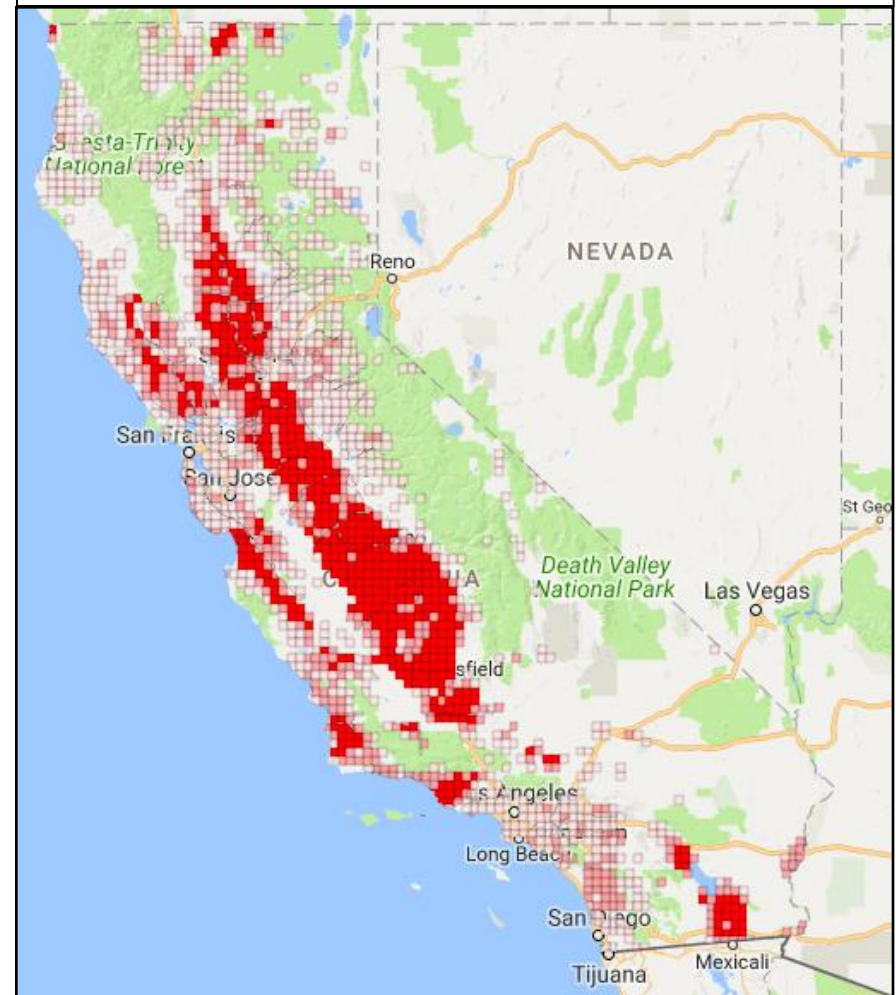
Pesticides cause acute and chronic health problems.

- Exposures have been linked to chronic conditions such as adult and childhood cancers, Parkinson's disease, reproductive harm, and developmental problems in children, including autism.¹⁶²⁻¹⁶⁴
- Each year pesticides poison hundreds of workers.¹⁶⁵
- 3,531 occupational pesticide illnesses were reported in 55 of the 58 California counties from 1998-2015.¹⁶⁵
- 47% of these pesticide illnesses were reported by agricultural fieldworkers.¹⁶⁵

Poor and minority populations are disproportionately affected by pesticide use inside their own homes.

Poor conditions in housing can lead to pest infestations, and are associated with increased home pesticide use.¹⁶⁶ Adverse housing conditions in homes are more likely to affect people of color and people of low economic status or with a low income.¹⁶⁷ Using pesticides in the home can create harmful levels of exposure, especially for young people. Children and adolescents are more susceptible to pesticides because they absorb more pesticides per pound of body weight.

Figure 41. All agricultural pesticides applied in California in pounds, 2015



Source: California Environmental Health Tracking Program. Agricultural Pesticide Use in California. *Pesticide Mapping Tool* 2015; Available at http://cehtp.org/page/pesticides/agricultural_pesticide_use_in_california. Accessed Feb 10, 2018.

FATAL OCCUPATIONAL INJURIES

The most dangerous industries include agriculture, transportation, and construction.

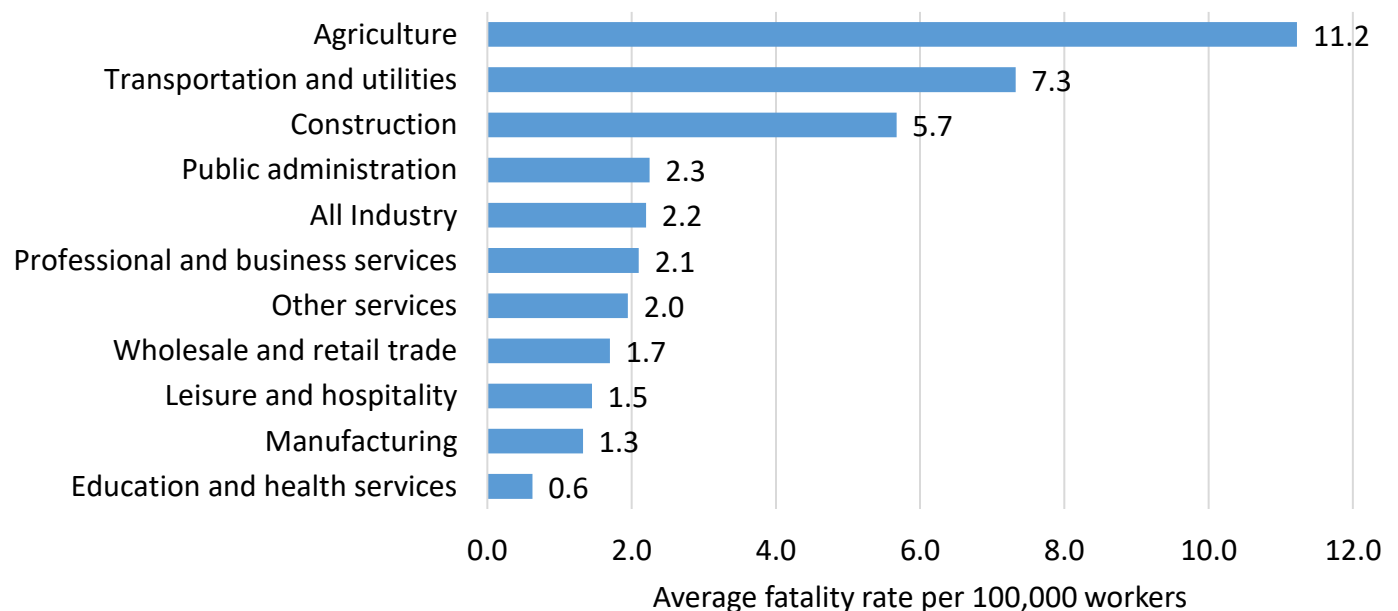
Between 2013 and 2016, 1,384 workers were killed on the job in California – an average of 346 per year.⁴³

- By occupation, 25% of fatalities involved the transportation and material moving industry; 16% construction and extraction; and 9% agricultural occupations.⁴³
- Motor-vehicle and other transportation incidents caused 37% of these deaths; 21% were a result of an assault or other violent act.⁴³
- Approximately 43% of occupational fatalities were among Hispanic or Latino workers. Many are employed in farming and construction jobs, where injuries from machinery, transportation, and falls are common.⁴³

Source: California Department of Industrial Relations. *Fatal Occupational Injuries in California, 2013-2016*. Dec 19 2017.



Figure 42. California Average Fatality Rate, by Industry, 2013-2016, per 100,000 workers



GAMBLING DISORDER

What is gambling disorder?

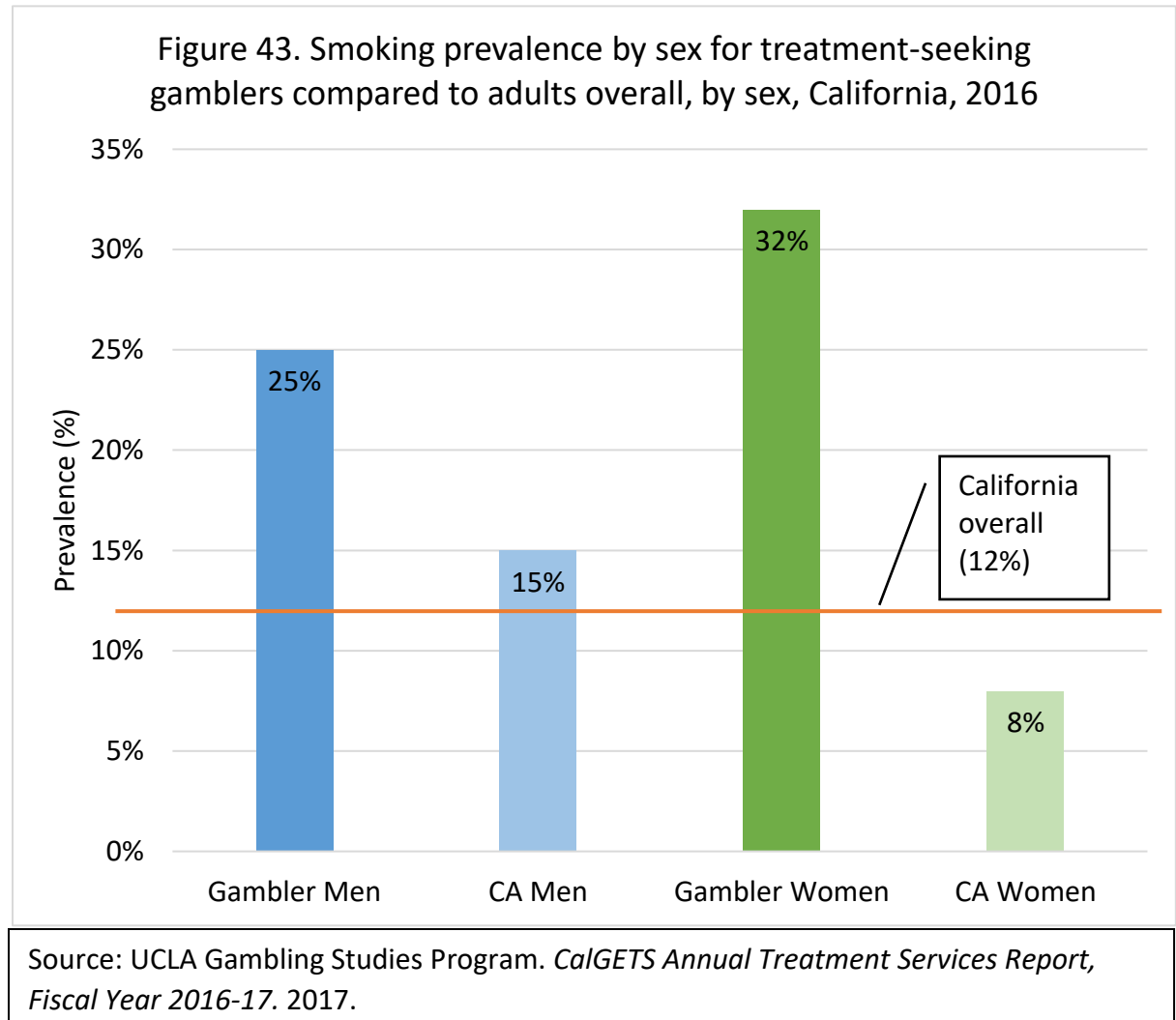
The American Psychiatric Association defines gambling disorder as “persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress.” Gambling disorder is a treatable mental disorder, characterized by a need to gamble with increasing amounts of money, irritability when attempting to stop gambling, loss of control over gambling, chasing of losses, using lies and deception to hide the extent of gambling, family and job disruption, and financial bailouts to relieve desperate financial situations caused by gambling. Gambling disorder often co-occurs with other physical and mental health disorders.¹⁶⁸

Who is affected by gambling disorder?

Approximately 3.7% of Californians struggle with problem gambling or gambling disorder at some point in their lives, resulting in social and economic impacts on their families, friends, employers, and communities.¹⁶⁹

Smoking is more common among problem gamblers than among other Californians (Figure 43).

- In California, the prevalence of smoking among male gamblers in outpatient treatment was 10% higher than the prevalence of smoking among California men.^{170,171} Sixty-five percent of gamblers in outpatient treatment are men.¹⁷⁰
- The prevalence of smoking in female gamblers in outpatient treatment is four times the prevalence of smoking in California women.^{170,171} Thirty-five percent of gamblers in outpatient treatment are women.¹⁷⁰



Gambling Disorder, continued

Problem gamblers report poorer health status than other Californians (Figure 44).

About 30% of gamblers reported their health as fair or poor compared to 18% of all adults in California reporting their health as “fair or poor” in 2015.^{170,172}

Gamblers entering treatment report greater mental health concerns.

