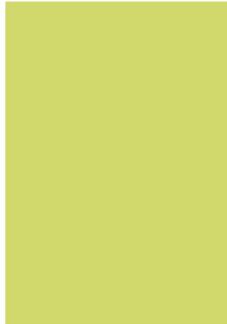
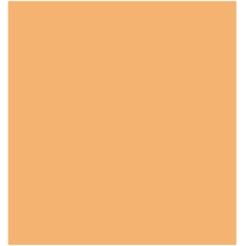


California Cancer Facts & Figures 2016



A sourcebook of cancer data for cancer prevention and control activities in California

We are pleased to present *California Cancer Facts & Figures 2016*, a collaboration of the American Cancer Society, Inc., California Division and the California Cancer Registry of the California Department of Public Health. We continue to observe promising trends in the steady decline in cancer incidence and death rates. Since 1988, California’s cancer mortality rate has fallen 27%, and our cancer incidence rate has declined 14%.

While we’ve made tremendous progress, our work is not over. In 2016, an estimated 173,200 Californians will be diagnosed with cancer and 59,060 will die of the disease, much of it preventable. The American Cancer Society California Division theme, *Empower Every Moment*, speaks to the urgency of the work that we do together with partner organizations and communities to help free California and the entire world from the pain and suffering of cancer.

For example, the Society is a leader in the nationwide effort to increase colorectal cancer screening rates to 80% among adults ages 50 and older by 2018. Colorectal cancer is the second-leading cause of cancer deaths in our state, yet it can be prevented through regular screening. In California, only about 63% of adults 50 and older have been tested as recommended. We are empowering individuals, health systems, and numerous partners to reach 80% nationwide screening by 2018, which means 203,000 lives could be saved in the US by 2030.

We cannot reduce the burden of cancer without addressing tobacco. In the US, tobacco use causes about one-third of all cancer deaths. This year, the American Cancer Society Cancer Action NetworkSM (ACS CAN), the Society’s nonpartisan nonpolitical advocacy affiliate, is proud to be part of the Save Lives California Coalition, which is standing up to Big Tobacco to save lives, prevent youth from starting to smoke, and empower smokers to quit. The California Healthcare, Research and Prevention Tobacco Tax Act of 2016, proposed for the November ballot, will increase the tax on cigarettes sold in California by \$2 per pack, and place an equivalent tax on other tobacco products, such as e-cigarettes. California’s current tax is one of the lowest in the country. Please visit savelivescalifornia.com to learn more about this initiative and how to get involved.

We hope *California Cancer Facts & Figures 2016* will inform and empower you to help us create a world free from the pain and suffering of cancer.

Sincerely,

Ujwala Rajgopal, MD, FACS, FICS
Chair of the Board
American Cancer Society, Inc., California Division

David F. Veneziano
Executive Vice President
American Cancer Society, Inc., California Division

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Basic Cancer Data for California

What is cancer?

Cancer is a large group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by both external factors (tobacco, infectious organisms, chemicals, and radiation) and internal factors (inherited mutations, hormones, immune conditions, and mutations that occur from metabolism).

How many Californians alive today have ever had cancer?

More than 1,459,000 Californians who are alive today have a history of cancer. Some of these individuals were cancer free, while others still had evidence of cancer and may have been undergoing treatment. “Cancer free” usually means that a patient has no evidence of disease and has the same life expectancy as a person who has never had cancer.

How many new cases are expected to occur in California in 2016?

In 2016, it is estimated that 173,200 Californians will be diagnosed with cancer. This estimate does not include carcinoma *in situ* (noninvasive cancer) of any site except urinary bladder, and does not include basal cell and squamous cell skin cancers, which are not required to be reported to cancer registries. This is equivalent to nearly 20 new cases every hour of every day.

How many Californians are expected to die of cancer in 2016?

Cancer is the second-leading cause of death in California, exceeded only by heart disease. Cancer accounts for nearly 1 of every 4 deaths in California. In 2016, it is estimated that 59,060 Californians will die of cancer.

How many people survive?

In the early 1900s, few cancer patients had any hope of long-term survival. In the 1930s, less than 1 in 5 was alive five years after treatment, in the 1940s it was 1 in 4, and in the 1960s it was 1 in 3. Today, more than 3 out of 5 cancer patients will be alive five years after diagnosis and treatment. The improvement in survival reflects both progress in diagnosing certain cancers at an earlier stage and improvements in treatment.

Data Sources: California Cancer Registry

Cancer Cases and Deaths

Observed California cases and deaths were calculated by the California Cancer Registry (CCR) of the California Department of Public Health (CDPH).

Cancer Incidence and Mortality

Where not otherwise specified, cancer incidence data are from the most current data in the CCR – a legally mandated, state-wide, population-based cancer registry implemented in 1988. Cancer mortality data are from the CDPH Center for Health Statistics and are based on the underlying cause of death.

California Behavioral Risk Factor Survey (BRFS), California Adult Tobacco Survey (CATS)

These surveys are conducted by the Public Health Survey Research Program, which is part of the California Department of Public Health’s Chronic Disease Surveillance and Research Branch (CDSRB). They are a collaboration between the Centers for Disease Control and Prevention; California State University, Sacramento; and the CDPH. To monitor key health behaviors, approximately 8,500 randomly selected adults are interviewed by telephone annually. Not all questions are asked each year; the most recent data available are presented.

CCR Acknowledgment and Disclaimer

The collection of cancer incidence data used in this study was supported by the California Department of Public Health pursuant to California Health and Safety Code Section 103885; Centers for Disease Control and Prevention’s (CDC) National Program of Cancer Registries, under cooperative agreement 5NU58DP003862-04/DP003862; the National Cancer Institute’s Surveillance, Epidemiology, and End Results Program under contract HHSN261201000140C awarded to the Cancer Prevention Institute of California, contract HHSN261201000035C awarded to the University of Southern California, and contract HHSN261201000034C awarded to the Public Health Institute. The ideas and opinions expressed herein are those of the author(s), and endorsement by the State of California, Department of Public Health, the National Cancer Institute, and the CDC or their Contractors and Subcontractors is not intended nor should it be inferred.

Table 1. Leading Causes of Death in California, 2013

| Cause | Deaths | Percent |
|-----------------------------------|---------|---------|
| Heart Disease | 59,832 | 24% |
| Cancer | 57,504 | 23% |
| Cerebrovascular Disease | 13,603 | 5% |
| Chronic Lower Respiratory Disease | 13,550 | 5% |
| Alzheimer's Disease | 11,868 | 5% |
| Accidents | 11,189 | 5% |
| Diabetes | 7,998 | 3% |
| Influenza and Pneumonia | 6,523 | 3% |
| Chronic Liver Disease | 4,777 | 2% |
| Intentional Self-harm | 4,006 | 2% |
| All Deaths | 248,118 | 100% |

Source: California Department of Public Health, Death Records.
Prepared by the California Department of Public Health, California Cancer Registry.

How do cancer incidence rates in California compare to the rest of the United States?

Cancer rates for the US are estimated by the Surveillance, Epidemiology, and End Results (SEER) Program. The SEER Program registers cancer patients in geographic areas covering about 26% of the US population, including all of California. In 2008-2012, the overall cancer incidence rate in the state was lower compared to the rest of the nation. California cancer incidence rates for Asians/Pacific Islanders, African Americans, and non-Hispanic whites were between 2% and 4% lower than the rest of

California Statistics

- Cancer incidence rates in California declined by 14% from 1988 to 2013.
- Cancer mortality rates declined by 27% between 1988 and 2013. Mortality rates declined for all four major racial/ethnic groups in the state.
- Tobacco-related cancers continue to decline, including cancers of the lung and bronchus, larynx, oral cavity, stomach, and bladder. California has experienced a much larger decrease in lung cancer incidence rates than the rest of the US, in large part due to the success of the state's tobacco control initiative.
- The female breast cancer incidence rate in California has decreased by 8%, but the mortality rate has decreased by 36%.
- Colon and rectum cancer incidence and mortality rates are declining sharply in most racial/ethnic groups.
- Cancer incidence in California is about the same or somewhat lower than elsewhere in the US for most types of cancer.
- Despite these improvements, nearly 1 out of every 2 Californians born today will develop cancer at some point in their lives, and it is likely that 1 in 5 will die of the disease.

the country. Hispanics in California had a nearly 11% lower incidence rate than other Hispanics in the nation. Some of the differences in rates may reflect differences in classifying the race/ethnicity of cancer cases between California and SEER.

Table 2. Observed* Number of New Cases, Deaths, and Existing Cases of Common Cancers in California, 2013

| Male | New Cases | | Deaths | | Existing Cases | |
|---------------------|-----------|------|--------|------|----------------|------|
| Prostate | 18,655 | 24% | 3,111 | 10% | 287,000 | 43% |
| Lung | 8,371 | 11% | 6,482 | 22% | 21,900 | 3% |
| Colon & Rectum | 7,289 | 9% | 2,645 | 9% | 67,900 | 10% |
| Leukemia & Lymphoma | 7,375 | 9% | 2,658 | 9% | 64,800 | 10% |
| Urinary Bladder | 5,115 | 7% | 1,120 | 4% | 48,700 | 7% |
| All Sites Combined | 78,619 | 100% | 29,766 | 100% | 663,500 | 100% |
| Female | New Cases | | Deaths | | Existing Cases | |
| Breast | 25,632 | 32% | 4,361 | 16% | 341,000 | 43% |
| Lung | 8,265 | 10% | 5,926 | 21% | 26,700 | 3% |
| Colon & Rectum | 6,744 | 8% | 2,512 | 9% | 67,300 | 8% |
| Uterus & Cervix | 6,703 | 8% | 1,484 | 5% | 105,500 | 13% |
| Leukemia & Lymphoma | 5,419 | 7% | 1,991 | 7% | 55,000 | 7% |
| All Sites Combined | 79,973 | 100% | 27,737 | 100% | 795,500 | 100% |

*Note that these numbers are listed differently than in previous *California Facts & Figures* publications. These numbers represent actual cancer cases and deaths from 2013, the year for which most recent data are available. Excludes nonmelanoma skin cancers and *in situ* cancers, except bladder. Deaths include persons who may have been diagnosed in previous years.