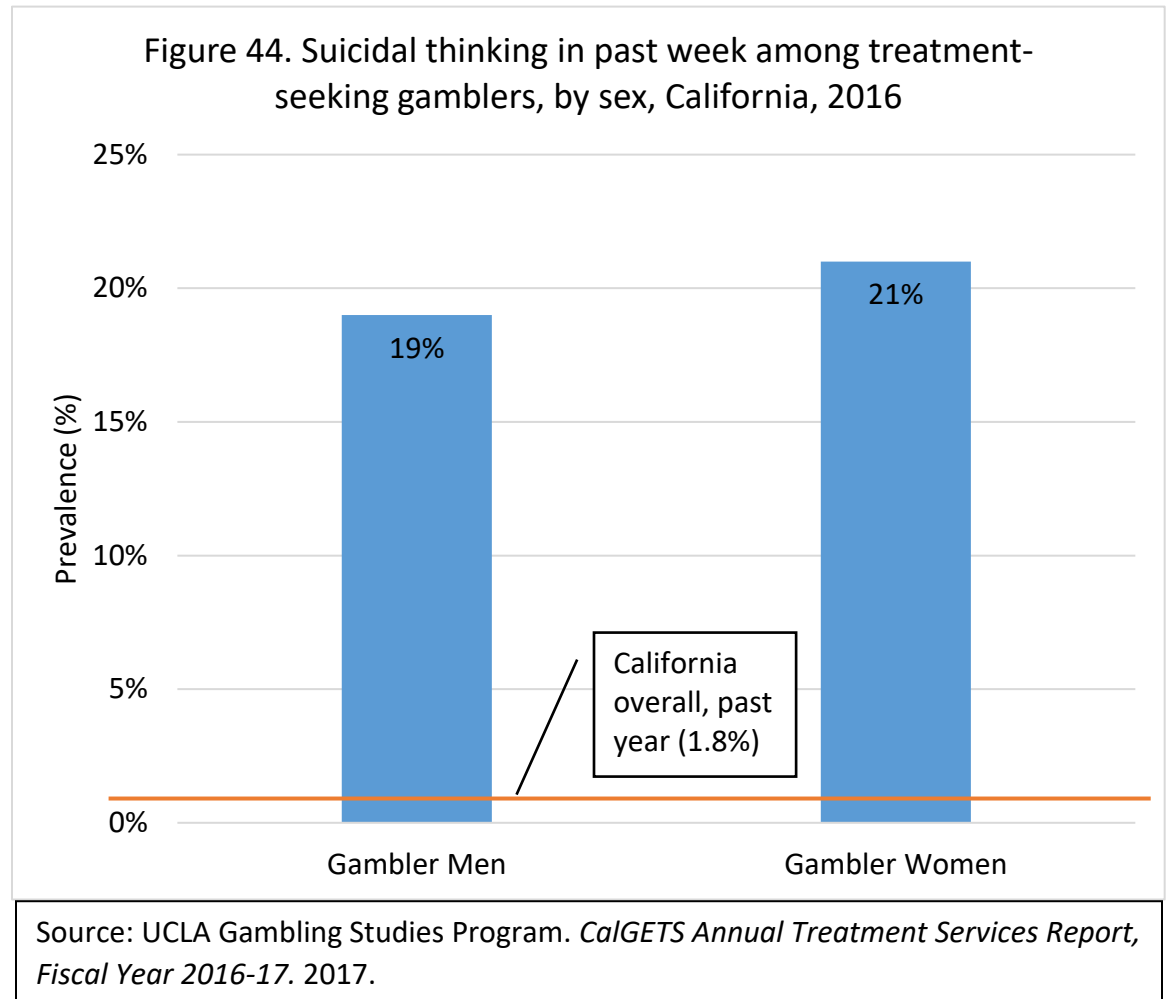
Among gamblers entering outpatient treatment, 24% report being treated in the past year for a mood disorder, 11% for an anxiety disorder, and 3% for a substance use disorder. By contrast, 8% of Californians report any psychological distress in the past year.¹⁷⁰

Depression is more common among problem gamblers.

In California, 24% of gamblers in outpatient treatment scored in the moderately severe to severe depression range, as measured by the Patient Health Questionnaire (PHQ-9), compared to 14% of adult Californians reporting any depression diagnosis.^{172,173}

Suicide and suicidal thinking is a major public health concern and the prevalence is greater among gamblers.

- Among U.S. patients with gambling disorder seeking treatment, it is estimated that suicidal ideation and suicide attempts within the past year of life range between 20% and 40%.¹⁷⁰
- Among gamblers entering outpatient treatment in California, 20% report suicidal thoughts in the past week, which is ten times higher than adults in California reporting suicidal thoughts in the past year.¹⁷⁴



HEART DISEASE

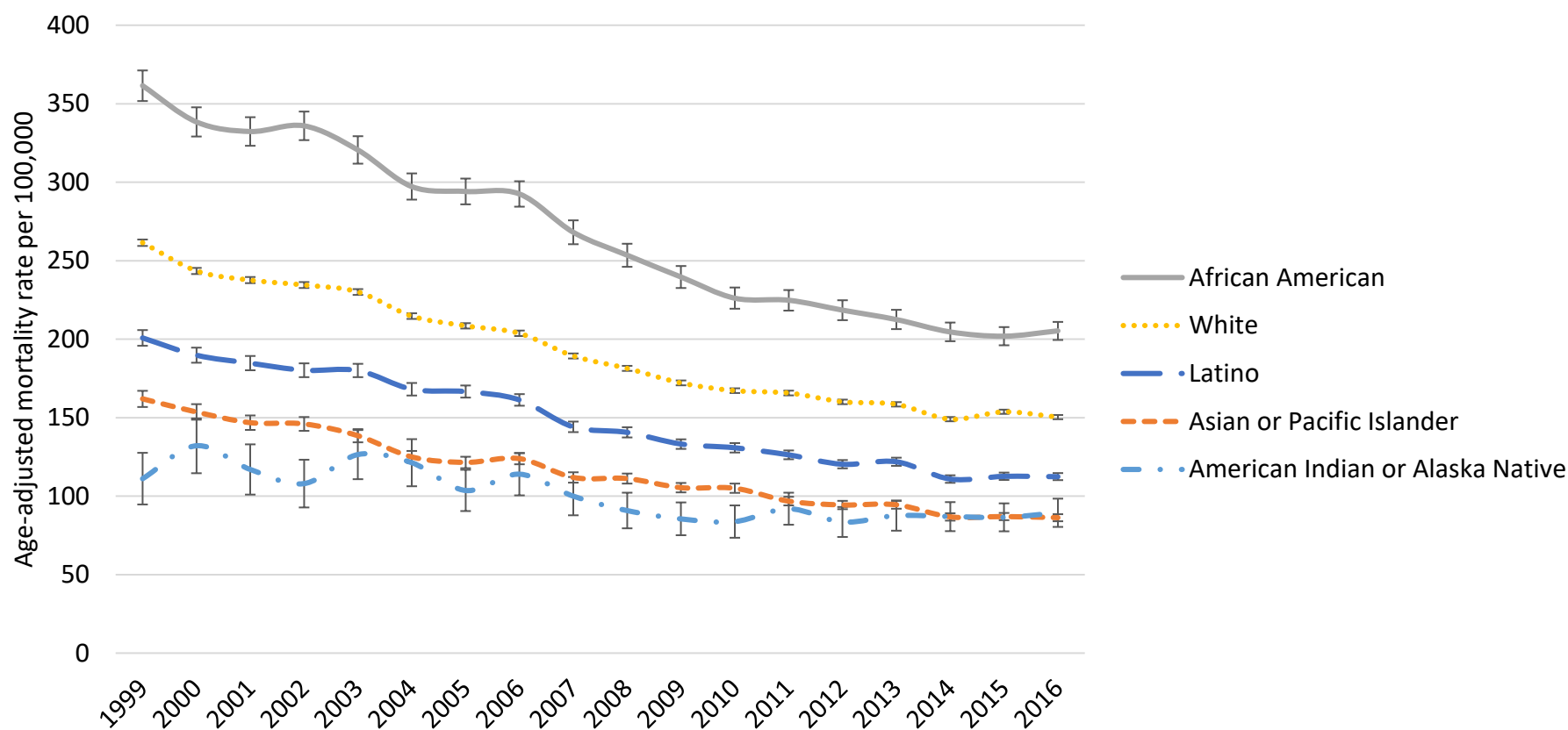
What is heart disease?

Heart disease refers to all diseases that involve the heart, including congestive heart failure and heart attack.

Heart disease is the leading cause of death in California.

While heart disease rates are declining, racial/ethnic disparities have remained stark. African Americans have the highest mortality rates from heart disease (Figure 45). The reductions in cardiovascular deaths can be attributed to tobacco-control efforts and improved medical treatments.¹⁷⁵ However, these public health gains are threatened by the rise in obesity, which increases the risk for heart disease.¹⁷⁶

Figure 45. Heart disease mortality rates by race/ethnicity, California, 1999-2016



Error bars represent 95% confidence interval. Source: CDC, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database, released December, 2017. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on May 14, 2018

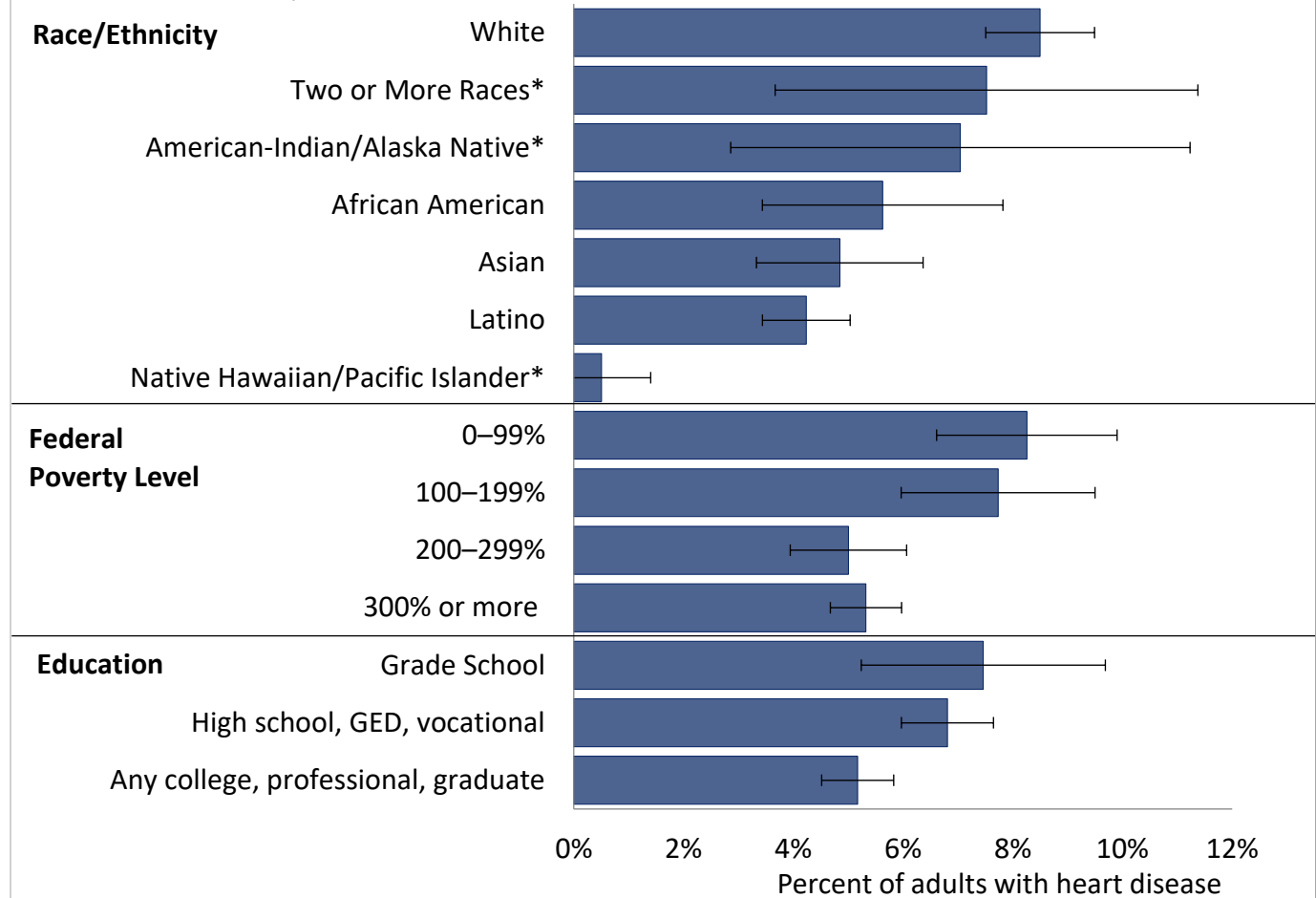
Heart Disease: Unequal Impacts

Socioeconomic status is an important predictor of heart disease.¹⁷⁷

Figure 46 demonstrates that, as education increases, prevalence of heart disease decreases. A similar relationship exists between income and heart disease.¹⁷⁷ Individuals with less education and lower income usually experience reduced access to health care, chronic stress from poverty, and unhealthy living environments that are not conducive to healthy diets or physical activity.⁴



Figure 46. Adults who were ever told by a doctor that they have heart disease, by race/ethnicity, education, and Federal Poverty Level, California, 2016



*Native Hawaiian/Pacific Islander, American-Indian/Alaska Native, and Two or More Races estimates are unstable due to small sample sizes. Error bars represent 95% confidence intervals.

Source: UCLA Center for Health Policy Research. AskCHIS 2016. Ever diagnosed with heart disease. 2016; <http://ask.chis.ucla.edu>. Exported on Feb 10, 2018.

HEPATITIS

Hepatitis C Virus (HCV)

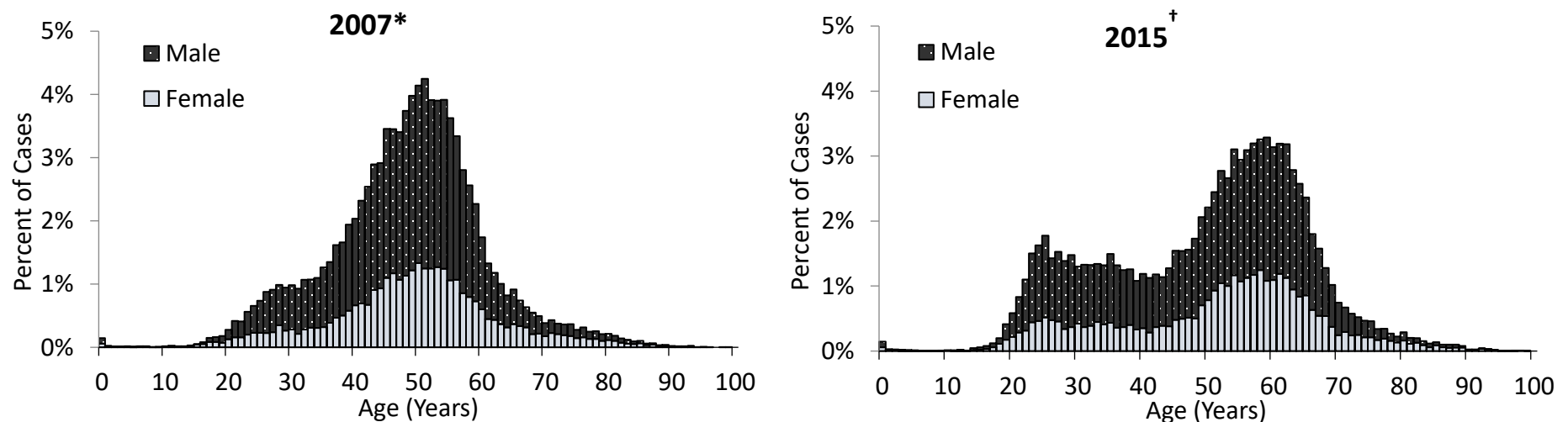
Chronic hepatitis C remains one of the most frequent reportable communicable diseases in California. Between 2011 and 2015, the rate of newly reported chronic hepatitis C infection in California increased 5.5%, from 81.9 to 86.4 per 100,000 population.¹⁷⁸

Approximately 75-85% of people infected with HCV progress to chronic hepatitis C infection and are at risk for chronic liver disease, which can include cirrhosis and liver cancer.¹⁷⁹ Hepatitis C is the leading cause of complications from chronic liver disease, and more Americans now die as a result of hepatitis C infection than from 60 other infectious diseases reported to CDC.¹⁸⁰ Hepatitis C infection can also cause health complications outside of the liver including fatigue, diabetes, kidney inflammation, blood protein imbalance, skin blistering, and non-Hodgkin's lymphoma.¹⁷⁹

Rates of newly reported chronic hepatitis C infection among adults under 30 years are increasing: from 2007 to 2015, rates increased 40% among males ages 15-19, 55% among males ages 20-29, and 37% among females ages 20-29 (Figure 47).¹⁷⁸ These data are consistent with increases in hepatitis C across the country and highlight the importance of hepatitis C testing, treatment, and prevention.

Unprotected sex, injection drug use, or unclean tattoo practices among young adults increases their risk of both hepatitis C transmission and infection. Although hepatitis C can be cured by several new medications that eliminate the virus, prevention strategies, including access to sterile syringes and safe injection equipment and treatment for opioid use disorders, can reduce the rate of new hepatitis C infections among young people who inject drugs by 60%.¹⁸¹

Figure 47. Age distribution of newly reported cases of chronic hepatitis C, California, 2007 and 2015



Notes: *N = 41,037; excludes 547 cases with missing age or sex information. †N = 33,454; excludes 294 cases with missing age or sex information.

Source: California Department of Public Health, Sexually Transmitted Diseases (STD) Control Branch, Office of Viral Hepatitis Prevention.

Hepatitis: Unequal Impacts

Hepatitis B Virus (HBV)

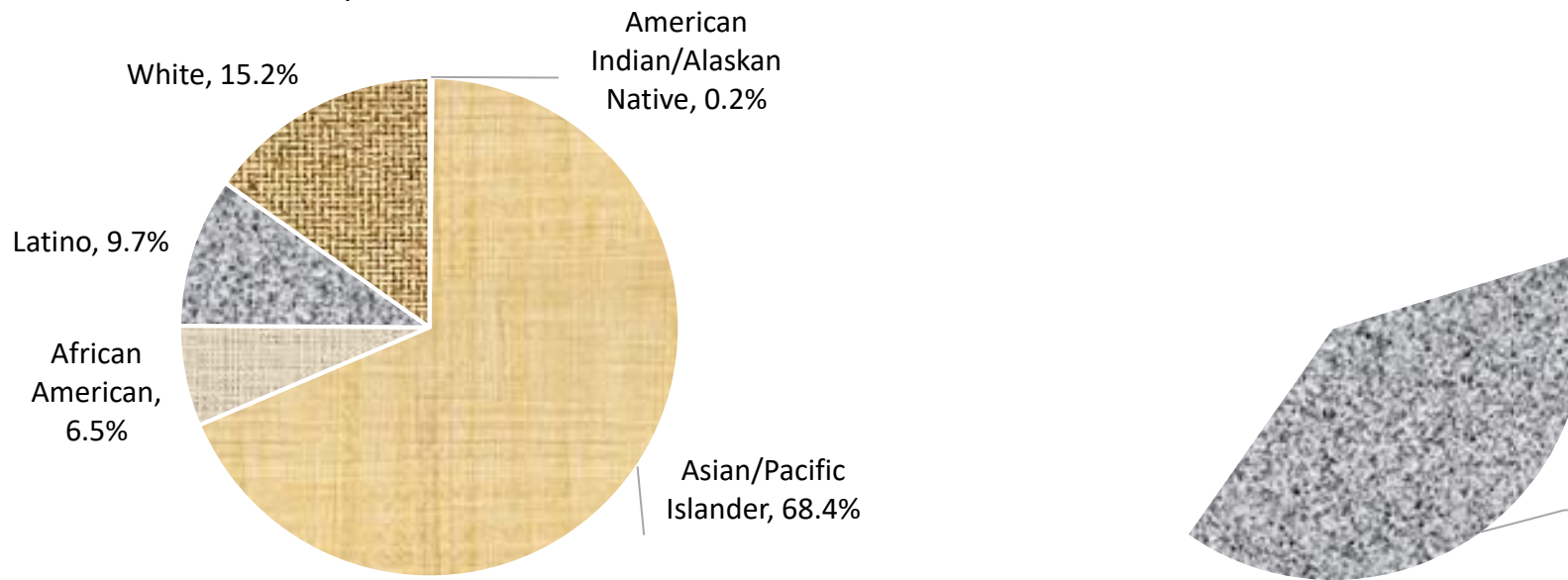
The most common mode of transmission for hepatitis B is from mother to infant during childbirth, and approximately 90% of infants with HBV infection become chronically infected.¹⁸² New cases of hepatitis B in adults can be linked to high-risk sexual behavior and injection drug use, particularly in adult populations who were not vaccinated as children.¹⁸³ Between 15% and 25% of people with chronic HBV die prematurely from cirrhosis or liver cancer, and the majority remain asymptomatic until onset of cirrhosis or end-stage liver disease.¹⁸⁴ Chronic hepatitis B infection can be treated with antiviral medications but cannot be cured.

Asians and Pacific Islanders (APIs) are disproportionately affected by chronic hepatitis B infection in California and nationwide (Figures 46a and 46b). From 2012 to 2016, APIs accounted for more than two-thirds of newly reported chronic hepatitis B cases in California, which is a significant racial disparity given that APIs represent only 14% of the state population.¹⁷⁸

This result is similar to national figures, which have found that APIs account for more than half of chronic hepatitis B cases with known race/ethnicity in the U.S., despite making up 6% of the population nationwide.¹⁸⁵ APIs are disproportionately affected by chronic hepatitis B because hepatitis B is endemic in many Asian countries and in most of the Pacific Islands.

Figures 48a and 48b. Percent of Newly Reported Chronic Hepatitis B Cases by Race/Ethnicity Compared with General California Population, 2016

Figure 48a. Newly Reported Cases of Chronic Hepatitis B, 2016



Source: California Department of Public Health, Sexually Transmitted Diseases (STD) Control Branch, Office of Viral Hepatitis Prevention

HUMAN IMMUNODEFICIENCY VIRUS (HIV)

HIV Disease is now a manageable, chronic illness.

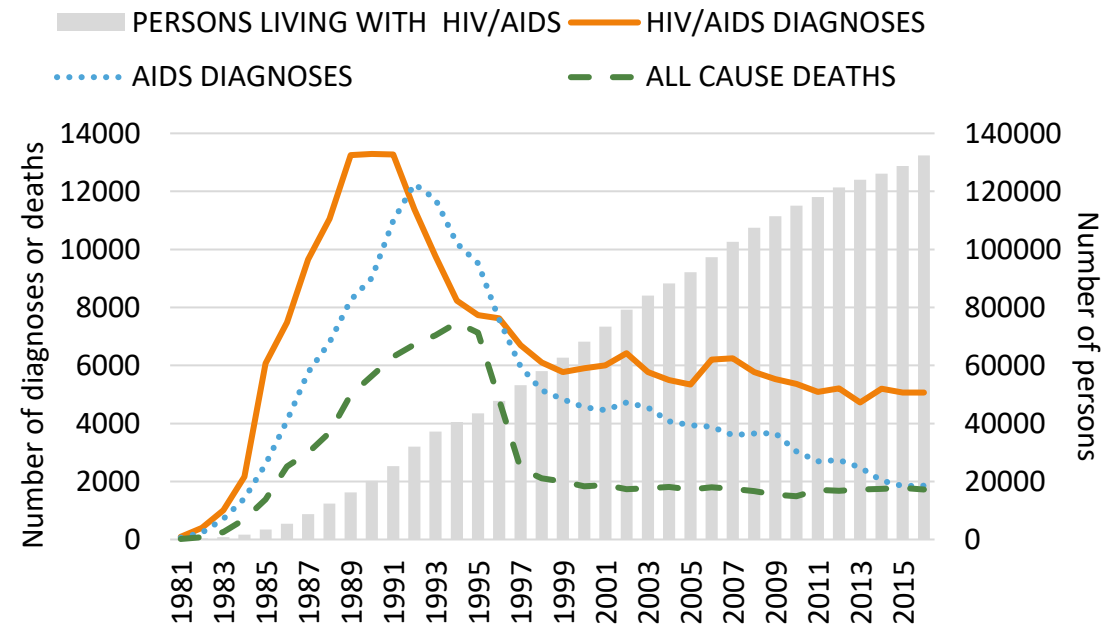
Someone diagnosed with HIV today who takes HIV medication as soon as diagnosed and achieves and maintains viral suppression, or very low counts of the virus in their blood, can live nearly as long as someone without HIV, and virtually eliminate their chance of infecting others.

- As people living with HIV age, there will be an increase in age-related syndromes and illness. The proportion of adults living with HIV aged 50 and older is expected to increase from 28% in 2010 to 73% in 2030.¹⁸⁶
- The likelihood of diseases such as cardiovascular disease, liver disease, metabolic abnormalities, chronic kidney disease, cognitive dysfunction and osteoporosis increase with age.¹⁸⁷ All of these conditions are higher in HIV-infected persons compared to their HIV-uninfected peers, and the onset of disease is often earlier among people living with HIV (PLWH).
- Peripheral arterial disease, a circulatory problem in which narrowed arteries reduce blood flow to limbs, is 19% higher in PLWH who do not have CD4 cell counts in the normal range. CD4 cells are the immune cells that are attacked by HIV, and measuring their count in the blood is an important measure of disease progression. HIV treatment that suppresses the virus and keeps CD4 cell counts in the normal range can reduce the burden of diseases that untreated HIV infection can exacerbate.¹⁸⁸

Figure 49 shows measures of the HIV/AIDS epidemic, and demonstrates the changes in these measures over time.

- In the 1980s, the number of Californians diagnosed with HIV (orange solid line), AIDS (blue dotted line), and deaths (green dashed line) increased steeply.
- With more effective HIV medication, called highly active antiretroviral therapy (HAART), the number of people diagnosed with HIV, AIDS, and who died from complications of AIDS, greatly decreased. Thus, the total number of individuals living with HIV has increased steadily due to people living longer (gray bars).

Figure 49. HIV/AIDS Diagnoses, AIDS Diagnoses, Deaths, and Persons Living with HIV or AIDS in California, 1981-2016.



Source: Enhanced HIV/AIDS Reporting System (eHARS). HIV/AIDS Surveillance, California. Data as of March 16, 2017.

HIV: Unequal Impacts

Social determinants of health that increase the risk of someone becoming infected with HIV can also impede the health of PLWH.

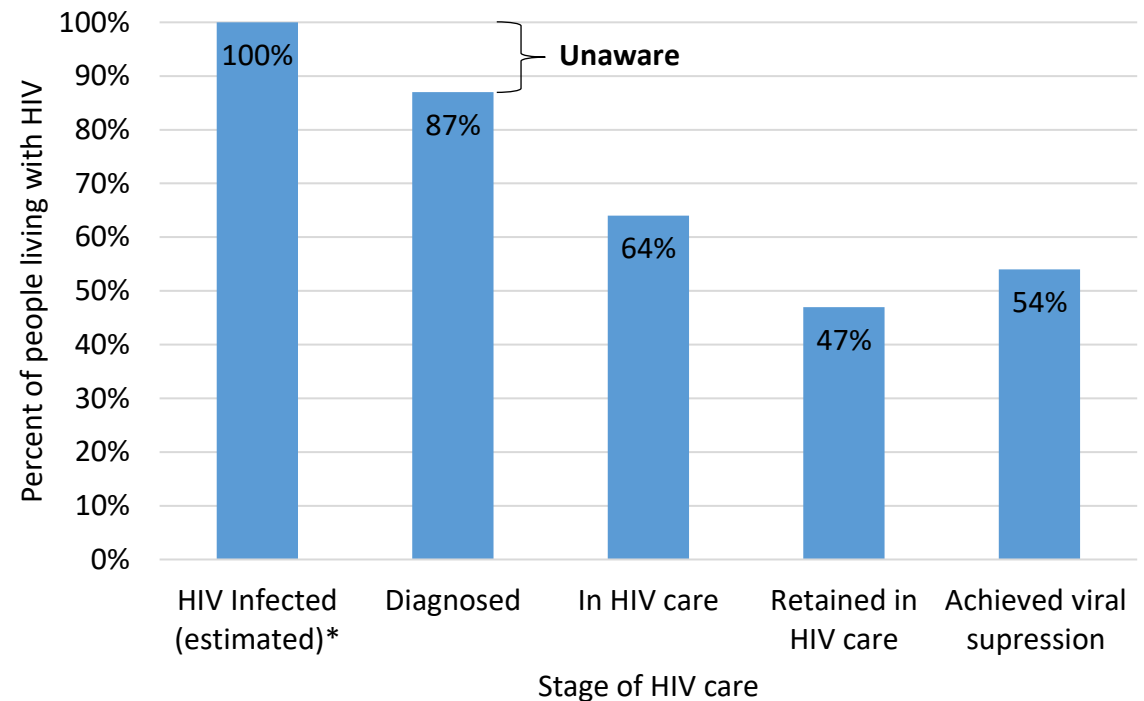
Mental health conditions among PLWH are more common than in the general public. HIV infection itself can lead to mental health stressors or increase severity of pre-existing illnesses. Untreated, mental health challenges can hinder participation in HIV care and impede adherence to HIV treatment.¹⁸⁹⁻¹⁹²

The need for substance use disorder treatment and support services among PLWH is greater than in the general population. This is due to the higher rates of substance use and the negative impact substance use has on HIV transmission risks, adherence to HIV medications and sustaining viral suppression. Tobacco use among people living with HIV is nearly three times the rate of the general population, with the associated health problems related with smoking.¹⁹³⁻¹⁹⁶

Figure 50 shows a decline in each point on the continuum of HIV care. Not all people living with HIV have been diagnosed, and of those diagnosed, not everyone is in care. Fewer remain in care consistently, all of which impacts the ability to achieve viral suppression.