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

Table 3. Observed* New Cancer Cases and Deaths, 2013

| | Observed New Cases | | | Observed Deaths | | |
|----------------------------------|--------------------|--------|--------|-----------------|--------|--------|
| | Both Sexes | Male | Female | Both sexes | Male | Female |
| All Sites | 158,592 | 78,619 | 79,973 | 57,503 | 29,766 | 27,737 |
| Oral Cavity & Pharynx | 4,208 | 3,047 | 1,161 | 949 | 660 | 289 |
| Digestive System | 30,250 | 16,706 | 13,544 | 16,121 | 9,140 | 6,981 |
| Esophagus | 1,366 | 1,052 | 314 | 1,250 | 979 | 271 |
| Stomach | 2,917 | 1,731 | 1,186 | 1,544 | 906 | 638 |
| Small Intestine | 746 | 381 | 365 | 144 | 87 | 57 |
| Colon Excluding Rectum | 9,725 | 4,791 | 4,934 | 4,125 | 2,062 | 2,063 |
| Rectum & Rectosigmoid Junction | 4,308 | 2,498 | 1,810 | 1,032 | 583 | 449 |
| Anus, Anal Canal, & Anorectum | 683 | 274 | 409 | 93 | 38 | 55 |
| Liver & Intrahepatic Bile Duct | 4,019 | 2,874 | 1,145 | 3,165 | 2,164 | 1,001 |
| Gallbladder | 463 | 138 | 325 | 254 | 83 | 171 |
| Other Biliary | 860 | 442 | 418 | 164 | 73 | 91 |
| Pancreas | 4,527 | 2,313 | 2,214 | 4,096 | 2,057 | 2,039 |
| Retroperitoneum | 150 | 66 | 84 | 41 | 22 | 19 |
| Respiratory System | 17,835 | 9,280 | 8,555 | 12,773 | 6,756 | 6,017 |
| Nose, Nasal Cavity, & Middle Ear | 289 | 171 | 118 | 47 | 26 | 21 |
| Larynx | 834 | 684 | 150 | 280 | 227 | 53 |
| Lung & Bronchus | 16,636 | 8,371 | 8,265 | 12,408 | 6,482 | 5,926 |
| Pleura | – | 9 | – | 7 | – | – |
| Bones & Joints | 311 | 175 | 136 | 163 | 99 | 64 |
| Soft Tissue Including Heart | 1,400 | 758 | 642 | 543 | 283 | 260 |
| Melanoma of the Skin | 8,683 | 5,359 | 3,324 | 914 | 613 | 301 |
| Other Non-Epithelial Skin | 828 | 533 | 295 | 360 | 264 | 96 |
| Breast | 25,810 | 178 | 25,632 | 4,407 | 46 | 4,361 |
| Female Genital System | 9,920 | 0 | 9,920 | 3,230 | 0 | 3,230 |
| Cervix Uteri | 1,401 | 0 | 1,401 | 492 | 0 | 492 |
| Corpus Uteri & Uterus, NOS** | 5,302 | 0 | 5,302 | 992 | 0 | 992 |
| Ovary | 2,418 | 0 | 2,418 | 1,556 | 0 | 1,556 |
| Vagina | 142 | 0 | 142 | 60 | 0 | 60 |
| Vulva | 426 | 0 | 426 | 91 | 0 | 91 |
| Male Genital System | 20,009 | 20,009 | 0 | 3,191 | 3,190 | 0 |
| Prostate | 18,655 | 18,655 | 0 | 3,112 | 3,112 | 0 |
| Testis | 1,157 | 1,157 | 0 | 54 | 54 | 0 |
| Penis | 140 | 140 | 0 | 22 | 22 | 0 |
| Urinary System | 12,610 | 8,998 | 3,612 | 2,980 | 2,061 | 919 |
| Urinary Bladder | 6,654 | 5,115 | 1,539 | 1,558 | 1,120 | 438 |
| Kidney & Renal Pelvis | 5,678 | 3,689 | 1,989 | 1,350 | 898 | 452 |
| Ureter | 163 | 110 | 53 | 42 | 24 | 18 |
| Eye & Orbit | 351 | 178 | 173 | 47 | 26 | 21 |
| Brain & Other Nervous System | 2,363 | 1,316 | 1,047 | 1,708 | 967 | 741 |
| Thyroid Gland | 5,048 | 1,188 | 3,860 | 248 | 104 | 144 |
| Other Endocrine, Thymus | 294 | 152 | 142 | 108 | 60 | 48 |
| Hodgkin Disease | 872 | 495 | 377 | 134 | 87 | 47 |
| Non-Hodgkin Lymphomas | 7,139 | 4,050 | 3,089 | 2,062 | 1,181 | 881 |
| Multiple Myeloma | 2,115 | 1,248 | 867 | 1,139 | 654 | 485 |
| Leukemias | 4,783 | 2,830 | 1,953 | 2,453 | 1,390 | 1,063 |
| Lymphocytic Leukemia | 2,269 | 1,425 | 844 | 679 | 409 | 270 |
| Acute Lymphocytic Leukemia | 724 | 425 | 299 | 212 | 118 | 94 |
| Chronic Lymphocytic Leukemia | 1,403 | 893 | 510 | 416 | 256 | 160 |
| Myeloid and Monocytic Leukemia | 2,331 | 1,313 | 1,018 | 1,304 | 736 | 568 |
| Acute Myeloid Leukemia | 1,597 | 875 | 722 | 1,090 | 617 | 473 |
| Acute Monocytic Leukemia | 78 | 44 | 34 | 18 | 8 | 10 |
| Chronic Myeloid Leukemia | 599 | 359 | 240 | 103 | 60 | 43 |
| Ill Defined/Unknown | 3,189 | 1,646 | 1,543 | 3,689 | 1,972 | 1,717 |

*Note that these numbers are listed differently than in previous *California Cancer Facts & Figures* publications. These numbers represent actual cancer cases and deaths from 2013, the year for which most recent data are available. **NOS: Not otherwise specified. Excludes non-melanoma skin cancers and carcinoma *in situ*, except bladder. Deaths include persons who may have been diagnosed in previous years. Counts of less than 5 are suppressed.

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

Table 4. Observed* New Cancer Cases by County, 2013

| | All Sites | Bladder | Breast | Colon & Rectum | Leukemia | Lung | Melanoma | Myeloma | NHL** | Oral | Pancreas | Prostate | Uterus & Cervix |
|-----------------|-----------|---------|--------|----------------|----------|-------|----------|---------|-------|------|----------|----------|-----------------|
| Alameda | 6,546 | 270 | 1,149 | 564 | 182 | 683 | 328 | 99 | 276 | 154 | 209 | 835 | 298 |
| Alpine | — | 0 | — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |
| Amador | 263 | 16 | 39 | 22 | — | 41 | 17 | — | — | — | 10 | 36 | — |
| Butte | 1,187 | 59 | 176 | 110 | 48 | 149 | 65 | 17 | 41 | 37 | 34 | 151 | 39 |
| Calaveras | 316 | 14 | 31 | 26 | 11 | 33 | 42 | — | 13 | — | — | 35 | — |
| Colusa | 66 | 0 | 10 | — | — | — | — | — | — | — | — | — | — |
| Contra Costa | 5,190 | 204 | 871 | 459 | 154 | 567 | 378 | 57 | 224 | 116 | 129 | 709 | 214 |
| Del Norte | 135 | — | 15 | 15 | — | 16 | — | — | 10 | — | — | 19 | — |
| El Dorado | 1,011 | 55 | 174 | 82 | 27 | 123 | 86 | 15 | 46 | 31 | 28 | 119 | 44 |
| Fresno | 3,511 | 155 | 539 | 299 | 118 | 403 | 161 | 39 | 141 | 112 | 103 | 403 | 142 |
| Glenn | 158 | — | 22 | 11 | — | 23 | — | — | — | — | — | 18 | — |
| Humboldt | 671 | 35 | 89 | 59 | 20 | 91 | 44 | 10 | 29 | 29 | 20 | 66 | 23 |
| Imperial | 613 | 19 | 87 | 56 | 18 | 63 | — | — | 33 | 21 | 14 | 84 | 30 |
| Inyo | 95 | — | 17 | — | — | 11 | — | — | — | — | — | 14 | — |
| Kern | 2,753 | 115 | 382 | 233 | 83 | 361 | 109 | 31 | 112 | 67 | 86 | 319 | 129 |
| Kings | 477 | 13 | 67 | 48 | 17 | 51 | 19 | — | 19 | — | — | 52 | 14 |
| Lake | 417 | 27 | 49 | 31 | — | 86 | 19 | — | 25 | 13 | — | 38 | — |
| Lassen | 122 | — | 10 | — | — | 19 | — | — | — | — | — | 20 | — |
| Los Angeles | 37,797 | 1,492 | 6,311 | 3,644 | 1,131 | 3,514 | 1,330 | 541 | 1,848 | 952 | 1,144 | 4,352 | 1,841 |
| Madera | 603 | 26 | 96 | 50 | 30 | 77 | 23 | — | 22 | 16 | 23 | 75 | 20 |
| Marin | 1,520 | 64 | 279 | 111 | 53 | 134 | 168 | 22 | 71 | 60 | 35 | 167 | 62 |
| Mariposa | 121 | — | 25 | — | — | 10 | 13 | — | — | — | — | 18 | — |
| Mendocino | 481 | 39 | 71 | 34 | 10 | 63 | 29 | — | 23 | 16 | 13 | 54 | 22 |
| Merced | 873 | 36 | 131 | 86 | 31 | 110 | 34 | 16 | 37 | 26 | 34 | 74 | 30 |
| Modoc | 49 | — | — | — | — | — | — | — | — | — | — | — | — |
| Mono | 47 | — | 10 | — | 0 | — | — | 0 | 0 | — | 0 | — | — |
| Monterey | 1,657 | 69 | 253 | 128 | 80 | 153 | 109 | 24 | 64 | 42 | 47 | 202 | 69 |
| Napa | 812 | 43 | 141 | 64 | 24 | 83 | 56 | — | 28 | 32 | 19 | 92 | 24 |
| Nevada | 632 | 37 | 103 | 49 | 13 | 78 | 40 | — | 31 | 14 | 12 | 88 | 23 |
| Orange | 12,832 | 541 | 2,118 | 1,085 | 373 | 1,246 | 868 | 168 | 610 | 316 | 371 | 1,502 | 505 |
| Placer | 2,148 | 115 | 321 | 163 | 65 | 242 | 166 | 29 | 105 | 50 | 53 | 288 | 71 |
| Plumas | 125 | — | 19 | — | — | 15 | — | — | — | — | — | 18 | — |
| Riverside | 9,446 | 456 | 1,410 | 834 | 285 | 1,059 | 569 | 113 | 398 | 257 | 240 | 1,226 | 373 |
| Sacramento | 6,518 | 271 | 1,120 | 580 | 182 | 783 | 353 | 85 | 254 | 159 | 165 | 654 | 298 |
| San Benito | 239 | 11 | 30 | 20 | 10 | 13 | 14 | — | 13 | — | — | 41 | — |
| San Bernardino | 7,688 | 254 | 1,236 | 776 | 251 | 784 | 341 | 117 | 297 | 187 | 189 | 964 | 357 |
| San Diego | 13,570 | 552 | 2,233 | 1,188 | 388 | 1,477 | 890 | 174 | 604 | 395 | 373 | 1,524 | 502 |
| San Francisco | 3,880 | 135 | 584 | 342 | 100 | 438 | 191 | 53 | 193 | 114 | 127 | 448 | 160 |
| San Joaquin | 2,687 | 135 | 379 | 273 | 95 | 331 | 107 | 32 | 115 | 76 | 59 | 300 | 108 |
| San Luis Obispo | 1,472 | 60 | 267 | 117 | 49 | 162 | 160 | 16 | 73 | 40 | 43 | 158 | 42 |
| San Mateo | 3,555 | 166 | 645 | 277 | 97 | 351 | 204 | 45 | 158 | 95 | 124 | 421 | 158 |
| Santa Barbara | 1,987 | 96 | 313 | 135 | 85 | 191 | 164 | 32 | 94 | 55 | 54 | 194 | 71 |
| Santa Clara | 7,340 | 297 | 1,232 | 628 | 193 | 731 | 455 | 100 | 336 | 200 | 229 | 911 | 286 |
| Santa Cruz | 1,274 | 62 | 223 | 82 | 42 | 89 | 95 | 12 | 70 | 37 | 39 | 150 | 68 |
| Shasta | 1,208 | 52 | 187 | 80 | 47 | 153 | 111 | 14 | 45 | 24 | 27 | 149 | 30 |
| Sierra | 18 | 0 | — | — | 0 | — | — | — | 0 | 0 | 0 | — | — |
| Siskiyou | 284 | 15 | 33 | 20 | — | 41 | 15 | — | 13 | 11 | — | 46 | 13 |
| Solano | 2,006 | 87 | 313 | 180 | 63 | 240 | 87 | 38 | 83 | 57 | 57 | 277 | 69 |
| Sonoma | 2,616 | 134 | 439 | 232 | 67 | 270 | 205 | 28 | 103 | 63 | 68 | 284 | 106 |
| Stanislaus | 2,105 | 100 | 335 | 182 | 56 | 261 | 106 | 30 | 91 | 51 | 60 | 216 | 71 |
| Sutter | 409 | 17 | 77 | 33 | 20 | 56 | 25 | — | 16 | 13 | 11 | 40 | 17 |
| Tehama | 386 | 18 | 54 | 34 | 13 | 46 | 18 | — | 11 | 14 | 11 | 61 | 18 |
| Trinity | 79 | — | 11 | — | — | 10 | — | 0 | 0 | — | — | 12 | — |
| Tulare | 1,436 | 49 | 211 | 132 | 55 | 152 | 55 | 15 | 72 | 40 | 46 | 169 | 63 |
| Tuolumne | 407 | 21 | 48 | 30 | 10 | 49 | 44 | — | 25 | 11 | — | 46 | 19 |
| Ventura | 3,695 | 135 | 643 | 304 | 94 | 351 | 229 | 39 | 174 | 112 | 111 | 407 | 146 |
| Yolo | 762 | 35 | 134 | 53 | 24 | 88 | 61 | 12 | 34 | 17 | 26 | 66 | 41 |
| Yuba | 291 | 10 | 36 | 23 | 11 | 50 | 21 | — | 20 | — | — | 21 | 13 |

*Note that these numbers are listed differently than in previous *California Cancer Facts & Figures* publications. These numbers represent actual cancer cases diagnosed in 2013, the year for which most recent data is available. **NHL: Non-Hodgkin Lymphoma.