Staying virally suppressed is the best thing people living with HIV can do to maintain their health and the health of the community.

Figure 50. Percent of people living with HIV at each stage of HIV care, California, 2016



*The HIV infected estimate, including the estimate of the “unaware” population, is based on the current CD4 count based estimation model, used starting with 2016 surveillance data.

Notes: In HIV care includes persons with at least one care visit during 2016. Persons who had two or more HIV care visits at least 3 months apart during the calendar year were considered retained in care. Source: Irene Hall H, Song R, Tang T, et al. HIV Trends in the United States: Diagnoses and Estimated Incidence. *JMIR Public Health and Surveillance*. 2017;3(1):e8.

LEAD POISONING IN WORKERS

Although the toxic effects of lead have been known for centuries, harmful lead exposures are still widespread. More than 6,000 California workers were poisoned by lead on the job between 2012 and 2014.¹⁹⁷

- The majority of workers with an elevated blood lead level (BLL) (≥ 5 $\mu\text{g}/\text{dL}$) were male, 20-59 years of age, and had a Hispanic surname.¹⁹⁷
- Workers in certain manufacturing jobs may be exposed to lead at high levels if processes are not properly controlled. This includes workers in industries that make batteries, aircraft, aircraft parts, plumbing fixtures, or metal valves; build or repair ships; or recover lead from scrap.¹⁹⁷
- Construction workers may be exposed to lead if they perform tasks that disturb lead that is still present in older building materials including paint and solder, or contaminated soil.¹⁹⁷
- Workers in industries that handle lead-containing bullets and firearms - such as shooting ranges, ammunition manufacturing, gun repair, and firearm instruction - represented more than half of those who had very high BLLs (≥ 40 $\mu\text{g}/\text{dL}$).¹⁹⁷

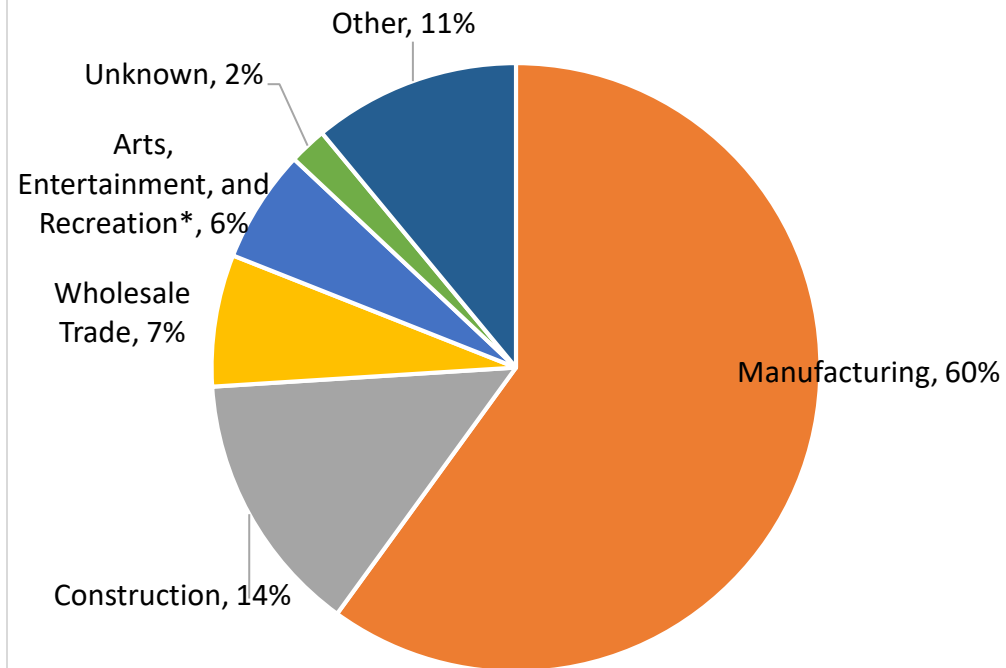


Many workers who are exposed to lead at work are never tested.

We do not know the true numbers of California workers with elevated BLLs, since many employers in industries that use or disturb lead do not regularly offer BLL testing to their workers.

Long-term lead exposure at levels above 5–10 $\mu\text{g}/\text{dL}$ increases the risk for health effects such as high blood pressure, kidney disease, cognitive dysfunction, adverse reproductive outcomes, and even death from cardiovascular disease. No level of lead in the body is known to be safe.¹⁹⁸⁻²⁰⁰

Figure 51. Workers with blood lead levels ≥ 10 $\mu\text{g}/\text{dL}$, by industry sector, California 2012-2014



*98% of Arts, Entertainment, and Recreation workers were employed at shooting ranges. Source: California Department of Public Health, Occupational Lead Poisoning Prevention Program, 2017.

OBESITY

What is obesity?

For adults, overweight and obesity are determined by using weight and height to calculate a number called the “body mass index” (BMI). BMI is used because it is simple to measure and, in most people, it correlates with body fat.

BMI range	Status
< 18.5	Underweight
18.5 – 24.9	Normal weight
25.0 – 29.9	Overweight
30 +	Obese

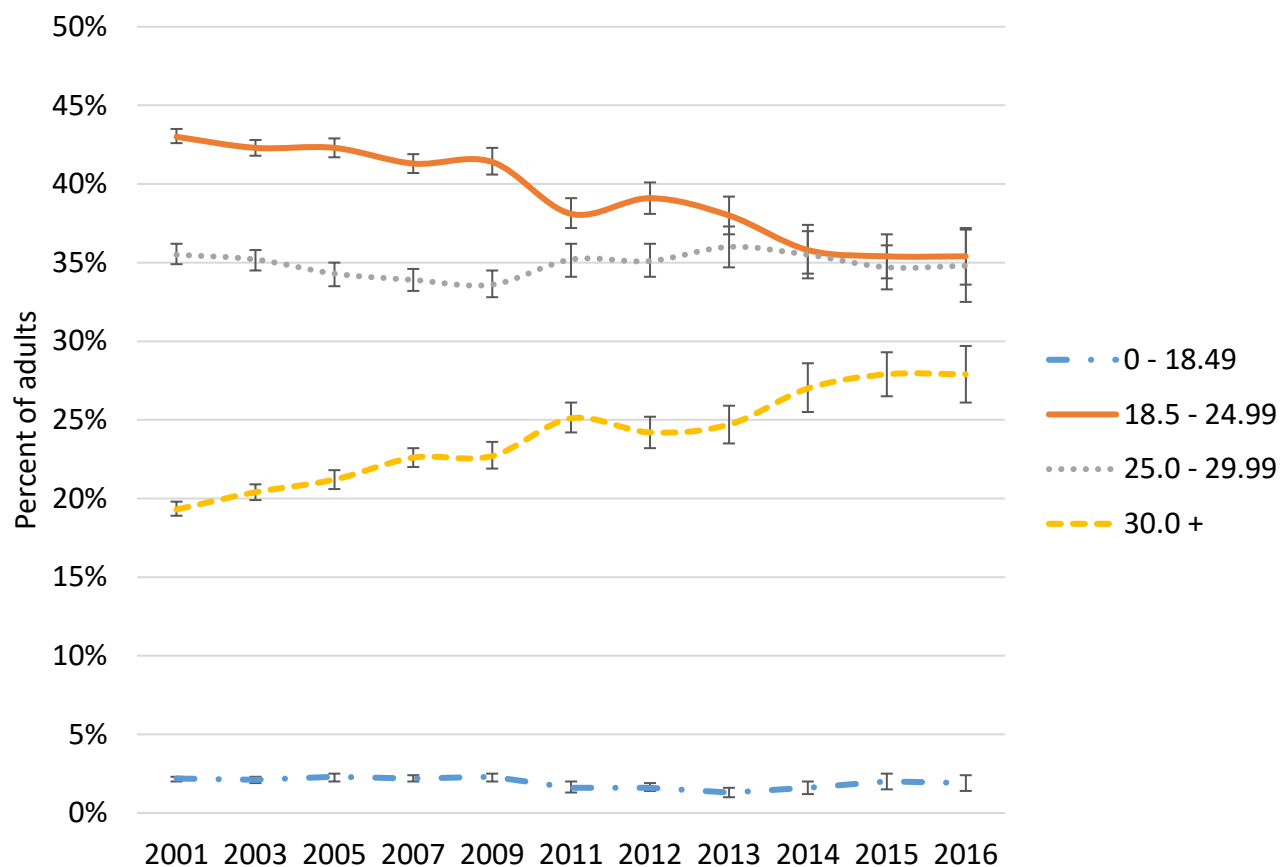
Obesity is a chronic disease, increases risk for, and aggravates cardiovascular disease, cancer, diabetes, and arthritis, among others.

Although there are a number of risk factors associated with obesity, including genetics and health behaviors, the composition and structure of neighborhoods, levels of poverty, and other social determinants impact a person’s ability to maintain a healthy lifestyle and weight.

Figure 52 illustrates the increase of adults in California with a BMI of 30 or higher, which has increased from 19.3% in 2001 to 27.9% in 2016 (yellow dashed line).

Obesity-attributable medical costs were an estimated \$15.2 billion per year in 2009.²⁰¹ If the average BMI in the state were lowered by 5% (roughly 10lbs for an average adult), California would save an estimated 7.6% in associated health-care costs or roughly \$81.7 billion by 2030.²⁰²

Figure 52. Percent of adults by BMI range, California, 2001-2016



Error bars indicate 95% confidence interval. Source: UCLA Center for Health Policy Research. AskCHIS 2016. Body Mass Index – 4 level (adult only). 2016. Available at <http://ask.chis.ucla.edu>. Exported on May 14, 2018.

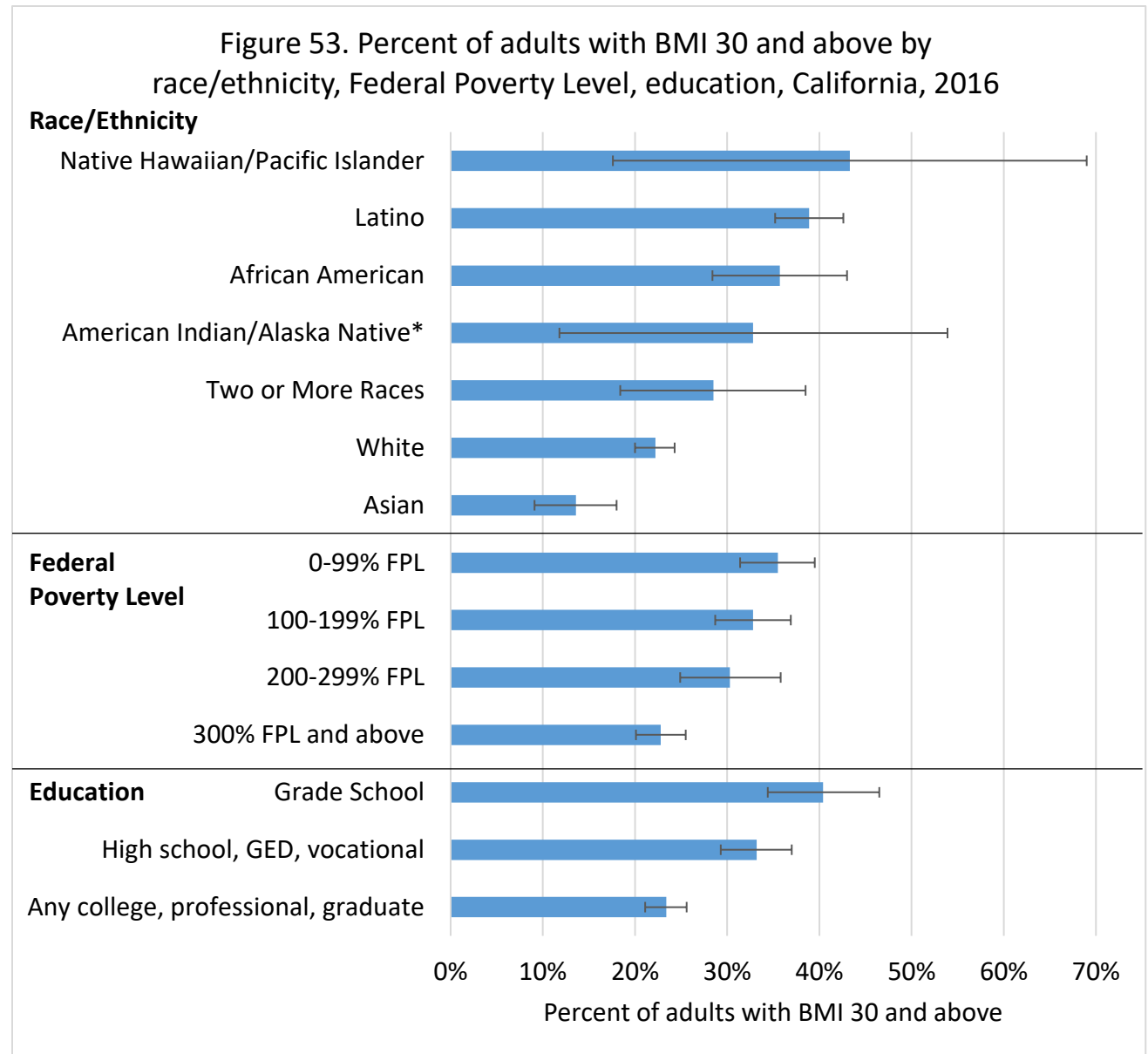
Obesity: Unequal Impacts

Obesity rates are highest among racial and ethnic minorities (Figure 53).

- Native Hawaiian/Pacific Islanders have the highest obesity rates in California.²⁰³
- Latinos and African Americans have obesity rates that are twice as high as Asians, the population with the lowest prevalence of obesity.²⁰³

Where people live, learn, work, and play impacts obesity.

- Californians with less than a high-school diploma are twice as likely to be obese as those with any college, professional, or graduate education (Figure 51).²⁰³
- In 2016, 73% of adults in San Joaquin Valley counties were overweight or obese, versus 56% of adults residing in Bay Area counties.²⁰³
- Within counties, residents of low-income neighborhoods have higher obesity rates.²⁰³
- In West Los Angeles, approximately half of all adults are overweight or obese, versus more than seven in every ten adults in East Los Angeles.²⁰³



*American Indian/Alaska Native estimate is unstable due to small sample sizes. Error bars represent 95% confidence interval. Source: UCLA Center for Health Policy Research. AskCHIS 2016. Body Mass Index – 4 level (adult only). Available at <http://ask.chis.ucla.edu>. Exported on May 14, 2018.

CHILDHOOD OBESITY

Overweight and obesity rates in California's youth tripled over the past 30 years.

- The percent of California children (age 2-11 years) overweight or obese for their age increased from 13.1% in 2011 to 16.6% in 2016.²⁰³
- The prevalence of obesity among California adolescents aged 12-17 years increased between 2011 (15.3%) and 2016 (22.6%).²⁰³

The percentage of overweight or obese for age children, aged 2-11 years, varies greatly by county, neighborhood, and race/ethnicity.

- Humboldt County has the highest rate (62.9%).²⁰³
- Butte County has the lowest rate (2.7%).²⁰³
- The cities with the highest and lowest rates are both in Los Angeles County: Huntington Park (53%) and Manhattan Beach (11%).²⁰⁴

Breastfeeding reduces risk for obesity and obesity-related chronic diseases such as diabetes and asthma, but many California newborns are not exclusively breastfed after delivery.

- There is a 22% reduction in obesity among children who are breastfed compared to children with no breastfeeding.²⁰⁵
- In 2014, 54.9% of California mothers were exclusively breastfeeding three months after delivery, and 33.1% were exclusively breastfeeding six months after delivery.²⁰⁶
- Exclusive breastfeeding rates are lowest among Latina and African-American women.²⁰⁶

Obese children are more than twice as likely to have diabetes as children of normal weight.²⁰⁷

If current obesity trends continue, experts warn that of individuals born in the U.S. in 2000, males will have a 1 in 3 lifetime risk of diagnosed diabetes, and females will have a 2 in 5 lifetime risk.²⁰⁸

Figure 54a. Prevalence of overweight for age among children by race/ethnicity, California, 2016

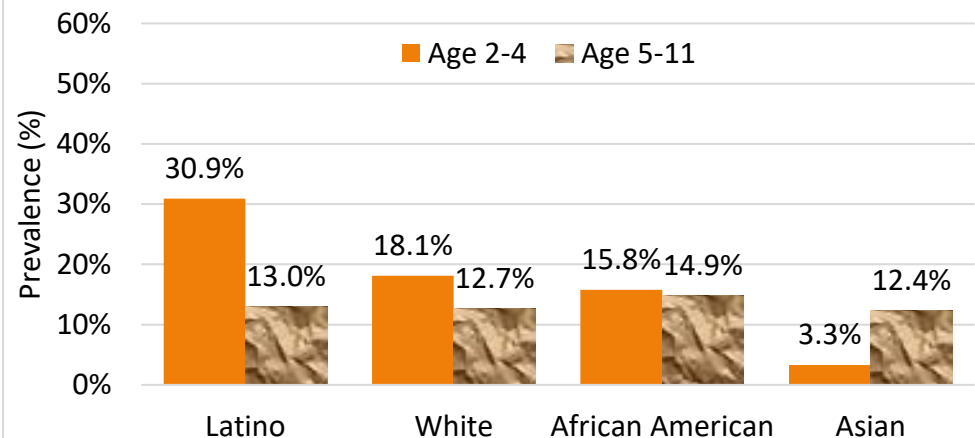
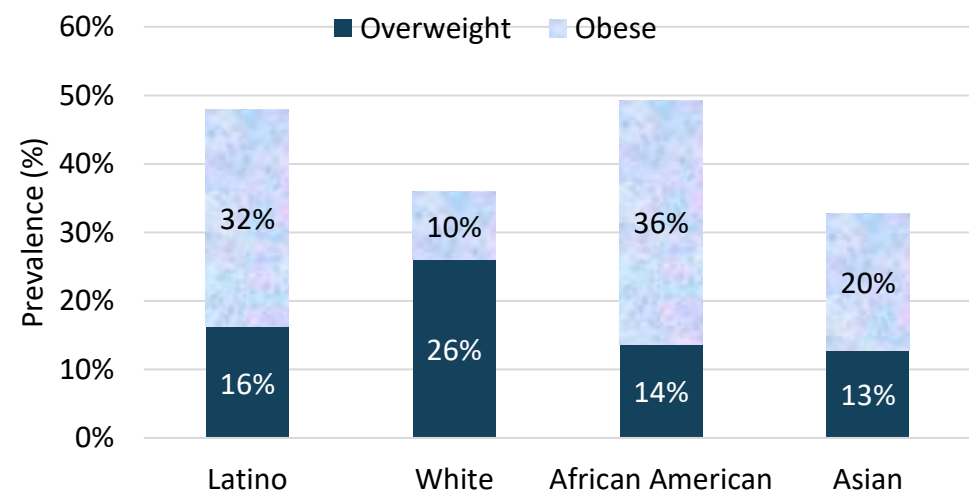


Figure 54b. Prevalence of overweight and obese youth (age 12-17) by race/ethnicity, California, 2016



Source: UCLA Center for Health Policy Research. AskCHIS 2016. 54a. Overweight for age (does not factor height). 54b. Body Mass Index – 4 level (teen only). Available at <http://ask.chis.ucla.edu>. Exported on Feb 11, 2018.

OPIOID OVERDOSE

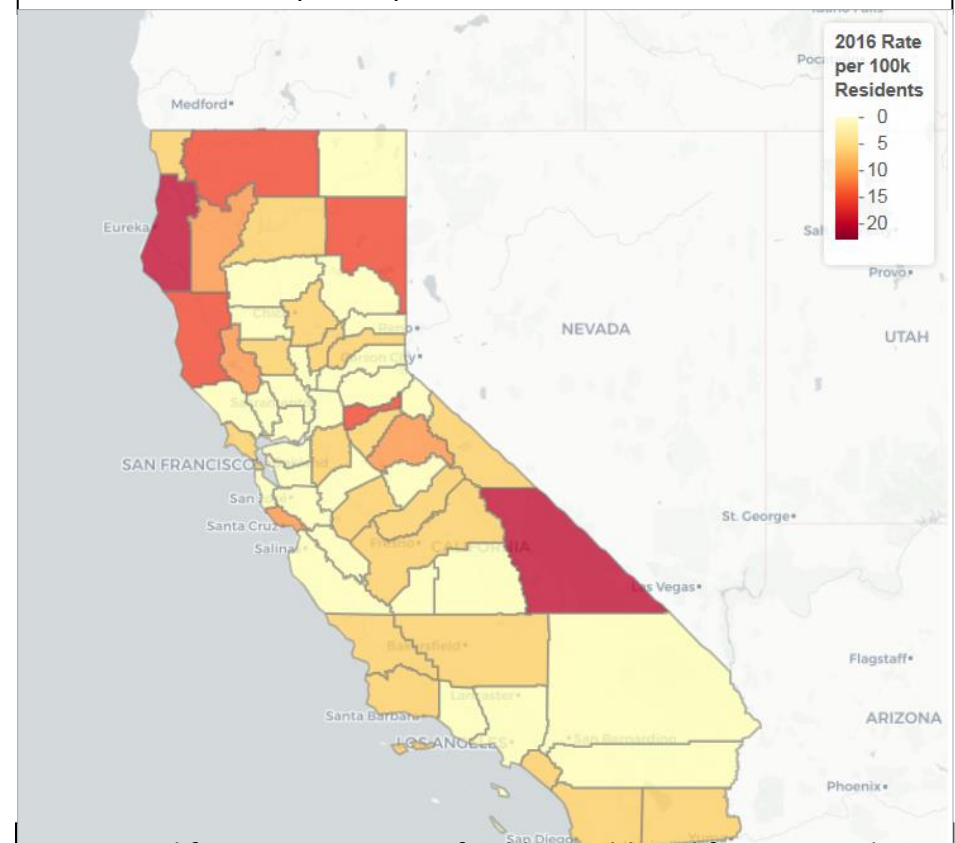
Opioids are drugs typically used for pain relief, such as codeine, hydrocodone, and fentanyl. With nearly 2,000 opioid overdose deaths per year (70% involving prescription opioids), about 8,000 hospital and emergency department admissions, and nearly 24 million prescriptions written, California continues to face a serious public health crisis.²⁰⁹

Even though California's overall rates of opioid deaths and overdoses are lower than the national average, the health and economic burden is substantial and the large size of California's population translates to large numbers of people at risk. There is also wide variation across counties, with some northern counties having overdose rates even higher than the national average.²⁰⁹

- Prescription opioid related overdose deaths peaked in 2009 at 1,616. There has been a 15% decrease to 1,368 deaths in 2016.²⁰⁹
- Heroin related overdose deaths have sharply increased by 57%, from 361 in 2012 to 565 in 2016.²⁰⁹
- An even steeper 140% increase has been seen for heroin related emergency department visits, from 1,298 visits in 2010 to 3,104 in 2015.²⁰⁹
- Fentanyl deaths have also shown a dramatic 185% increase from 82 in 2012 to 234 in 2016.²⁰⁹

See Table 1 on the next page for the top five California counties with the highest number of opioid overdose-related deaths by rank and count.

Figure 55. All opioid overdose age-adjusted mortality rates per 100,000 residents by county, California, 2016



Source: California Department of Public Health. California Opioid Overdose Surveillance Dashboard. 2016. Available at https://pdop.shinyapps.io/ODdash_v1/. Accessed Feb 25, 2018.

Opioid Overdose, continued

Table 1. California Opioid Overdose Related Deaths, 2016

Top 5 Death Rates (per 100,000) by County

County	Counts	Rates
1. Inyo	3	22.91
2. Humboldt	33	22.35
3. Lassen	6	17.79
4. Mendocino	17	17.34
5. Siskiyou	8	16.05
Sub-total	67	
California	1,925	4.6

Top 5 Death Counts by County

County	Counts	Rates	County Rate Rank
1. Los Angeles	327	2.97	45
2. Orange	277	8.08	16
3. San Diego	239	6.7	24
4. Riverside	107	4.33	34
5. San Francisco	92	9.03	14
Sub-total	1,042		
California	1,925	4.6	

Source: California Department of Public Health. California Opioid Overdose Surveillance Dashboard. 2016. Available at https://pdop.shinyapps.io/ODdash_v1/. Accessed Feb 25, 2018.

ORAL HEALTH

Oral health, also known as dental health, refers to all aspects of the health and functioning of the mouth, especially the teeth and gums.²¹⁰ Oral health is essential to the overall health of an individual. Poor oral health increases risk for heart disease and hinders control of blood sugar in diabetics.²¹⁰

Most oral diseases, such as tooth decay, oral infections, and mouth cancers are preventable. A regular visit to a dentist is helpful to prevent oral diseases and their complications.²¹¹

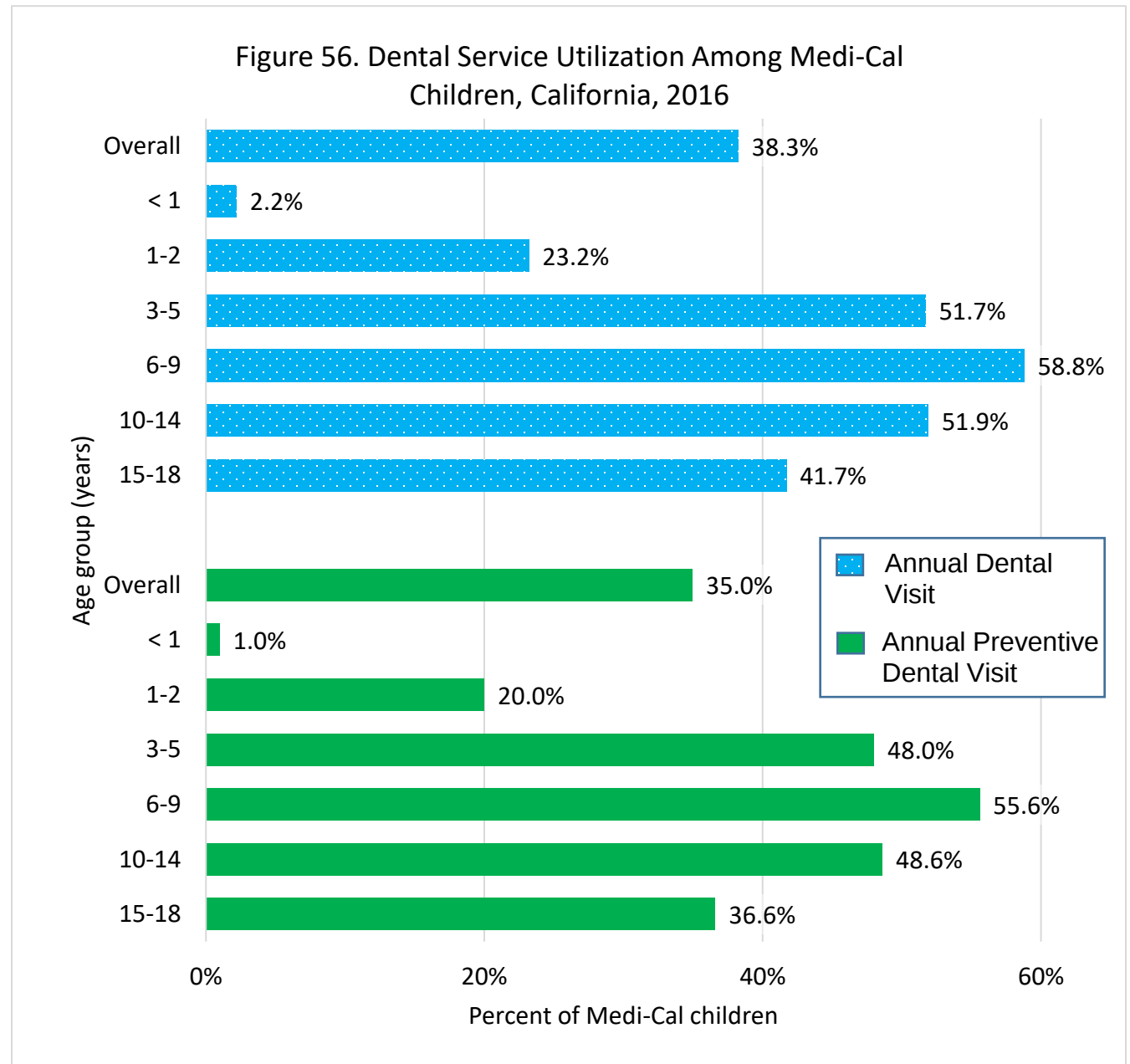
Children with untreated tooth decay experience unnecessary pain, difficulty chewing, and difficulty speaking. This can impair a child's intellectual and social development and cause missed days of school.²¹¹