Excludes non-melanoma skin cancers and carcinoma *in situ*, except bladder. Counts of 10 or less are suppressed.

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

Prepared by: California Cancer Registry, California Department of Public Health. Please visit the California Cancer Registry website at ccrca.org for more information.

Table 5. Observed* Cancer Deaths by County, 2013

| | All | Breast | Bladder | Colon & Rectum | Leukemia | Lung | Myeloma | NHL** | Ovary | Pancreas | Prostate | Stomach | Uterus & Cervix |
|-----------------|--------|--------|---------|----------------|----------|-------|---------|-------|-------|----------|----------|---------|-----------------|
| Alameda | 2,239 | 194 | 48 | 189 | 90 | 497 | 63 | 82 | 58 | 154 | 127 | 67 | 64 |
| Alpine | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amador | 95 | — | 0 | — | — | 31 | 0 | — | — | — | — | 0 | 0 |
| Butte | 490 | 23 | 13 | 37 | 19 | 134 | 10 | 19 | 11 | 32 | 31 | — | — |
| Calaveras | 126 | — | — | — | — | 33 | 0 | — | — | — | — | — | — |
| Colusa | 29 | — | — | — | — | — | 0 | — | 0 | — | — | — | 0 |
| Contra Costa | 1,794 | 145 | 38 | 172 | 70 | 417 | 38 | 66 | 64 | 123 | 85 | 35 | 39 |
| Del Norte | 52 | — | — | — | — | 14 | 0 | — | 0 | — | — | — | 0 |
| El Dorado | 335 | 21 | 14 | 18 | 12 | 81 | — | 13 | — | 27 | 24 | — | — |
| Fresno | 1,334 | 95 | 34 | 119 | 45 | 308 | 28 | 42 | 33 | 93 | 73 | 46 | 35 |
| Glenn | 50 | — | — | — | — | 17 | — | — | 0 | — | — | — | 0 |
| Humboldt | 276 | 27 | 10 | 26 | 11 | 54 | — | 10 | — | 14 | 17 | — | — |
| Imperial | 195 | — | — | 17 | — | 36 | — | 10 | — | 10 | 17 | — | — |
| Inyo | 33 | — | — | — | — | — | — | 0 | 0 | — | 0 | 0 | — |
| Kern | 1,111 | 95 | 36 | 84 | 42 | 266 | 13 | 40 | 29 | 61 | 67 | 21 | 25 |
| Kings | 186 | 12 | — | 16 | — | 47 | — | — | — | — | 12 | — | — |
| Lake | 184 | 12 | — | 10 | — | 55 | — | — | — | — | — | — | — |
| Lassen | 39 | — | 0 | — | — | 13 | — | 0 | 0 | 0 | — | 0 | 0 |
| Los Angeles | 13,888 | 1,156 | 339 | 1,358 | 602 | 2,688 | 294 | 523 | 370 | 1,047 | 691 | 532 | 435 |
| Madera | 214 | 18 | — | 22 | 10 | 45 | — | — | — | 23 | 17 | — | — |
| Marin | 452 | 31 | 11 | 26 | 29 | 97 | — | 29 | 18 | 35 | 27 | — | — |
| Mariposa | 55 | — | — | — | — | 11 | 0 | 0 | 0 | — | — | — | 0 |
| Mendocino | 205 | 20 | 10 | 12 | — | 54 | — | — | — | — | 14 | — | — |
| Merced | 360 | 22 | — | 27 | 16 | 87 | 13 | 11 | — | 25 | 19 | — | 12 |
| Modoc | 21 | — | — | — | 0 | — | — | 0 | 0 | — | — | 0 | 0 |
| Mono | 13 | — | — | — | — | — | 0 | 0 | 0 | — | 0 | 0 | — |
| Monterey | 534 | 32 | 14 | 40 | 32 | 110 | — | 18 | 14 | 33 | 29 | 11 | 16 |
| Napa | 296 | 14 | 15 | 17 | 17 | 78 | — | — | — | 19 | 21 | — | — |
| Nevada | 237 | 17 | 12 | 24 | — | 49 | — | — | 10 | 17 | 11 | — | — |
| Orange | 4,497 | 327 | 120 | 409 | 211 | 970 | 98 | 158 | 121 | 347 | 255 | 116 | 105 |
| Placer | 706 | 40 | 16 | 54 | 37 | 152 | 11 | 26 | 24 | 54 | 44 | 12 | 18 |
| Plumas | 51 | — | 0 | — | — | 12 | 0 | — | — | — | — | 0 | 0 |
| Riverside | 3,370 | 256 | 109 | 307 | 134 | 793 | 70 | 119 | 97 | 220 | 188 | 77 | 75 |
| Sacramento | 2,411 | 176 | 72 | 219 | 113 | 559 | 45 | 73 | 45 | 176 | 131 | 50 | 64 |
| San Benito | 73 | — | — | — | — | — | — | — | — | — | — | — | — |
| San Bernardino | 2,849 | 239 | 82 | 267 | 115 | 619 | 49 | 83 | 81 | 183 | 150 | 79 | 83 |
| San Diego | 5,030 | 364 | 139 | 428 | 205 | 1,106 | 90 | 194 | 128 | 380 | 306 | 91 | 117 |
| San Francisco | 1,366 | 99 | 31 | 106 | 51 | 318 | 24 | 50 | 17 | 117 | 51 | 54 | 36 |
| San Joaquin | 1,107 | 77 | 35 | 99 | 41 | 265 | 17 | 44 | 29 | 63 | 47 | 22 | 31 |
| San Luis Obispo | 533 | 39 | 10 | 56 | 26 | 129 | — | 10 | 19 | 35 | 30 | — | 17 |
| San Mateo | 1,139 | 95 | 36 | 84 | 51 | 217 | 22 | 44 | 37 | 89 | 61 | 33 | 23 |
| Santa Barbara | 703 | 62 | 24 | 61 | 35 | 115 | 15 | 24 | 24 | 49 | 46 | 17 | 16 |
| Santa Clara | 2,372 | 173 | 54 | 188 | 106 | 463 | 49 | 83 | 76 | 185 | 130 | 85 | 52 |
| Santa Cruz | 392 | 36 | — | 36 | 18 | 67 | — | 16 | 12 | 27 | 21 | — | 13 |
| Shasta | 482 | 23 | 11 | 47 | 17 | 127 | — | 13 | 16 | 25 | 34 | — | — |
| Sierra | — | 0 | 0 | 0 | — | — | 0 | 0 | 0 | 0 | — | — | 0 |
| Siskiyou | 133 | 15 | — | 13 | — | 26 | — | — | — | — | 14 | 0 | — |
| Solano | 807 | 48 | 30 | 73 | 31 | 188 | 16 | 23 | 21 | 58 | 37 | 15 | 21 |
| Sonoma | 979 | 73 | 32 | 99 | 25 | 209 | 17 | 35 | 29 | 68 | 49 | 24 | 32 |
| Stanislaus | 884 | 56 | 25 | 89 | 42 | 229 | 12 | 35 | 18 | 48 | 53 | 24 | 12 |
| Sutter | 142 | — | — | — | — | 42 | — | — | — | — | — | — | — |
| Tehama | 157 | — | — | 15 | 11 | 43 | — | — | — | — | — | — | — |
| Trinity | 40 | — | — | — | — | — | 0 | — | — | — | — | — | 0 |
| Tulare | 560 | 45 | 20 | 48 | 30 | 124 | 16 | 19 | 12 | 33 | 23 | 16 | 16 |
| Tuolumne | 153 | 12 | — | 12 | — | 32 | — | — | — | 10 | — | — | — |
| Ventura | 1,294 | 110 | 32 | 133 | 61 | 241 | 29 | 55 | 41 | 95 | 73 | 28 | 42 |
| Yolo | 302 | 21 | — | 28 | 17 | 62 | 11 | 10 | — | 16 | 17 | — | — |
| Yuba | 120 | — | — | 11 | 0 | 42 | — | — | — | 10 | — | — | — |

*Note that these numbers are listed differently than in previous *California Cancer Facts & Figures* publications. These numbers represent cancer deaths from 2013, the year for which most recent data are available. **NHL: Non-Hodgkin Lymphoma.

Excludes non-melanoma skin cancers and carcinoma *in situ*, except bladder. Death counts of 10 or less are suppressed.

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

Prepared by the California Department of Public Health, California Cancer Registry. Please visit the California Cancer Registry website at crrcal.org for more information.

Cancer Risk

Who is at risk of developing cancer?

Anyone can develop cancer. Since the risk of being diagnosed with cancer increases with age, most cases occur in adults who are middle aged or older. About 86% of all cancers are diagnosed in persons 50 years of age and older.

Cancer researchers use the word “risk” in different ways, most commonly expressing risk as lifetime risk or relative risk. *Life-time risk* refers to the probability that an individual will develop or die from cancer over the course of a lifetime. In the US, the lifetime risk of developing cancer is 42% (1 in 2) in men and 38% (1 in 3) in women (Table 6, page 13). These probabilities are estimated based on the overall experience of the general population and may overestimate or underestimate individual risk because of differences in exposures (e.g., smoking), family history, and/or genetic susceptibility.

Relative risk is a measure of the strength of the relationship between a risk factor and cancer. It compares the risk of developing cancer in people with a certain exposure or trait to the risk in people who do not have this characteristic. For example, men and women who smoke are about 25 times more likely to develop lung cancer than nonsmokers, so their relative risk of lung cancer is 25. Most relative risks are not this large. For example, women who have a mother, sister, or daughter with a history of breast cancer are about twice as likely to develop breast cancer as women who do not have this family history; in other words, their relative risk is about 2.

Causes of Cancer

All cancers involve the malfunction of genes that control cell growth and division. For most types of cancer, risk is higher with a family history of the disease. It is now thought that many familial cancers arise from the interplay between common gene variations and lifestyle/environmental risk factors. Only a small proportion of cancers are strongly hereditary, that is, caused by an inherited genetic alteration that confers a very high risk. Most cancers do not result from inherited genes but from damage to genes occurring during a person’s lifetime. Genetic damage may result from internal factors (such as hormones or the metabolism of nutrients within cells), or external factors (such as tobacco, or excessive exposure to chemicals, sunlight, or ionizing radiation). Exposure to tobacco smoke significantly increases cancer risk, and is associated with an estimated 30% of all cancers, including 85% of lung cancers. As many as 40% of all cancers are associated with combinations of poor diet, physical inactivity, elevated body weight, and excessive alcohol consumption – collectively referred to as unhealthy lifestyle factors.