Less than half of children with dental visits covered by Medi-Cal went to the dentist during 2016. Even fewer went to the dentist for preventive services like regular dental cleanings or application of fluoride varnish.²¹² However, these percentages vary by age group (Figure 56).

Source: California Department of Health Care Services. Dental Data Reports. 2016.

Available at

<http://www.dhcs.ca.gov/services/Pages/DentalReports.aspx>. Accessed Feb 15, 2018.



Oral Health: Unequal Impacts

Oral diseases impose financial and social burdens, as treatment is costly, and both children and adults may miss time from school or work because of dental pain.²¹⁰ Health habits and good preventive practices can help ensure tooth retention throughout the life span.

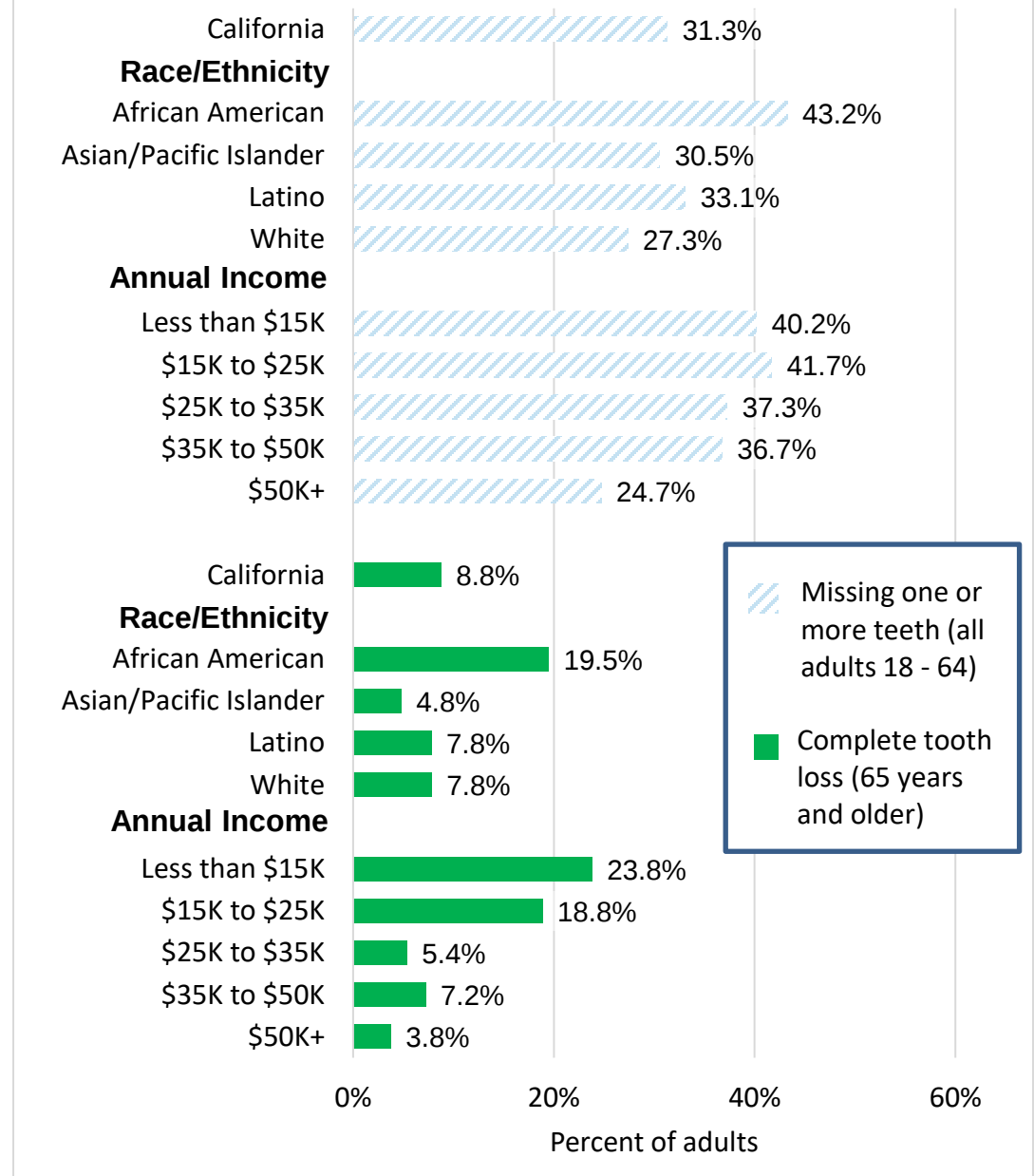
Tooth loss is commonly caused by tooth decay and gum disease. Poor oral health can have adverse health impacts, and may inhibit an individual's ability to smile, taste, chew, communicate, and socialize.²¹⁰ Ultimately, this may lead to low self-confidence and discrimination in the job market.²¹¹

Figure 57 shows:

- Nearly one in three California adults under age 65 report having lost at least one tooth (not counting wisdom teeth or primary teeth);
- California adults who earn at least \$50,000 annually report tooth loss much less frequently than those in lower income categories; and
- African Americans over 65 years of age report more frequently having complete tooth loss in adulthood compared to other racial/ethnic groups.

Source: Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2016.

Figure 57. Tooth loss in adults, by race/ethnicity, annual income, California, 2016



PRETERM BIRTH

Preterm birth—sometimes known as premature birth—is defined as a birth occurring before 37 completed weeks of gestation, or approximately three or more weeks early. In 2012, 8% of California singleton births were preterm.²¹³

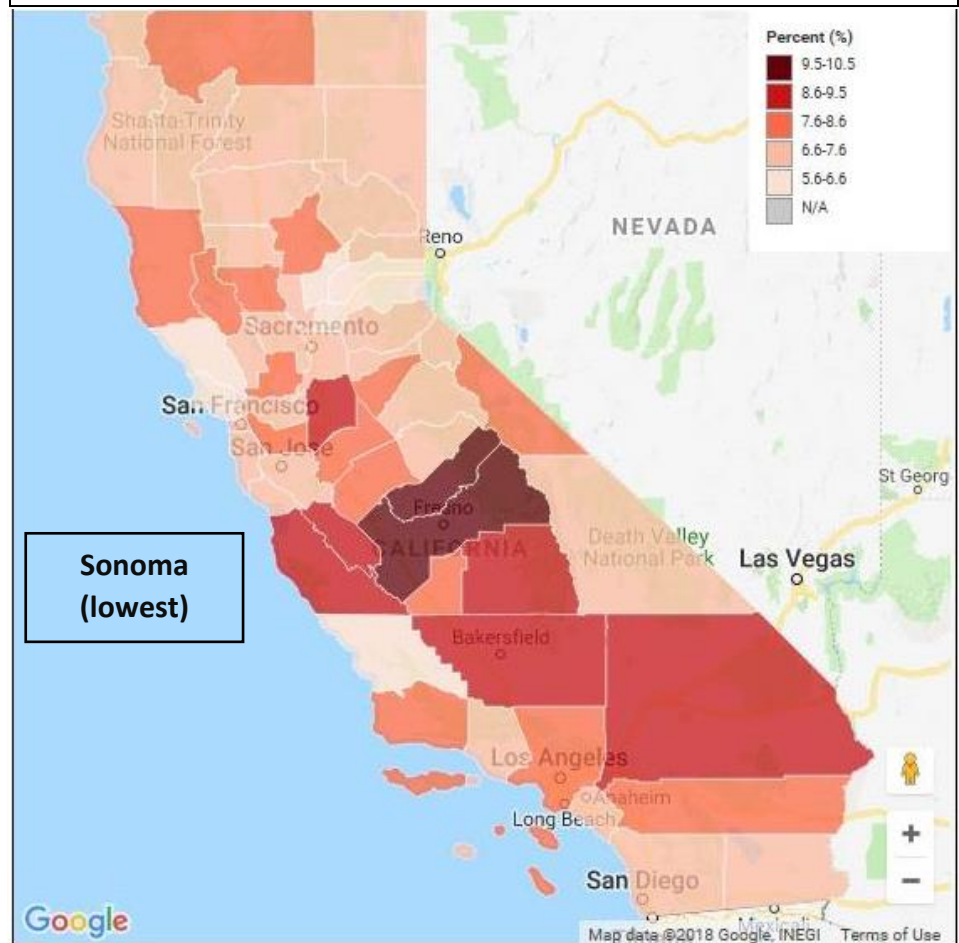
A child's chance of surviving preterm birth has dramatically increased because of advances in medical care. Yet, children born preterm are at higher risk of infant death and early-life illnesses than other newborns, and can have an increased risk of chronic disease as the child grows into adulthood.²¹⁴

There are many contributors to preterm birth risks, including preventable environmental exposures, such as tobacco and air pollution.²¹⁴

- The California Environmental Health Tracking Program estimates that in California in 2013, nearly one in ten preterm births were due to preventable air pollution.²¹⁵
- Researchers estimate that 15% of preterm births are due to tobacco smoking,²¹⁶ though this percentage is probably closer to 8% in California, where fewer women smoke during pregnancy.

The percent of preterm births was highest in Fresno County (10.5%) and lowest in Sonoma County (5.6%) in 2012 (Figure 58).²¹³

Figure 58. Preterm birth (<37 weeks pregnancy among singleton births), percent by county, California, 2012



Source: California Environmental Health Tracking Program. 2012. Available at <http://www.cehtp.org/page/mih/query>. Accessed March 14, 2018.

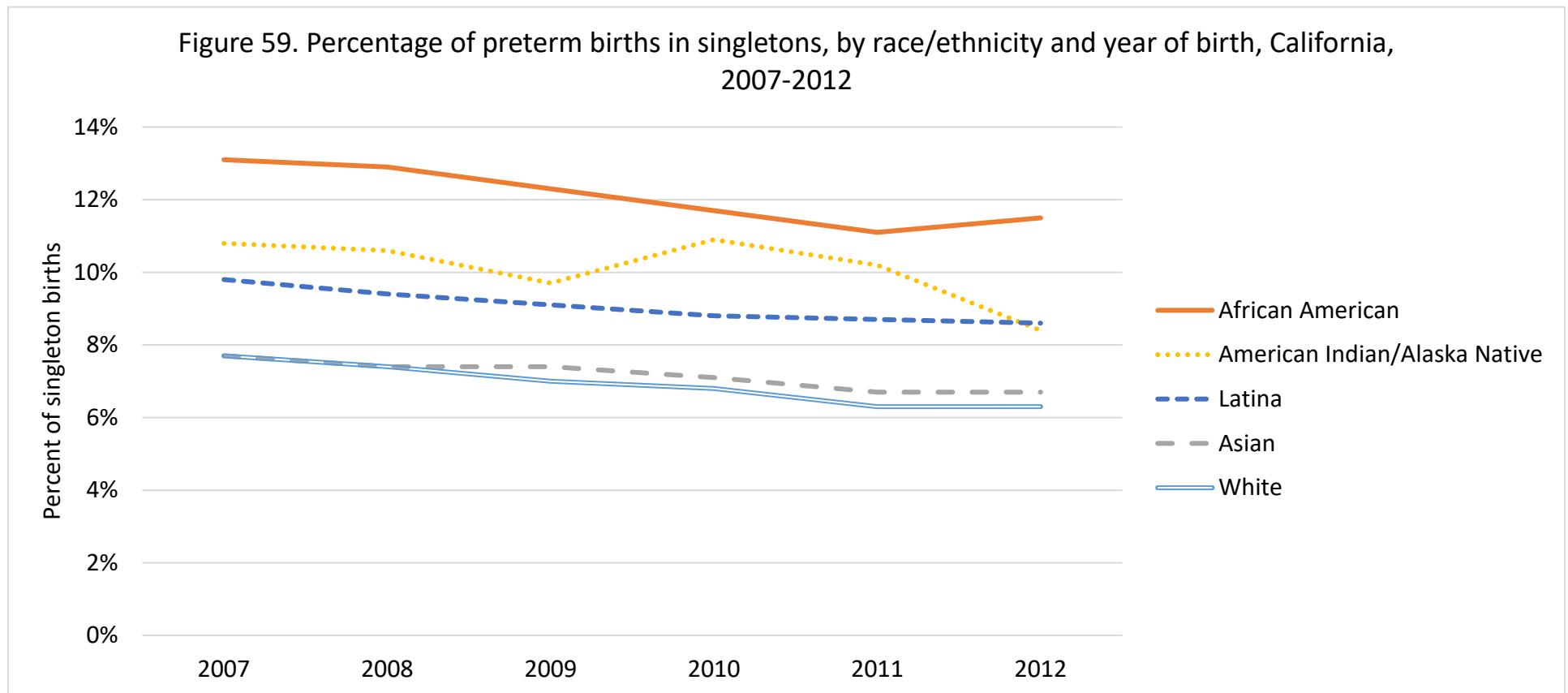
Preterm Birth: Unequal Impacts

There are disparities in preterm birth by race and ethnicity of the mother.

African American women had the highest percentages of preterm birth, while White women had the lowest (Figure 59).²¹³

California preterm birth percentages declined from 9.3% in 2007 to 8.0% in 2012.²¹³ This statewide decline was seen in African American, White and Asian/Pacific Islander populations, but not in Mexican Latina and American Indian/Alaska Native populations. Social determinants of health, including socioeconomic status and unequal exposure to air pollution is responsible for a portion of the racial disparities in preterm birth.²¹⁵

Women who live in poverty at the time of birth have a higher risk of preterm birth. This risk is even higher with lifelong poverty.²¹⁷



Source: California Department of Public Health. Vital Records. 2007-2012.

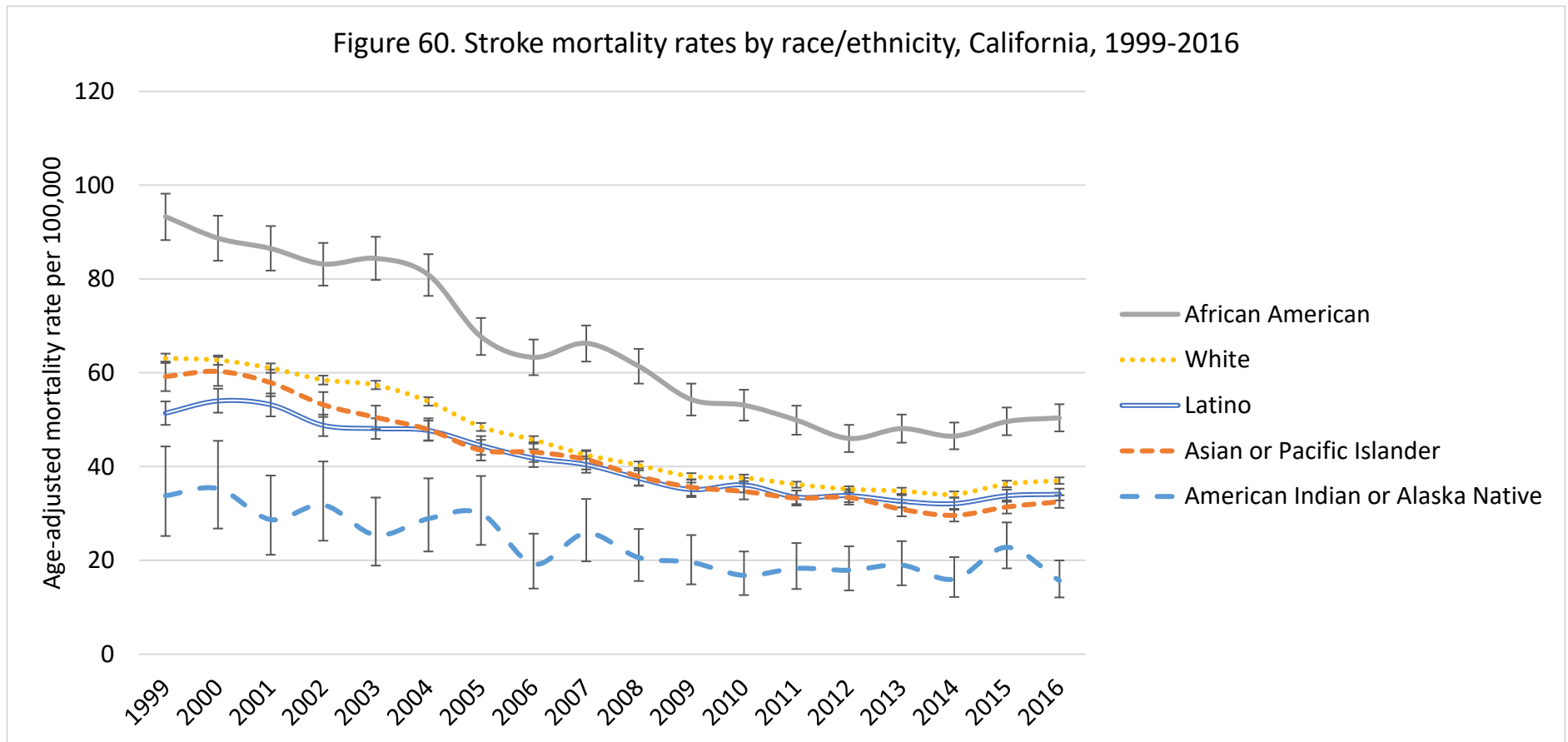
STROKE

A stroke, or “brain attack,” occurs when a blood clot blocks an artery or a blood vessel breaks, interrupting blood flow in the brain.

In 2010, stroke was the seventh leading cause of disability-adjusted life years (DALYs) in the United States.³⁶ In 2016, stroke was the third leading cause of death in California.¹ The majority of strokes (87%) are caused by a blocked blood vessel (ischemic strokes), usually due to a blood clot.²¹⁸

Stroke mortality rates have been declining since 1999, but disparities by race/ethnicity remain. African Americans have the highest stroke mortality rates (Figure 60).

High blood pressure is the most important determinant of stroke risk, and the relationship is nearly linear, so that as blood pressure increases the risk of stroke rises with it.²¹⁹ In 2016, 28.4% of California adults had, or have had, high blood pressure.²²⁰



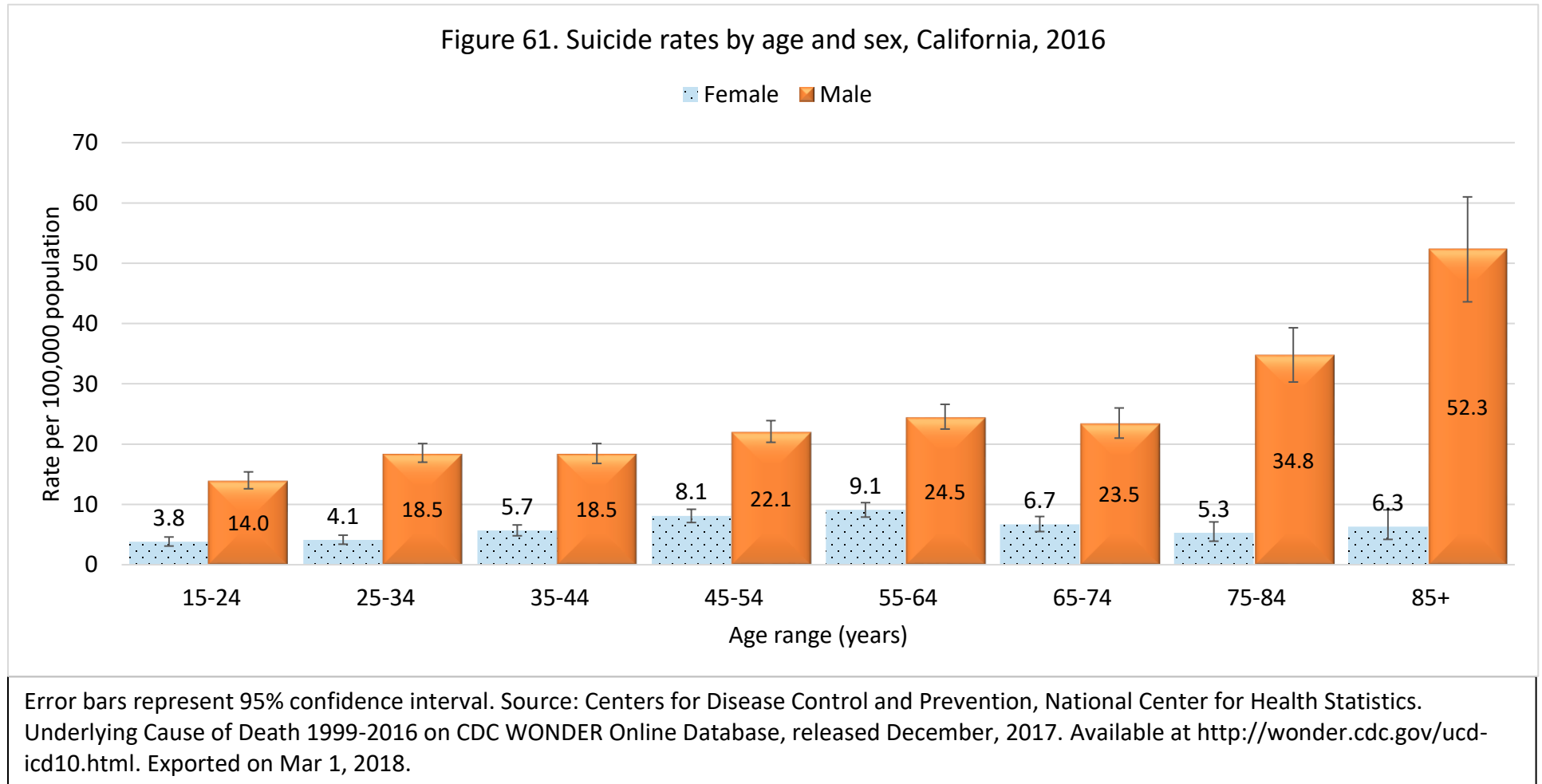
Error bars represent 95% confidence interval. Source: CDC, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database, released December, 2017. Available at <http://wonder.cdc.gov/ucd-icd10.html>. Exported on May 14, 2018.

SUICIDE

Suicide is a leading cause of death among young people in California.

- There were 4,277 suicides in California in 2016.¹
- Suicide rates in California are lower than the national average, driven by a lower rate of suicide among those over 55 than the nation as a whole.²²¹
- Suicide rates are higher for males in every age category (Figure 61).

Suicide was the third leading cause of death for 10-14 year olds and 15-24 year olds in California in 2016, and the second leading cause of death for 25-34 year olds.²²²



UNINTENTIONAL INJURIES

Unintentional injuries are the leading cause of death for people aged one to 44 years in California. Unintentional injuries cause over 10,000 deaths, 200,000 hospitalizations, and 2.3 million emergency department visits every year.²²³

Unintentional injuries, particularly motor-vehicle traffic injuries and drowning, are among the leading causes of death for children 1-19 years (Table 2).

These are injuries that most people refer to as “accidents.” However, most of these “accidents” are preventable.

Prevention strategies for unintentional injuries include requiring everyone to be buckled up appropriately in vehicles; assuring safety equipment like bicycle helmets, life vests, and child safety caps on medicine bottles; and promoting individual behavior change skills like swim lessons. Engineering changes such as longer crosswalk lights for the elderly to cross safely can also prevent unintentional injuries.



Table 2. Top Three Causes of Childhood Unintentional Injury Deaths by Age Group, California, 2000-2013

Age Group					
Rank	<1	1-4	5-9	10-14	15-19
1	Suffocation	Drowning	MVT-related	MVT-related	MVT-related
2	MVT-related	Pedestrian	Pedestrian	Pedestrian	Pedestrian
3	Drowning	MVT-related	Drowning	Drowning	Poisoning

MVT = Motor-vehicle traffic

Source: California Department of Public Health. Overall Injury Surveillance. *EpiCenter: California Injury Data Online* 2013. Available at <http://epicenter.cdph.ca.gov/ReportMenus/CustomTables.aspx>. Accessed Feb 25, 2017.

VIOLENCE

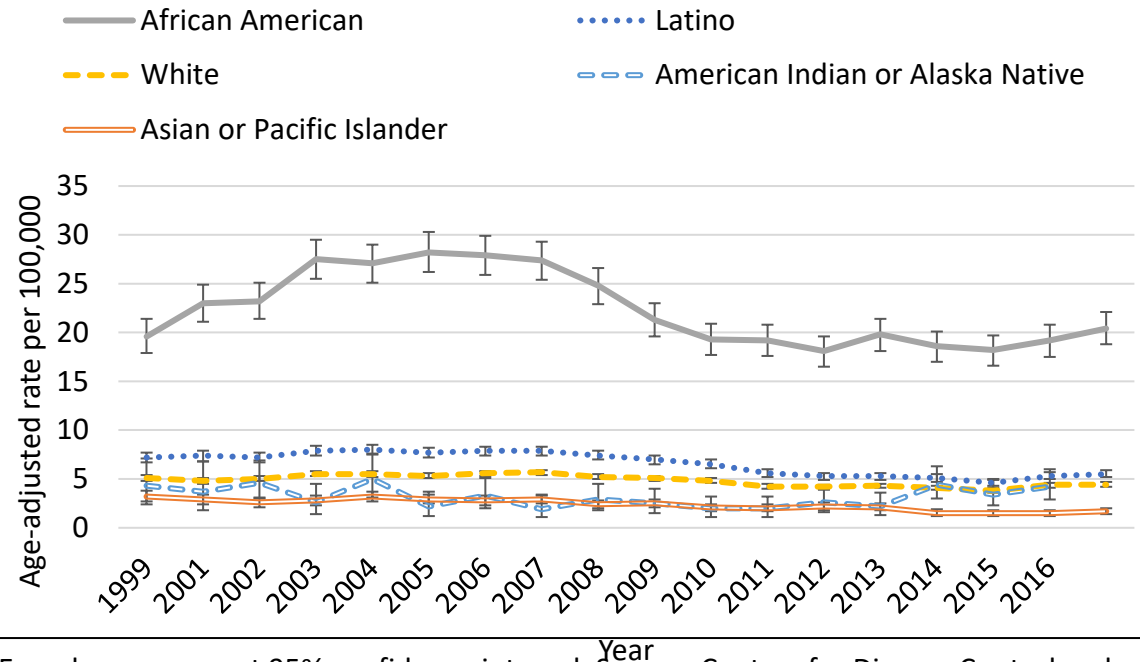
Violence is a leading cause of injury, disability, and death. It impacts the health and well-being of all Californians – our families, neighbors, coworkers, students, and community members. The consequences of violence are costly, and influence nearly all health and mental health outcomes throughout life.