Just as there are many different cancers, there are many factors that contribute to an individual’s risk of developing cancer – it is extremely difficult to point to any one factor as the cause. The timing and duration of cancer-causing exposures impact a person’s risk, and exposures to the developing child during the prenatal period or the first years of life may be especially harmful. Although science has demonstrated that exposure to certain substances or circumstances will increase an individual’s chance of getting cancer, the disease is never a certain outcome of any particular exposure.

Estimates vary on the contribution to cancer associated with exposure to other environmental carcinogenic agents, variously estimated to be associated with 2% to 15% of all cancers. Environmental factors can be broadly defined by the National Institute of Environmental Health to include: certain viruses; bacteria; carcinogens in workplace and home environments; carcinogens in air, water, soil, food, and consumer products; radiation from sunlight and indoor tanning booths or lamps; radon; or medical imaging, which sometimes involve many relatively small doses that accumulate over a long time. Certain cancers are related to infectious agents, such as human papillomavirus (HPV), hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV), and *Helicobacter pylori* (*H. pylori*); many of these cancers could be prevented through behavioral changes, vaccines, or antibiotics.

Increases in radiation exposures from the tremendous growth of diagnostic radiation imaging, such as CT scans and fluoroscopy, have raised serious concerns, particularly for the pediatric population. Losses in the ozone layer may give rise to more skin cancers caused by sun radiation. High exposure to ultraviolet (UV) radiation, from sunlight or use of indoor tanning, is a major risk factor for all types of skin cancer. (The International Agency for Research on Cancer has classified indoor tanning devices as “carcinogenic to humans” based on an extensive review of scientific evidence.) People at highest risk include those with sun sensitivity (e.g., sunburning easily, difficulty tanning, or natural blond or red hair color); a history of excessive sun exposure, including sunburns; diseases or treatments that suppress the immune system; and a past history of skin cancer

Toxic air contaminants, including diesel particulate matter, are responsible for most of the known cancer risk associated with airborne exposure in California. Long-term exposures to some consumer products and environmental pollutants may similarly increase the risk of cancer through routes that have not yet been well studied. Such substances, including some pesticides, plasticizers, and nano-materials, may cause subtle hormonal or other physiological alterations that could contribute to the development of cancer in later life.

The relationship between cancer risk and environmental factors is important for several reasons. First, even a relatively low percentage of cancers can translate into a large number of cases and,

thus, affected people. Second, the exposure to occupational and environmental carcinogens disproportionately affects low-income communities and communities of color, contributing to disparities in the cancer burden. Third, some important research questions remain. These include the role of exposures to certain classes of chemicals, such as endocrine disruptors, during critical periods of human development and the potential for pollutants to interact with each other, as well as with genetic and other risk factors for cancer including smoking. Cancer risk can be reduced through individual actions such as refraining from tobacco use or quitting smoking, engaging in physical activity, eating a healthy diet that includes fruits and vegetables, and avoiding exposure to

carcinogens and unnecessary medical radiation. Research, public policy, and regulation are necessary to safeguard the public from exposure to carcinogens and other toxic substances in pesticides, chemicals, and consumer products.

Exactly why one individual develops cancer and another person with very similar life experiences does not is beyond current scientific understanding. Better knowledge is key to preventing and treating cancers, and it is the focus of rigorous scientific research. Reducing one's chances of developing cancer requires adopting a healthy lifestyle, reducing individual and environmental exposures to known carcinogens, and, if there is a family history of cancer, talking to one's doctor on a regular basis.

Lifestyle Factors and Cancer Prevention

A substantial proportion of cancers could be prevented. The most important ways to reduce cancer risk is to avoid tobacco, maintain a healthy weight, be physically active on a regular basis, and eat a mostly plant-based diet, consisting of a variety of vegetables and fruit, whole grains, and limited amounts of red and processed meats. Protecting skin from excessive sun exposure and avoiding indoor tanning are also important in reducing the risk of skin cancers. Regular cancer screenings, when appropriate, also play a vital role in cancer prevention. Although genetic inheritance plays a role in the risk of some individuals developing cancer, noninherited factors have a larger impact on cancer risk for the population as a whole.

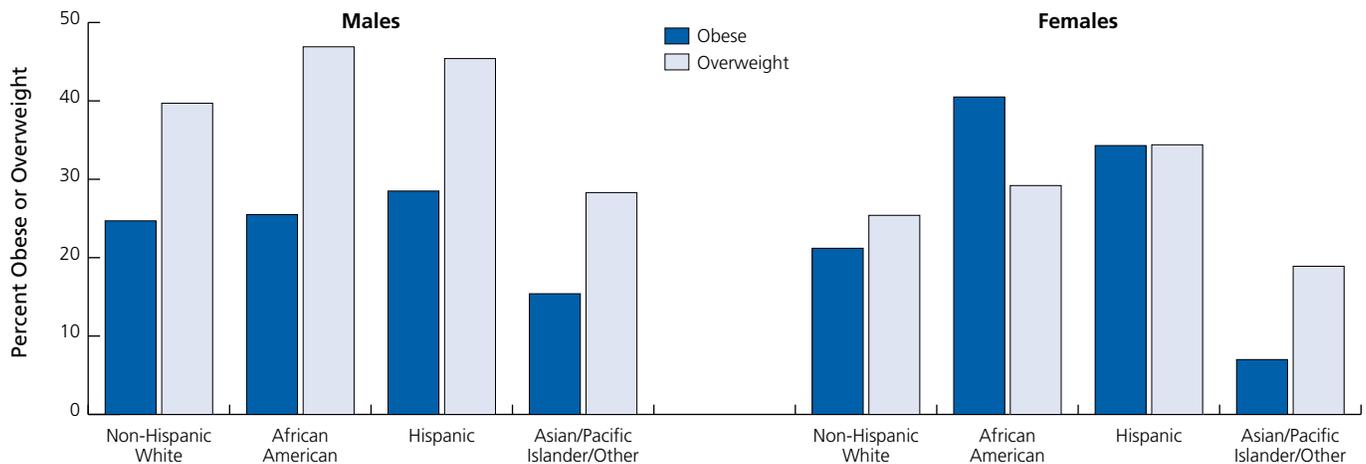
The major lifestyle factors that play a role in cancer prevention are highlighted in the following sections: 1) Nutrition, Obesity, and Physical Activity, 2) Tobacco Use, and 3) Cancer Screening.

Please see *Cancer Prevention & Early Detection Facts & Figures 2015-2016* at cancer.org/statistics for more detailed information on how lifestyle and environmental factors affect cancer risk.

Nutrition, Obesity, and Physical Activity

Poor nutrition, obesity, and physical inactivity are major cancer risk factors, second only to tobacco use. In fact, the World Cancer Research Fund estimates that about 20% of cancers that occur in the US are due to the combined effects of excess alcohol consumption, poor nutrition, physical inactivity, and excess weight. For people who do not smoke – which is the majority of Americans – maintaining a healthy weight by being physically active and consuming a healthy diet are the most important means to reduce a person's lifetime cancer risk.

Figure 1. Adult Obesity and Adult Overweight by Race/Ethnicity and Sex in California, 2014



Note: Data are weighted to the 2010 California population.

Source: California Behavioral Risk Factor Survey. Prepared by: California Cancer Registry, California Department of Public Health.

American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention

Individual Choices

Achieve and maintain a healthy weight throughout life.

- Be as lean as possible throughout life without being underweight.
- Avoid excess weight gain at all ages. For those who are currently overweight or obese, losing even a small amount of weight has health benefits and is a good place to start.
- Engage in regular physical activity and limit consumption of high-calorie foods and beverages as key strategies for maintaining a healthy weight.

Adopt a physically active lifestyle.

- Adults should engage in at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity each week, or an equivalent combination, preferably spread throughout the week.
- Children and adolescents should engage in at least 1 hour of moderate- or vigorous-intensity physical activity each day, with vigorous-intensity activity at least 3 days each week.
- Limit sedentary behavior such as sitting, lying down, and watching television and other forms of screen-based entertainment.
- Doing any intentional physical activity above usual activities, no matter what one's level of activity, can have many health benefits.

Consume a healthy diet, with an emphasis on plant foods.

- Choose foods and beverages in amounts that help achieve and maintain a healthy weight.
- Limit consumption of red and processed meats.
- Eat at least 2½ cups of vegetables and fruits each day.
- Choose whole-grain instead of refined-grain products.

Limit consumption of alcoholic beverages.

- Drink no more than 1 drink per day for women or 2 per day for men.

Community Action

It is recommended that public, private, and community organizations work collaboratively at national, state, and local levels to apply policy and environmental changes that:

- Increase access to affordable, healthy foods in communities, worksites, and schools; decrease access to and marketing of foods and beverages of low nutritional value, particularly to youth.
- Provide safe, enjoyable, and accessible environments for physical activity in schools and worksites, and for transportation and recreation in communities.

Examples of Moderate- and Vigorous-intensity Physical Activity

| | Moderate-intensity Activities | Vigorous-intensity Activities |
|-----------------------|---|--|
| Exercise and leisure | Walking, dancing, leisurely bicycling, ice and roller skating, horseback riding, canoeing, yoga | Jogging or running, fast bicycling, circuit weight training, aerobic dance, martial arts, jumping rope, swimming |
| Sports | Volleyball, golf, softball, baseball, badminton, doubles tennis, downhill skiing | Soccer, field or ice hockey, lacrosse, singles tennis, racquetball, basketball, cross-country skiing |
| Home activities | Mowing the lawn, general yard and garden maintenance | Digging, carrying, and hauling, masonry, carpentry |
| Occupational activity | Walking and lifting as part of the job (custodial work, farming, auto or machine repair) | Heavy manual labor (forestry, construction, fire-fighting) |

Overweight and obesity are clearly associated with increased risk for developing many cancers, including adenocarcinoma of the esophagus and cancers of the breast (in postmenopausal women), colorectum, endometrium, kidney, liver, and pancreas. Abdominal fatness in particular is convincingly associated with colorectal cancer, and probably related to higher risk of pancreatic and endometrial cancers. In addition, accumulating evidence suggests that obesity increases the risk for cancer recurrence and decreases survival rates for several cancers. Some studies have shown that intentional weight loss is associated with decreased cancer risk among women, but the evidence is less clear for men.

The number of overweight and obese adults has been increasing over the past several decades among men and women, as well as people of all ages, races/ethnicities, and educational backgrounds. While recent data suggest that the increase in obesity rates may be leveling off in some groups, rates continue to present a public health concern. According to the National Center for Health Statistics, almost two-thirds of US adults are overweight to a degree that it poses a risk to their health. In California, 59.8% of adults are overweight or obese. In children, overweight and obesity rates have more than doubled over the past two decades, and in 2010, more than one-third of children and adolescents in the US were overweight or obese. These children are at increased risk for becoming obese adults, which could increase future cancer rates.

There is strong scientific evidence that healthy dietary patterns, in combination with regular physical activity, are needed to maintain a healthy body weight and to reduce cancer risk. Studies have shown that individuals who eat more red and processed meat, potatoes, refined grains, and sugar-sweetened beverages and foods are at a higher risk of developing or dying from a variety of cancers. Alternatively, adhering to a diet that contains a variety of fruits and vegetables, whole grains, and fish or poultry and fewer red and processed meats is associated with lower risk. Despite the known benefits of a healthy diet, the majority of Americans do not follow healthy dietary guidelines.

Unfortunately, only 8% of California adults reported eating fruits and or vegetables five or more times per day in 2014. In addition, only a minority of California's youth met these dietary recommendations.

It should be noted that the scientific study of nutrition and cancer is highly complex, and many important questions remain unanswered. Until more is known about the specific components of diet that influence cancer risk, the best advice is to consume a mostly plant-based diet that limits red and processed meats and emphasizes a variety of vegetables, fruits, and whole grains. A special emphasis should be placed on controlling total caloric intake to help achieve and maintain a healthy weight.

Along with healthy eating, regular physical activity is one of the best ways to prevent chronic disease. Scientific evidence indicates that physical activity may reduce the risk of cancers of the breast, colon, and endometrium, as well as advanced prostate cancer. Additionally, physical activity also indirectly reduces the risk of developing obesity-related cancers because of its role in helping to maintain a healthy weight. Being active is thought to reduce cancer risk largely by improving energy metabolism and reducing circulating concentrations of estrogen, insulin, and insulin-like growth factors. The American Cancer Society recommends that adults participate in moderate physical activity for at least 150 minutes per week, or at least 75 minutes of vigorous activity (or an equivalent combination spread throughout the week). For children and adolescents, the Society recommends at least 60 minutes per day of moderate- or vigorous-intensity physical activity, with vigorous-intensity activity at least 3 days a week. In 2014, 38% of California adults reported doing enough physical activity to meet the 150-minute aerobic recommendation. Males (20%) reported being more highly active, participating in over 300 minutes per week, or at least 150 minutes of vigorous activity, compared to females (16%).

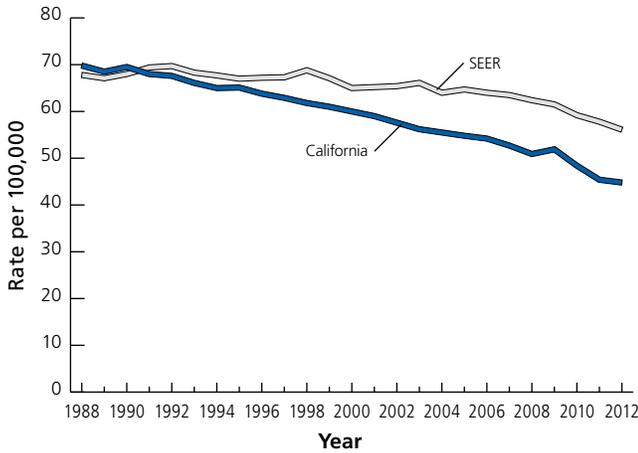
The guidelines on page 8 reflect the best nutrition and physical activity evidence available to help Americans reduce their risk of cancer and promote overall health. A recent study found that dietary and lifestyle behaviors consistent with these guidelines are associated with lower mortality rates for all causes of death combined, and for cancer and cardiovascular diseases specifically. This makes it all the more important to encourage and support Californians in their efforts to eat a healthier diet and lead a more physically active lifestyle.

While reducing cancer risk requires promoting the benefits of healthy eating, physical activity, and weight control, the American Cancer Society also recognizes the large influence that physical and social environments have on individual food and activity behaviors. It is important to make it easier for people to make healthy lifestyle choices. Therefore, the guidelines include recommendations for community actions to create a supportive physical and social environment that promotes and facilitates healthy behaviors, removing or reducing barriers that make it difficult to follow diet and activity recommendations.

Tobacco Use

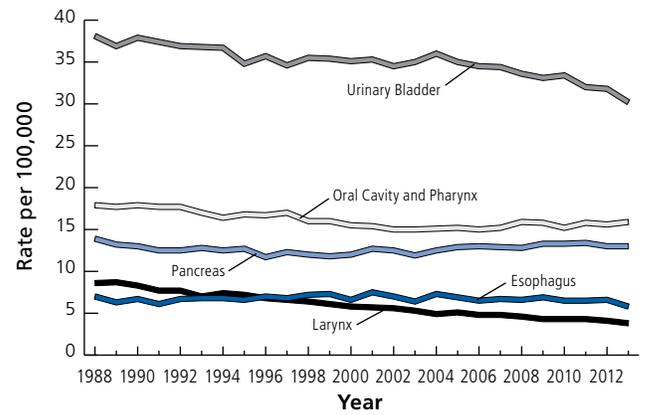
Tobacco-related diseases remain the world's most preventable cause of death. Since the first US Surgeon General's report on smoking and health in 1964, there have been more than 20 million premature deaths attributable to smoking in the US. Tobacco use is responsible for nearly 1 in 5 deaths in the nation. Tobacco-related deaths are the single most preventable cause of death in California.

Figure 2. Trends in Lung Cancer Incidence in California and SEER Areas Other than California, 1988-2012



Note: Rates are age-adjusted to the 2000 US population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Figure 3. Trends in the Incidence of Smoking-related Cancers Other than Lung among Men in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Cigarette Smoking

Half of all of those who continue to smoke will die from smoking-related diseases. About 85% of lung cancers are caused by cigarette smoking. Lung cancer alone kills more than 12,000 Californians each year, which is more than prostate, breast, and colon and rectum cancers combined. Many other cancers are caused by tobacco as well. Smoking increases the risk of cancer of the nasopharynx, nasal cavity and paranasal sinuses, lip, oral cavity, pharynx, larynx, lung, esophagus, pancreas, uterine cervix, ovary (mucinous), kidney, bladder, stomach, colorectal, and acute myeloid leukemia. In addition, the International Agency for Research on Cancer recently concluded that there is some evidence that tobacco smoking causes female breast cancer, and the Surgeon General concluded that smoking increases the risk of advanced-stage prostate cancer.

Excluding secondhand smoke, smoking is estimated to cause 32% of all cancer deaths in the US, including 83% of lung cancer deaths among men and 76% of lung cancer deaths among women. The risk of lung cancer is just as high in smokers of “light” or “low-tar” yield cigarettes as in those who smoke “regular” or “full-flavored” products. The risk of developing lung cancer is about 23 times higher in male smokers and 13 times higher in female smokers, compared to nonsmokers.

Lung cancer incidence rates in California decreased by 39% from 1988 to 2013, while rates in the rest of the country dropped by only 17% between 1988 and 2012. Rates for other smoking-related cancers are declining as well. These achievements are due, in large part, to the success of California tobacco control initiatives. Smoking rates among California adults declined steadily among both men and women from 1989 to 2010. In 2009,

13% of California adults smoked and in 2014, 12% still smoked. Overall smoking rates have declined for middle school and high school students. In California during 2004, 3.9% of middle school students and 13.2% of high school students reported smoking during the past 30 days. The smoking prevalence in California is lower than what is experienced in the rest of the US.

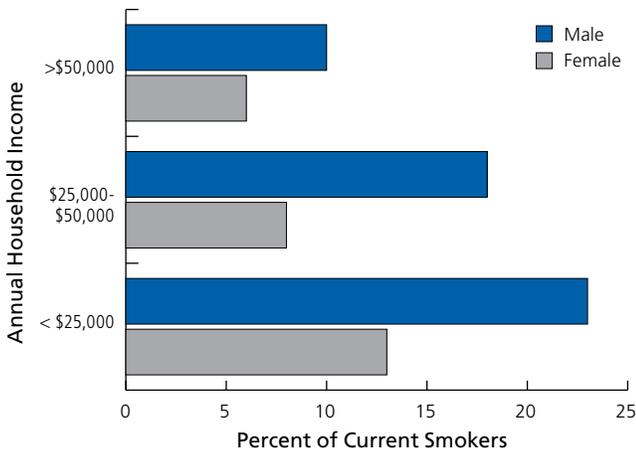
Previously, 18- to 24-year-olds in California were smoking at an increasing rate and were recognized as the fastest-growing age group using tobacco. Tobacco companies have been targeting them in earnest as the “smokers of the future.” In the past few years, the smoking rate for this age group appeared to be decreasing: 17% in 2008, 13% in 2009, and 12% in 2010. However, in 2012 and 2013, the smoking rate for this age group had increased slightly at the same rate of 13.5%. In 2014, the smoking rate for this age group had once again decreased to 12.5%.

In 2014, smoking prevalence among California adults remained highest among those with annual household incomes below \$25,000. Additionally, prevalence of smoking seen in males was higher as compared to females among all levels of income.

Cigar Smoking

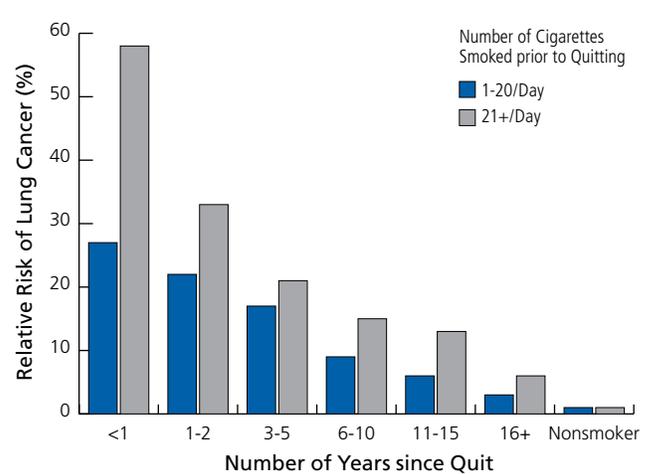
Cigar smoking causes many of the same diseases as cigarette smoking and smokeless tobacco. Regular cigar smoking is associated with an increased risk of cancers of the lung, oral cavity, larynx, esophagus, and probably pancreas. Cigar smokers have 4 to 10 times the risk of dying from lung, laryngeal, oral, or esophageal cancer compared to never smokers. In 2014, 4% of adult smokers in California reported having smoked cigars at least once in the past month.

Figure 4. Adult Smoking by Annual Household Income and Sex in California, 2014



Note: Data are weighted to the 2010 California population.
Source: California Behavioral Risk Factor Survey and California Adult Tobacco Survey.
 Prepared by: California Cancer Registry, California Department of Public Health.

Figure 5. Effect of Smoking Cessation on Lung Cancer Risk among Men



Source: Cancer Rates and Risks, 4th Edition, National Cancer Institute, 1996.
 Prepared by: California Cancer Registry, California Department of Public Health.

Secondhand Smoke

There is no safe level of exposure to secondhand smoke, or environmental tobacco smoke, which contains more than 7,000 chemicals, at least 69 of which cause cancer. Exposure to secondhand smoke increases the risk of lung diseases, including lung cancer, coronary artery disease, and heart attacks. It can also cause coughing, wheezing, chest tightness, and reduced lung function in adult nonsmokers.

Nationwide, secondhand smoke exposure among nonsmokers declined from 84% in 1988-1994 to 25% in 2011-2012, likely reflecting the widespread implementation of smoke-free laws and a reduction in smoking prevalence. However, this progress differs by subgroup, and people in poverty remain substantially more likely to be exposed than those who are more affluent.

Each year, about 7,330 nonsmoking adults in the US die of lung cancer as a result of breathing secondhand smoke. Secondhand smoke can be particularly harmful to children. In 2014, 78% of California households completely prohibited smoking in the home.

E-cigarettes

Electronic nicotine delivery systems (ENDS) are battery-operated devices that allow the user to inhale a vapor produced from cartridges or tanks filled with a liquid typically containing nicotine, propylene glycol and/or vegetable glycerin, other chemicals, and sometimes flavoring. The term e-cigarettes will be used hereafter to refer to any ENDS, including those not designed to mimic cigarettes. Some studies have shown lower levels of toxic chemicals in aerosol from e-cigarette products than in smoke from combustible cigarettes, and e-cigarettes are promoted as a

less harmful alternative to traditional cigarettes and a way to bypass smoke-free laws. However, the long-term health risks of using these products, or being exposed to them secondhand, are unknown and likely vary depending on the specific e-cigarette product and how it is used.

While the health risks of e-cigarettes are not fully known, there is growing concern that e-cigarette use will normalize cigarette smoking and lead to the use of other forms of tobacco products with known health risks. Indeed, a recent study indicates that adolescent e-cigarette users are much more likely to initiate cigarette, cigar, or hookah smoking than nonusers. These products also may discourage utilization of evidence-based cessation therapies among those who want to quit. E-cigarettes have been gaining in popularity, particularly among high school students. Among California adults, the prevalence of reported e-cigarette use in the past 30 days has nearly doubled between 2012 and 2014, from 1.8% to 3.2%.