In 2014, there were over 6,000 violent deaths, over 27,000 hospitalizations, and 154,000 emergency department visits for violent injuries in California, with an estimated annual cost of over \$11 billion in medical costs and lost productivity.^{222,224,225}

Although these data represent the best available estimates, violence is often underreported, which means that the full magnitude and consequences of violence are far more substantial than reflected in these figures. Violence also affects communities unequally. African Americans in California have much higher mortality rates from assault than other racial/ethnic groups (Figure 62).

There are many different types of violence that negatively impact individuals, relationships, communities, and society. They are interconnected and share many of the same root causes, such as harmful social norms, substance abuse, social isolation, and poverty and income inequality.²²⁶⁻²²⁸

Figure 62. Age-adjusted assault mortality rates, by race/ethnicity, California, 1999-2016



Error bars represent 95% confidence interval. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2016 on CDC WONDER Online Database, released December, 2017. Available at <http://wonder.cdc.gov/ucd-icd10.html>. Exported on June 1, 2018.

Types of violence

- Child maltreatment
- Intimate partner violence
- Teen dating violence
- Sexual violence
- Workplace violence
- Community violence and trauma
- Gang violence
- Gun violence
- Bullying/harassment
- Youth violence
- Elder maltreatment
- Suicide and homicide
- Police-involved violence
- Crime (assault, robbery)
- Hate crimes
- Terrorism

Unintentional Injuries and Violence, continued

Violence is preventable.

Primary prevention, including promoting safe, stable, nurturing, healthy relationships and environments; addressing individual, interpersonal, community, and societal risk and protective factors; decreasing structural violence (structural violence describes the political and economic practices that cause injury to communities, and is an important social determinant of health);²²⁹ and building individual and community resilience are important to address underlying causes to prevent violence from happening in the first place. These efforts not only create conditions that prevent violence, but also contribute to other public health goals like increasing physical activity, reducing chronic disease and obesity, promoting healthy eating, and reducing depression.

The table below illustrates that unintentional injuries and violence, notably homicide and suicide, are in the top three causes of death in California across several age groups – notably, those 15-24 years of age and 25-34 years of age.

Table 3. Ten Leading Causes of Death, California, 2016 All races, both sexes											
Age Groups (years of age)											
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 493	Unintentional Injury 103	Malignant Neoplasms 73	Malignant Neoplasms 63	Unintentional Injury 1,328	Unintentional Injury 1,761	Unintentional Injury 1,469	Malignant Neoplasms 4,032	Malignant Neoplasms 10,982	Heart Disease 50,320	Heart Disease 61,573
2	Short Gestation 261	Congenital Anomalies 57	Unintentional Injury 62	Unintentional Injury 53	Homicide 551	Suicide 685	Malignant Neoplasms 1,257	Heart Disease 2,944	Heart Disease 7,025	Malignant Neoplasms 42,372	Malignant Neoplasms 59,515
3	Maternal Pregnancy Comp. 130	Malignant Neoplasms 52	Congenital Anomalies 24	Suicide 28	Suicide 489	Homicide 579	Heart Disease 833	Unintentional Injury 2,035	Unintentional Injury 2,190	Alzheimer's Disease 15,437	Cerebrovascular 15,680
WISQARSTM™ Produced By: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System. Available at https://webappa.cdc.gov/sasweb/ncipc/leadcause.html . Accessed March 12, 2018.											

4. THE ROAD AHEAD

Highlights

- Millions of Californians have chronic conditions, injuries, and exposures to hazards.
- These chronic conditions, injuries, and exposures are preventable.
- Individuals, families and communities are not impacted equally.
- Prevention can improve equity in health outcomes and quality of life, and decrease the healthcare and societal costs from chronic conditions, injuries, and exposures to hazards.
- Healthy behaviors are achievable in healthy environments.

What is in this Section?

This section summarizes the main points of this report, highlights the challenges faced by individuals and communities, models public health efforts already underway, and describes ways to move forward together to address the burden of chronic disease, injury, and environmental exposures.



Forecasting the future.

The state and nation are becoming increasingly unhealthy, and health disparities are growing.

- The obesity rate nationwide is 36.5%,²³⁰ but in 2030, it is expected to be 42%.²³¹
- The CDC reported that, by 2050, one in three to five Americans will have diabetes, depending on racial and ethnic background.²³² The current rate in California is one in ten adults.¹⁵⁷

Health care costs in the United States are rising.

- As baby boomers age, a larger percentage of Californians will be over 65, and they will require more social and health care resources.
- According to the Centers for Medicare and Medicaid Services, by 2026, national health spending is expected to reach \$5.7 trillion and comprise 19.7% of the gross domestic product (GDP). In 2016, national health spending was \$3.3 trillion and comprised 17.9% of the GDP.²³³

Money could be saved with prevention.

- Preventive clinical services have been shown to produce medical savings, including tobacco cessation screening and assistance; discussing daily aspirin use; alcohol screening with brief counseling; depression screening; the child immunization series; and the pneumococcal vaccine for adults.²³⁴
- For every prevented HIV infection, \$394,650 is saved in a lifetime of HIV treatment.²³⁵
- If smoking were completely eliminated, an estimated \$170 billion would be saved nationwide in direct medical care costs, and approximately \$156 billion would be recaptured in worker productivity.²³⁶
- Community water fluoridation has been shown to save money, for both families and the health care system. Every \$1 invested in community water fluoridation saves \$38 in dental treatment costs.^{237,238}
- Reducing the environmental hazards that lead to childhood health conditions, including asthma, lead poisoning, cancer, and neurobehavioral disorders, could save \$254 million every year. In total, between \$10 and 13 billion could be saved over the lifetime of all children born in a single year in California.⁴⁰



Preventing and controlling chronic conditions, injuries, and exposures to toxins require more than providing people with information to make healthy choices.

Although an individual's knowledge and behavior change are crucial and should always be encouraged, it is imperative to think about individuals in the context of their family, community, and environment.

Consider a woman with diabetes and heart disease. The impacts of her diseases are not isolated. Her diseases affect her well-being, and through her, her family, community, employer and the health care system. Conversely, her surroundings constantly affect her physical, mental, and emotional health. The safety and economic stability of her community and family, the air she breathes, the transportation she has access to, the parks and markets she can walk to, the amount of money she makes, and more, all affect her health every day.

Having multiple chronic diseases tends to have a compound effect on the individual, their family, their community and society. For example, a woman with type 2 diabetes is also likely to be obese, have arthritis and be at risk for having a stroke or heart attack. This combination could lead to disability from pain or other side effects, which affect employment, greater financial pressure from health care and medication costs, increased stress and risk of mental illness.

Communities must reinforce and support health, and government partnerships must assure conditions in which people can be healthy. Health results from choices that people are able to make given the options from which they can choose. Conditions in the economic, societal, and physical environment determine the range of options that are available, their attractiveness and their relative ease or difficulty of use.

The web of interdependence of the individual, family, and community contributes to individual health, as well as the health of the community and economic stability of the state.

California will be a healthy environment when the air and water are clean and safe; when housing is safe and affordable; when transportation and community infrastructure provide people with the opportunity to be active and safe; when healthful food choices are made available to all; when people have access to a quality education and safe jobs with a living wage; and when each Californian has access to quality health care services.



Partnerships for a Healthy California

It is imperative to collaborate – governmental agencies and non-governmental organizations, foundations, local agencies, and community and faith-based organizations - to eliminate health disparities and make California a healthier place to live, learn, work, worship, and play. These partnerships will strengthen the capacity for each of us to become more effective in our common goal of making California healthier for all.

These efforts will be guided by the National Prevention Strategy, state initiatives addressing chronic conditions, injuries, and exposures to toxins, such as Let's Get Healthy California Taskforce and Health in all Policies, as well as chronic disease, injury, and toxic exposure prevention initiatives by partner organizations.

Final Thoughts

The problems discussed in this report are complex and multifactorial. Often, the solutions to lower the burden of chronic conditions, injuries, and exposures, and eliminate health disparities are not simple or the responsibility of any one organization or government department. The answers are being developed and implemented collaboratively in many settings to make sustainable change and improve the health of communities. Good health is a fundamental component of good quality of life, and a healthy population is a critical aspect of a thriving California economy.

This report provides a baseline snapshot of the current state of chronic conditions, injuries, and exposures to toxins in California, and highlights health disparities and the social determinants of health that contribute to them. It aims to build capacity to create healthy and safe environments, improve clinical and community prevention programs, and achieve health equity. Everyone benefits when each individual has the same opportunity to live a long, healthy, productive life.



PROGRAM RESOURCES

Portrait	CDPH Program	Program webpage link*
Alzheimer's Disease	Alzheimer's Disease Program	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/Pages/AlzheimersDiseaseProgram.aspx
Anxiety Disorders		https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder.shtml#part_155097
Arthritis	Arthritis Program	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/Pages/Arthritis.aspx
Asthma	Asthma Program	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CPE/Pages/Asthma.aspx
Work-Related Asthma (WRA)	Work-Related Asthma Prevention Program	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/WRAPP/Pages/WRAPP.aspx
Cancer	Comprehensive Cancer Control Program	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDSRB/Pages/California%20Comprehensive%20Cancer%20Control%20Program.aspx
Cannabis (Marijuana, Weed, Pot)	Safe and Active Communities Branch	https://www.cdph.ca.gov/Programs/DO/letstalkcannabis/Pages/LetsTalkCannabis.aspx
Chronic Obstructive Pulmonary Disease (COPD)		https://www.cdc.gov/copd/index.html
Depression		https://www.nimh.nih.gov/health/topics/depression/index.shtml
Diabetes	Diabetes Prevention Program	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/Pages/DiabetesPrevention.aspx
Environmental Emergencies	Emergency Preparedness Team	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/Pages/Emergency-Preparedness-Team.aspx
Exposure to Pesticides	Occupational Pesticide Illness Prevention Program	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OIIPP/Pages/OIIPP.aspx
Fatal Occupational Injuries	Fatality Assessment & Control Evaluation Program	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/FACE/Pages/FACE.aspx
Gambling Disorder	Office of Problem Gambling	https://www.cdph.ca.gov/Programs/OPG/Pages/opg-landing.aspx
Heart Disease	Heart Disease Prevention Program	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/Pages/HeartDiseasePrevention.aspx

Portrait	CDPH Program	Program webpage link*
Hepatitis	Office of Viral Hepatitis Prevention	https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/OVHP.aspx
Human Immunodeficiency virus (HIV)	Office of AIDS	https://www.cdph.ca.gov/Programs/CID/DOA/Pages/OAmain.aspx
Lead Poisoning in Workers	Occupational Lead Poisoning Prevention Program	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OLPPP/Pages/OLPPP.aspx
Obesity	Nutrition Education and Obesity Prevention Branch	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/NEOPB/Pages/Nutrition_Education_Obesity_Prevention_Branch.aspx
Opioid Overdose	Safe and Active Communities Branch	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/Pages/Program-Landing2.aspx
Oral Health	Office of Oral Health	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/Pages/OralHealthProgram/OralHealthProgram.aspx
Preterm Birth	Environmental Health Investigations Branch	https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/EES/Pages/PregBirth.aspx
Stroke	CA Stroke Registry/CA Coverdell Program	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDCB/Pages/Stroke.aspx
Suicide	Safe and Active Communities Branch	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/Pages/Program-Landing2.aspx
Unintentional Injuries	Safe and Active Communities Branch	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/Pages/Program-Landing2.aspx
Violence	Safe and Active Communities Branch	https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/SACB/Pages/ViolencePreventionInitiative.aspx

*Note: An informational webpage is provided as the “Program webpage link” if there is no associated CDPH program.

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 - Nutrition Education and Obesity Prevention Branch;
 - Occupational Health Branch;
 - Occupational Lead Poisoning Prevention Program;
 - Occupational Pesticide Illness Prevention Program;
 - Office of Problem Gambling;
 - Oral Health Program;
 - Safe and Active Communities Branch;
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GLOSSARY

- **Age-adjusted rate:** Certain geographic areas have older or younger populations and we would expect different health outcomes in these areas. To control for age differences, an adjustment is made by applying a standard population, usually the 2000 U.S. “standard million” population, to each population being compared.
- **Confidence Interval:** All data presented is based on a sample and subject to sampling variability. The confidence interval indicates the range of likely values of a measurement, and the width of the interval indicates the confidence that can be placed with this measurement. If a confidence interval is wide, the sample that generated the estimated value (i.e. surveying 100 Californians and generating estimates about the whole population of California) does not give precise information about the estimated value.
- **Incidence:** The number of new cases in the population in a given time period, usually expressed as a rate.
- **Morbidity:** The presence and/or severity of a disease or health condition in question.
- **Morbidity rate:** Similar to a mortality rate, the number of people compromised by a disease during a specified time period, divided by the total number of people in the population during that time period.
- **Mortality:** Death
- **Mortality rate:** The number of people dying from a disease during a specified time period, divided by the total number of people in the population during that time period. This is a way of standardizing so that comparisons can be made between geographic areas with different populations. For example, Los Angeles County has by far the largest population of any county in California, so they would be expected to have the greatest number of health outcomes (deaths, hospitalizations, etc.), compared to less populated counties. Thus, to assess the risk, population size must be taken into account.
- **Percentile:** The percentile is a value ranging from one to 100 that indicates the proportion of data that lies below it. For example, a value at the 60th percentile means that 60% of the observations lies below that value and thus, 40% lie above it.
- **Prevalence:** The number of existing cases of the disease in the population at a specified time, usually expressed as a rate.
- **Risk factor:** A personal habit, behavior, characteristic, clinical condition, or environmental exposure that is associated with an increased probability or severity of disease.

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