Smokeless Tobacco Products

Smokeless tobacco products include moist snuff, chewing tobacco, snus (a “spitless,” moist powder tobacco pouch), dissolvable nicotine products, and a variety of other tobacco-containing products that are not smoked. These products cause oral, esophageal, and pancreatic cancers; precancerous lesions of the mouth; gum recession; bone loss around the teeth; and tooth staining. They can also lead to nicotine addiction. Less than 2% of California adults reported current use of smokeless tobacco products such as chewing tobacco, snuff, or snus in 2014.

Kicking the Habit

In 2014, 60% of adult smokers in California reported that they tried to quit in the past year. Nicotine, the drug in tobacco, causes addiction with pharmacologic and behavioral processes similar to those that determine addiction to cocaine and heroin. Because of this, quitting can be a difficult challenge; nonetheless, millions of Californians have kicked the habit. Smokers who quit, regardless of age, increase their longevity, while those who quit before middle age generally experience a lifespan similar to never smokers. Smoking cessation reduces the risk of lung and other cancers caused by smoking.

Reducing Tobacco Use and Exposure

There are federal, state, and local initiatives aimed at reducing tobacco exposure. While states have been at the forefront of tobacco control efforts, federal initiatives in tobacco control hold promise for reducing tobacco use, and include regulation of tobacco products, ensuring coverage of some clinical cessation services and tax increases. The Family Smoking Prevention and Tobacco Control Act of 2009 granted the US Food and Drug Administration (FDA) the authority to regulate the manufacturing, selling, and marketing of tobacco products. Key provisions that have already gone into effect include the prohibition of misleading descriptors such as light, low, and mild on tobacco product labels and the prohibition of fruit and candy cigarette flavorings. Provisions in the 2010 Affordable Care Act ensure at least minimum coverage of evidence-based cessation treatments, including pharmacotherapy and cessation counseling, to previously uninsured tobacco users, pregnant Medicaid recipients, and eligible Medicare recipients. Furthermore, cost-sharing for evidence-based cessation treatments was eliminated for new or renewed private health plans and Medicare recipients.

In 2000, the US Surgeon General outlined the goals and components of comprehensive statewide tobacco control programs. These programs seek to: prevent the initiation of tobacco use among youth; promote quitting at all ages; eliminate nonsmokers' exposure to secondhand smoke; and identify and eliminate the disparities related to tobacco use and its effects among different population groups. The Centers for Disease Control and Prevention (CDC) recommends funding levels for comprehensive tobacco use prevention and cessation programs for all 50 states and the District of Columbia. In fiscal year 2015, 7 states allocated 50% or more of CDC-recommended funding levels for tobacco control programs. States that have previously invested in comprehensive tobacco control programs, such as California, have reduced smoking rates and saved millions of dollars in tobacco-related health care costs. For more information about California's tobacco control activities, see California's Cancer Control Activities section on page 32, and the American Cancer Society Cancer Action Network 2016 public policy priorities on page 30.

Substantial progress has been made in reducing the disease burden from tobacco over the 52 years since the first report of the Surgeon General's Advisory Committee on Smoking and Health in 1964. Smoking prevalence has been reduced by more than half, and millions of premature deaths have been averted. Nevertheless, more needs to be done to further reduce the health and economic burden of tobacco. Numerous studies confirm that a comprehensive approach to tobacco control, including higher taxes, 100% smoke-free environments, coverage for tobacco dependence treatment, full implementation of the FDA Family Smoking Prevention and Tobacco Control Act, and vigorous tobacco counter-advertising, can be successful in reducing deaths, disease, and economic disruption from tobacco use.

Screening as Prevention

Screening offers the ability for secondary prevention by detecting cancer early, before symptoms appear. Regular screening tests that allow the early detection and removal of precancerous growths are known to reduce mortality for cancers of the cervix, colon, and rectum. A heightened awareness of changes in the breast, skin, or testicles may also result in the detection of these tumors at earlier stages. Screening for colorectal (also known as colon and rectum cancer) and cervical cancers can actually prevent cancer by allowing for the detection and removal of precancerous lesions.

Early diagnosis can also help save lives by identifying cancers when they require less extensive treatment and have better outcomes. Five-year relative survival rates for common cancers, such as breast, prostate, colon and rectum, cervix, and melanoma of the skin, are 93% to 100% if they are discovered before spreading beyond the organ where the cancer began. Following American Cancer Society cancer detection guidelines and encouraging others to do so can help save lives. Please see Table 10, American Cancer Society Recommendations for the Early Detection of Cancer in Average-risk Asymptomatic People, on page 18.

Cancer Stages at Diagnosis

Staging describes the extent or spread of cancer at the time of diagnosis. Proper staging is essential in determining the choice of therapy and in assessing prognosis. A cancer's stage is based on the size or extent of the primary (main) tumor and whether it has spread to other areas of the body. A number of different staging systems are used to classify cancer. A system of summary staging (*in situ*, local, regional, distant) is used for descriptive and statistical analysis of tumor registry data and is particularly useful for looking at trends over time. Diagnosis at early stage is a tumor diagnosed at *in situ* or localized stage. It is an indication of screening and early detection. Diagnosis at late stage is a tumor diagnosed at regional or distant stage and is associated with poorer prognosis.

In Situ

The tumor is at the earliest stage and has not spread or extended through the first layer of cells (the basement membrane) in the area in which it is growing.

Localized

The tumor has broken through the basement membrane, but is still confined to the organ in which it is growing.

Regional

The tumor has spread to lymph nodes or adjacent tissues.

Distant

The tumor has spread to other parts of the body (metastasized). An invasive tumor has spread beyond the layer of tissue in which it developed and is growing into surrounding, healthy tissues.

Clinicians use a different staging system, called TNM, for most cancers. The TNM system assesses cancer growth and spread in three ways: extent of the primary tumor (T), absence or presence of regional lymph node involvement (N), and absence or presence of distant metastases (M). Once the T, N, and M categories are determined, a stage of 0, I, II, III, or IV is assigned, with stage 0 being *in situ*, stage I being early, and stage IV being the most advanced disease. Some cancers (e.g., lymphoma) have alternative staging systems. As the biology of cancer has become better understood, additional tumor-specific features have been incorporated into treatment plans and/or stage for some cancers.

How does staging impact survival?

Survival statistics vary greatly by cancer type and stage at diagnosis. Relative survival compares survival among cancer patients to that of people not diagnosed with cancer who are of

Table 6. Five-year Relative Survival by Stage at Diagnosis in California, 2004-2013

| Cancer Type | All Stages | Localized | Regional | Distant |
|---------------------------|------------|-----------|----------|---------|
| Female Breast | 91.2% | 99.3% | 85.9% | 28.7% |
| Cervix Uteri | 70.2% | 92.5% | 59.9% | 18.4% |
| Uterus* | 83.4% | 96.2% | 69.7% | 18.7% |
| Ovary | 49.4% | 91.7% | 76.5% | 30.6% |
| Prostate | 100.0% | 100.0% | 100.0% | 30.6% |
| Testis | 94.4% | 98.9% | 95.9% | 70.6% |
| Oral & Pharynx | 66.5% | 85.1% | 64.6% | 39.5% |
| Colon & Rectum | 67.6% | 92.0% | 71.9% | 13.8% |
| Pancreas | 7.6% | 29.0% | 10.4% | 2.5% |
| Liver | 19.8% | 31.3% | 12.0% | 3.4% |
| Lung & Bronchus | 18.0% | 57.1% | 28.5% | 4.6% |
| Melanoma | 92.0% | 98.7% | 63.5% | 17.2% |
| Hodgkin Lymphoma | 84.9% | 91.5% | 92.2% | 75.5% |
| NHL** | 69.9% | 83.0% | 72.9% | 62.0% |
| Leukemia*** | 58.1% | – | – | 58.1% |
| Childhood (0-14 years) | 84.6% | – | – | 84.6% |
| Young Adult (15-19 years) | 67.8% | – | – | 67.8% |
| Adult (20+ years) | 53.8% | – | – | 53.8% |

*Uterus includes Corpus Uteri and Uterus, NOS. **NHL: Non-Hodgkin Lymphoma. ***All leukemias are staged as distant disease; thus survival cannot be calculated for other stages. Note: Follow-up is through December 2013. Cancers that were unstaged at time of diagnosis are excluded.

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

Prepared by: California Cancer Registry, California Department of Public Health. Please visit the California Cancer Registry website at crrcal.org for more information.

Table 7. Percent of Cancer Cases Diagnosed at Early* Stage, California and Selected Counties, 2013

| | Non-Hispanic White | | African American | | Hispanic | | Asian/Pacific Islander | |
|-------------------------------------|--------------------|--------------|------------------|--------------|--------------|--------------|------------------------|--------------|
| | Total Cases | % Early | Total Cases | % Early | Total Cases | % Early | Total Cases | % Early |
| Breast - Females | | | | | | | | |
| California | 18,543 | 73.6% | 2,037 | 65.1% | 6,127 | 66.4% | 4,507 | 71.5% |
| Alameda | 706 | 75.9% | 173 | 65.3% | 147 | 66.7% | 385 | 73.8% |
| Contra Costa | 644 | 74.8% | 108 | 72.2% | 120 | 67.5% | 201 | 79.1% |
| Fresno | 364 | 74.2% | 33 | 66.7% | 170 | 67.1% | 51 | 74.5% |
| Kern | 289 | 74.7% | 14 | 85.7% | 131 | 67.9% | 24 | 70.8% |
| Los Angeles | 3,398 | 72.6% | 857 | 64.9% | 2,069 | 65.3% | 1,300 | 69.0% |
| Orange | 1,683 | 73.4% | 39 | 53.8% | 456 | 67.5% | 372 | 72.0% |
| Riverside | 1,036 | 74.3% | 104 | 62.5% | 438 | 65.1% | 114 | 78.9% |
| Sacramento | 917 | 75.4% | 136 | 69.1% | 142 | 67.6% | 160 | 73.1% |
| San Bernardino | 727 | 69.6% | 153 | 61.4% | 464 | 61.4% | 113 | 65.5% |
| San Diego | 1,837 | 71.7% | 113 | 66.4% | 495 | 69.7% | 314 | 68.5% |
| San Francisco | 315 | 82.9% | 46 | 69.6% | 68 | 64.7% | 332 | 73.2% |
| San Joaquin | 250 | 69.6% | 35 | 57.1% | 93 | 73.1% | 65 | 67.7% |
| San Mateo | 464 | 77.6% | 29 | 75.9% | 87 | 72.4% | 253 | 75.9% |
| Santa Clara | 794 | 76.7% | 41 | 65.9% | 224 | 64.7% | 467 | 74.3% |
| Ventura | 558 | 74.6% | 15 | 66.7% | 158 | 68.4% | 59 | 76.3% |
| Prostate - Males | | | | | | | | |
| California | 10,916 | 73.5% | 1,789 | 75.5% | 3,289 | 69.5% | 1,431 | 73.0% |
| Alameda | 395 | 83.5% | 197 | 79.7% | 84 | 77.4% | 124 | 83.1% |
| Contra Costa | 479 | 80.6% | 80 | 81.3% | 62 | 82.3% | 60 | 81.7% |
| Fresno | 226 | 77.0% | 24 | 87.5% | 111 | 66.7% | 28 | 60.7% |
| Kern | 167 | 62.9% | 22 | 72.7% | 73 | 63.0% | 12 | 91.7% |
| Los Angeles | 1,808 | 63.0% | 663 | 70.6% | 1,134 | 60.8% | 355 | 61.4% |
| Orange | 1,023 | 77.3% | 52 | 75.0% | 205 | 78.0% | 121 | 71.9% |
| Riverside | 681 | 76.2% | 121 | 81.0% | 255 | 77.3% | 42 | 81.0% |
| Sacramento | 421 | 73.9% | 78 | 75.6% | 67 | 73.1% | 65 | 66.2% |
| San Bernardino | 465 | 71.8% | 133 | 77.4% | 251 | 72.5% | 42 | 71.4% |
| San Diego | 1,049 | 74.0% | 81 | 79.0% | 231 | 72.7% | 87 | 77.0% |
| San Francisco | 208 | 81.3% | 61 | 72.1% | 49 | 73.5% | 105 | 69.5% |
| San Joaquin | 181 | 76.8% | 35 | 82.9% | 42 | 61.9% | 30 | 83.3% |
| San Mateo | 260 | 75.4% | 22 | 72.7% | 54 | 79.6% | 68 | 91.2% |
| Santa Clara | 510 | 80.8% | 47 | 78.7% | 121 | 87.6% | 175 | 77.7% |
| Ventura | 269 | 64.3% | 16 | 68.8% | 78 | 65.4% | 19 | 84.2% |
| Invasive Cervix - Females | | | | | | | | |
| California | 564 | 47.7% | 92 | 37.0% | 502 | 46.4% | 214 | 34.6% |
| Alameda | 18 | – | – | – | 14 | 71.4% | 13 | – |
| Contra Costa | 23 | 56.5% | – | – | 10 | – | – | – |
| Fresno | 16 | – | – | – | 14 | – | – | – |
| Kern | 14 | – | – | – | 18 | – | – | – |
| Los Angeles | 111 | 41.4% | 49 | 30.6% | 168 | 44.6% | 69 | 33.3% |
| Orange | 43 | 55.8% | – | – | 36 | 41.7% | 21 | – |
| Riverside | 39 | 48.7% | – | – | 39 | 43.6% | – | – |
| Sacramento | 32 | 43.8% | – | – | 13 | – | 17 | – |
| San Bernardino | 37 | 51.4% | – | – | 30 | 53.3% | – | – |
| San Diego | 45 | 53.3% | – | – | 36 | – | 17 | – |
| San Francisco | 10 | – | – | – | – | – | – | – |
| San Joaquin | 10 | – | – | – | – | – | – | – |
| San Mateo | 11 | – | – | – | – | – | – | – |
| Santa Clara | 12 | – | – | – | 15 | – | 13 | – |
| Ventura | 12 | – | – | – | 13 | – | – | – |
| Colon & Rectum - Males | | | | | | | | |
| California | 4,213 | 42.2% | 578 | 43.8% | 1,606 | 38.1% | 1,081 | 42.6% |
| Alameda | 130 | 34.6% | 37 | 40.5% | 33 | 45.5% | 90 | 45.6% |
| Contra Costa | 147 | 40.1% | 26 | 57.7% | 26 | 50.0% | 44 | 40.9% |
| Fresno | 60 | 53.3% | 10 | – | 50 | 38.0% | 17 | – |
| Kern | 78 | 41.0% | 10 | – | 42 | 42.9% | – | – |
| Los Angeles | 818 | 43.3% | 252 | 44.4% | 562 | 35.9% | 331 | 38.7% |
| Orange | 367 | 49.0% | 13 | – | 94 | 39.4% | 114 | 47.4% |
| Riverside | 293 | 43.7% | 39 | 41.0% | 110 | 43.6% | 17 | – |
| Sacramento | 178 | 36.5% | 28 | 39.3% | 33 | – | 40 | – |
| San Bernardino | 244 | 41.8% | 49 | 44.9% | 149 | 45.6% | 26 | 53.8% |
| San Diego | 391 | 39.4% | 33 | 45.5% | 108 | 35.2% | 59 | 44.1% |
| San Francisco | 60 | 48.3% | 20 | – | 24 | – | 78 | 38.5% |
| San Joaquin | 72 | 52.8% | – | – | 35 | 40.0% | 21 | 52.4% |
| San Mateo | 81 | 44.4% | – | – | 14 | – | 49 | 53.1% |
| Santa Clara | 177 | 48.6% | – | – | 62 | 37.1% | 114 | 48.2% |
| Ventura | 108 | 39.8% | – | – | 34 | 41.2% | – | – |
| Colon & Rectum - Females | | | | | | | | |
| California | 3,973 | 41.7% | 552 | 44.7% | 1,376 | 40.8% | 948 | 40.9% |
| Alameda | 137 | 46.0% | 42 | 40.5% | 27 | 55.6% | 67 | 38.8% |
| Contra Costa | 147 | 44.2% | 41 | 46.3% | 18 | – | 22 | 59.1% |
| Fresno | 100 | 36.0% | – | – | 33 | 42.4% | 16 | – |
| Kern | 60 | 46.7% | – | – | 26 | 53.8% | – | – |
| Los Angeles | 754 | 40.2% | 223 | 44.8% | 506 | 41.5% | 318 | 38.4% |
| Orange | 319 | 49.8% | – | – | 77 | 42.9% | 106 | 43.4% |
| Riverside | 259 | 42.9% | 23 | 47.8% | 79 | 41.8% | 15 | – |
| Sacramento | 198 | 40.4% | 39 | 38.5% | 25 | 48.0% | 41 | 34.1% |
| San Bernardino | 149 | 42.3% | 52 | 42.3% | 123 | 43.9% | 24 | – |
| San Diego | 415 | 42.4% | 25 | – | 118 | 35.6% | 57 | 47.4% |
| San Francisco | 59 | 39.0% | 18 | – | 16 | 62.5% | 75 | 40.0% |
| San Joaquin | 77 | 41.6% | 17 | – | 29 | – | 24 | 50.0% |
| San Mateo | 95 | 38.9% | – | – | 18 | 55.6% | 29 | 51.7% |
| Santa Clara | 144 | 47.2% | 13 | – | 52 | 44.2% | 80 | 38.8% |
| Ventura | 109 | 42.2% | – | – | 29 | – | 15 | – |

*Early stage defined as *in situ* and localized disease. – Data not shown if fewer than 10 cases were reported.

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

Table 8. Three Common Cancers: New Cases and Percent of Early Stage Cases at Diagnosis, California, 2013

| Cancer Site | Total New Cases Diagnosed | Percent Early Stage |
|---------------|---------------------------|---------------------|
| Female Breast | 31,761 | 71.3% |
| Prostate | 18,655 | 72.3% |
| Colorectal | 14,604 | 41.9% |

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

the same age, race/ethnicity, and sex. It represents the percentage of cancer patients who are alive after some designated time period (usually five years) relative to persons without cancer. It does not distinguish between patients who have been cured and those who have relapsed or are still in treatment. While five-year relative survival is useful in monitoring progress in the early detection and treatment of cancer, it may not predict individual prognosis and should be interpreted with caution for several

reasons. First, five-year relative survival rates do not reflect the most recent advances in detection and treatment because they are based on patients who were diagnosed as much as 10 years ago. Second, factors that influence survival, such as treatment protocols, other illnesses, and biological and behavioral differences of individual cancers or people, cannot be taken into account in the estimation of relative survival rates. Third, improvements in survival rates over time do not always indicate progress against cancer. For example, increases in average survival time can occur if screening results in the detection of some indolent cancers that would have gone undetected in the absence of screening (overdiagnosis). Screening also artificially increases survival rates when early diagnosis does not extend lifespan.

Stage at Diagnosis in California's Counties

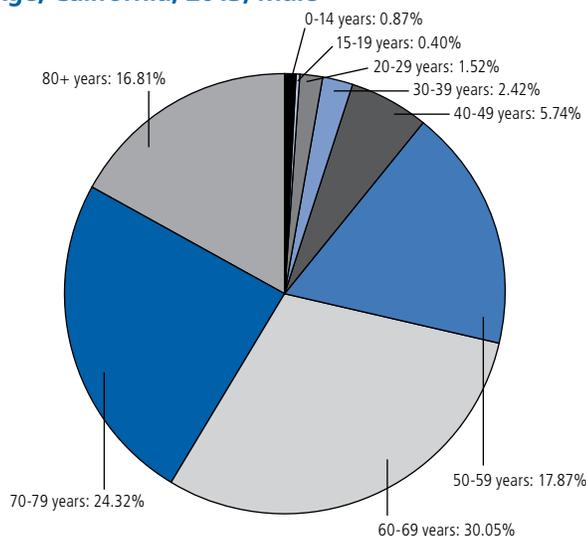
The percentage of cancers diagnosed at an early stage (*in situ* or localized) is an indication of screening and early detection. The 15 most populous counties listed in Table 7 account for 80% of California's population. The numbers are *actual* cases reported to the California Cancer Registry for 2013.

Cancer Disparities

A major component of the American Cancer Society's vision of a world free from the pain and suffering of cancer is the elimination of disparities in the cancer burden among different segments of the US population, defined in terms of socioeconomic status (income, education, insurance status, etc.), geographic location, race/ethnicity, sex, and sexual orientation. The causes of health

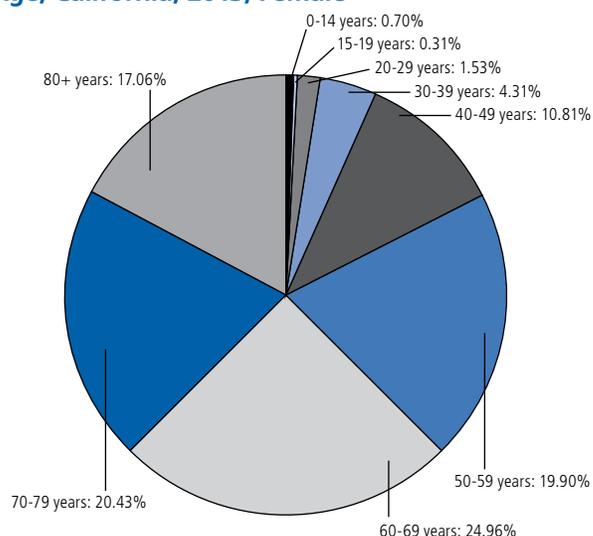
disparities within these groups are complex and include interrelated social, economic, cultural, environmental, and health system factors. However, disparities predominantly arise from inequities in work, wealth, education, housing, and overall standard of living, as well as social barriers to high-quality cancer prevention, early detection, and treatment services.

Figure 6. Percentage of New Cancers Diagnosed by Age, California, 2013, Male



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

Figure 7. Percentage of New Cancers Diagnosed by Age, California, 2013, Female



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

Table 9. Five Most Common Cancers and Number of New Cases by Sex and Detailed Race/Ethnicity, California, 2009-2013

| | Male | | | | | Female | | | | |
|-----------------------------------|--------------------|----------------|-----------------|--------------------|-------------------|------------------|----------------|-----------------|------------------|--------------------|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Non-Hispanic White | Prostate 63,482 | Lung 29,325 | C&R 21,765 | Melanoma 21,317 | Bladder 19,594 | Breast 75,768 | Lung 29,727 | C&R 20,399 | Uterus 14,466 | Melanoma 13,063 |
| Non-Hispanic Black | Prostate 9,980 | Lung 3,506 | C&R 2,769 | Kidney 1,305 | Bladder 989 | Breast 7,933 | Lung 3,038 | C&R 2,740 | Uterus 1,515 | Pancreas 844 |
| Hispanic | Prostate 17,938 | C&R 7,413 | Lung 4,924 | Kidney 4,061 | NHL 3,987 | Breast 22,422 | C&R 6,309 | Uterus 5,074 | Thyroid 5,053 | Lung 4,479 |
| American Indian/ Alaska Native | Prostate 412 | Lung 237 | C&R 193 | Kidney 129 | Liver 126 | Breast 626 | Lung 217 | C&R 193 | Uterus 161 | Kidney 79 |
| Chinese | Prostate 2,210 | Lung 1,606 | C&R 1,446 | Liver 722 | NHL 554 | Breast 3,735 | Lung 1,317 | C&R 1,265 | Uterus 689 | Thyroid 622 |
| Japanese | Prostate 743 | C&R 511 | Lung 413 | Bladder 245 | Stomach 205 | Breast 1,528 | C&R 591 | Lung 493 | Uterus 226 | Pancreas 217 |
| Filipino | Prostate 2,507 | Lung 1,476 | C&R 1,155 | NHL 476 | Liver 450 | Breast 4,915 | C&R 1,181 | Uterus 1,137 | Lung 1,050 | Thyroid 1,026 |
| Hawaiian | Prostate 123 | Lung 78 | C&R 68 | NHL 30 | Bladder 22 | Breast 193 | Uterus 56 | Lung 49 | C&R 46 | Thyroid 26 |
| Korean | C&R 494 | Lung 433 | Prostate 431 | Stomach 377 | Liver 268 | Breast 981 | C&R 474 | Lung 300 | Thyroid 281 | Stomach 255 |
| Vietnamese | Lung 797 | Liver 665 | Prostate 624 | C&R 593 | NHL 224 | Breast 1,263 | C&R 510 | Lung 465 | Thyroid 300 | Uterus 225 |
| Laotian | Lung 63 | Liver 54 | C&R 42 | Stomach 27 | Prostate 22 | Breast 62 | C&R 39 | Thyroid 23 | Liver 20 | Lung 19 |
| Kampuchean | C&R 74 | Liver 69 | Lung 64 | Prostate 37 | Oral 24 | Breast 92 | Lung 51 | C&R 46 | Cervix 27 | Thyroid 27 |
| South Asian | Prostate 754 | C&R 276 | Lung 223 | NHL 204 | Bladder 167 | Breast 1,186 | Thyroid 244 | Uterus 209 | C&R 184 | Ovary 146 |
| Pacific Islander | Prostate 587 | C&R 275 | Lung 255 | NHL 128 | Liver 122 | Breast 1,376 | Uterus 421 | C&R 329 | Thyroid 293 | Lung 275 |
| Hmong | Lung 26 | Liver 22 | C&R 20 | NHL 13 | Oral 11 | Breast 21 | C&R 19 | Lung 19 | Uterus 14 | Oral 13 |

Note: C&R: colon & rectum; NHL: Non-Hodgkin Lymphoma.

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

California's Diverse Population

The US Census Bureau estimates California's population at more than 38 million. Of these, 38.5% self-identify as white alone; 6.5% as African American; 38.6% as Hispanic; 14.4% as Asian; 1.7% as American Indian and Alaskan Native; and 0.5% as Native Hawaiian and other Pacific Islander. It is important to note that although cancer data in the US are primarily reported in terms of broad racial and ethnic categories, these populations are very heterogeneous with substantial variation in the cancer burden within each group.

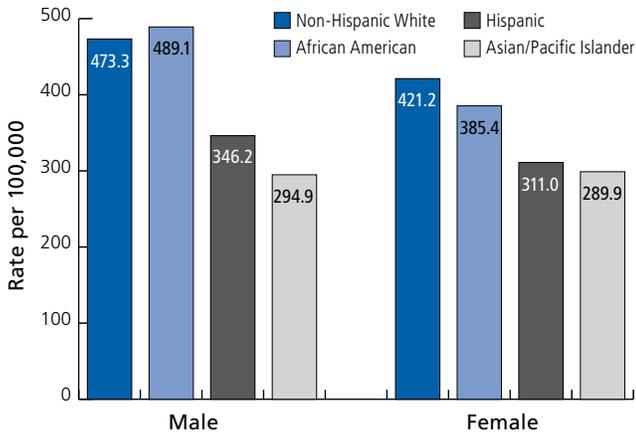
Cancer is the second leading cause of death for all racial/ethnic groups combined in both California and nationwide. In general, the cancer types that commonly develop are similar regardless of race/ethnicity. In most racial/ethnic groups in California, prostate, lung and bronchus, and colon and rectum cancer are

among the top three cancers for men. Among women, breast, lung and bronchus, and colon and rectum cancer are among the top three cancers. Breast cancer is the number one cancer among women of all racial/ethnic groups.

Socioeconomic Status

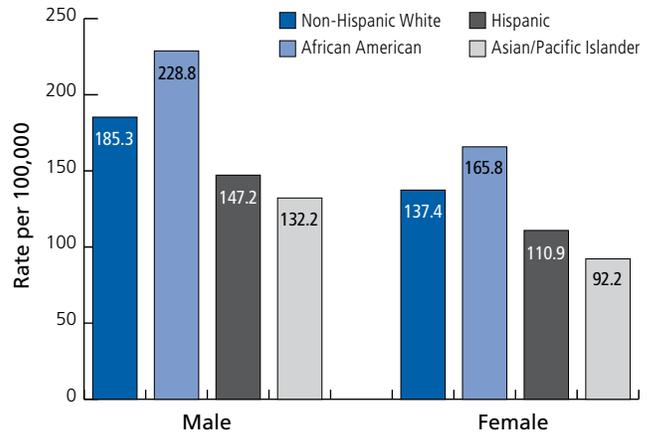
Nearly a quarter of California's 38 million residents live in poverty, according to the Census Bureau. People with lower socioeconomic status (SES) have disproportionately higher cancer death rates than those with higher SES, regardless of demographic factors such as race/ethnicity. For example, cancer mortality rates among both black and non-Hispanic white men with 12 or fewer years of education are almost three times higher than those of college graduates for all cancers combined and four-to-five times higher for lung cancer.

Figure 8. Cancer Incidence by Race/Ethnicity and Sex in California, 2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Figure 9. Cancer Mortality by Race/Ethnicity and Sex in California, 2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

People with lower SES have generally higher cancer incidence rates, in part because they are more likely to engage in behaviors that increase cancer risk, such as tobacco use, physical inactivity, and unhealthy diets, but also due to higher prevalence of cancer-causing infections, and workplace and other environmental exposures. Factors that contribute to higher risk in this population include tobacco company and fast food chain marketing strategies that target these populations and environmental and/or community factors that provide few opportunities for physical activity and access to fresh fruits and vegetables.

In addition to higher rates of new cancer diagnoses, lower SES groups are less likely to survive a cancer diagnosis because the disease is often detected at an advanced stage and because they are less likely to receive standard treatment. Barriers to preventive care, early detection, and optimal treatment include inadequate health insurance; financial, structural, and personal barriers to health care; and low health literacy rates. Delays in disseminating improved early detection and treatment have slowed progress in reducing cancer death rates in people with lower SES.

Racial and Ethnic Minorities and Cancer Risk

The risk of developing cancer varies considerably by race/ethnicity. African American men have the highest overall cancer rate, followed by non-Hispanic white men. Among women, non-Hispanic white women are the most likely to be diagnosed with cancer, but African American women are more likely to die of the disease. Cancer rates are considerably lower among persons of Asian/Pacific Islander origin and of Hispanic ethnicity than those of other Californians. However, both groups have substan-

tially higher rates of certain cancers, such as liver and stomach. Hispanic women are also more likely to develop and die from cervical cancer. Research indicates that cancer rates in populations immigrating to the US tend to increase over time.

Cancer burden disparities among racial and ethnic minorities largely reflect obstacles to receiving health care services related to cancer prevention, early detection, and high-quality treatment, with poverty as the overriding factor. In 2014, the Behavioral Risk Factor Surveillance Survey indicated that 13% of California adults were medically uninsured. Hispanics had the greatest proportion of uninsured individuals at 22.3%, followed by Asians/Pacific Islanders (11.2%), African Americans (8.9%), other non-Hispanics (8.8%), and non-Hispanic whites (6.0%).

Discrimination is another contributing factor of racial/ethnic disparities in cancer mortality. Racial and ethnic minorities tend to receive lower-quality health care than whites even when insurance status, age, severity of disease, and health status are comparable. Social inequalities, including communication barriers and provider assumptions, can affect interactions between patients and physicians and contribute to miscommunication and/or delivery of substandard care.

In addition to poverty and social discrimination, a population's cancer incidence may be influenced by cultural and/or inherited factors that decrease or increase risk. Individuals who maintain a primarily plant-based diet or avoid tobacco because of cultural or religious beliefs have a lower risk of many cancers compared to non-Hispanic whites. For example, Hispanics and Asians have lower rates of lung cancer because historically they have been less likely to smoke (Table 9). Conversely, because

Table 10. American Cancer Society Recommendations for the Early Detection of Cancer in Average-risk Asymptomatic People*

| Cancer Site | Population | Test or Procedure | Recommendation |
|-------------------------------|--|--|---|
| Breast | Women, ages 40-54 | Mammography | Women should undergo regular screening mammography starting at age 45 years. Women ages 45 to 54 should be screened annually. Women should have the opportunity to begin annual screening between the ages of 40 and 44. |
| | Women, ages 55+ | | Transition to biennial screening, or have the opportunity to continue annual screening. Continue screening as long as overall health is good and life expectancy is 10+ years. |
| Cervix | Women, ages 21-29 | Pap test | Screening should be done every 3 years with conventional or liquid-based Pap tests. |
| | Women, ages 30-65 | Pap test & HPV DNA test | Screening should be done every 5 years with both the HPV test and the Pap test (preferred), or every 3 years with the Pap test alone (acceptable). |
| | Women, ages 66+ | Pap test & HPV DNA test | Women ages 66+ who have had ≥ 3 consecutive negative Pap tests or ≥ 2 consecutive negative HPV and Pap tests within the past 10 years, with the most recent test occurring in the past 5 years should stop cervical cancer screening. |
| | Women who have had a total hysterectomy | | Stop cervical cancer screening. |
| Colorectal[†] | Men and women, ages 50+ | Guaiac-based fecal occult blood test (gFOBT) with at least 50% sensitivity or fecal immunochemical test (FIT) with at least 50% sensitivity, OR | Annual testing of spontaneously passed stool specimens. Single stool testing during a clinician office visit is not recommended, nor are “throw in the toilet bowl” tests. In comparison with guaiac-based tests for the detection of occult blood, immunochemical tests are more patient-friendly and are likely to be equal or better in sensitivity and specificity. There is no justification for repeating FOBT in response to an initial positive finding. |
| | | Stool DNA test, OR | Every 3 years |
| | | Flexible sigmoidoscopy (FSIG), OR | Every 5 years alone, or consideration can be given to combining FSIG performed every 5 years with a highly sensitive gFOBT or FIT performed annually. |
| | | Double-contrast barium enema, OR | Every 5 years |
| | | Colonoscopy, OR | Every 10 years |
| CT Colonography | Every 5 years | | |
| Endometrial | Women at menopause | | Women should be informed about risks and symptoms of endometrial cancer and encouraged to report unexpected bleeding to a physician. |
| Lung | Current or former smokers ages 55-74 in good health with 30+ pack-year history | Low-dose helical CT (LDCT) | Clinicians with access to high-volume, high-quality lung cancer screening and treatment centers should initiate a discussion about annual lung cancer screening with apparently healthy patients ages 55-74 who have at least a 30 pack-year smoking history, and who currently smoke or have quit within the past 15 years. A process of informed and shared decision making with a clinician related to the potential benefits, limitations, and harms associated with screening for lung cancer with LDCT should occur before any decision is made to initiate lung cancer screening. Smoking cessation counseling remains a high priority for clinical attention in discussions with current smokers, who should be informed of their continuing risk of lung cancer. Screening should not be viewed as an alternative to smoking cessation |
| Prostate | Men, ages 50+ | Prostate-specific antigen test with or without digital rectal examination | Men who have at least a 10-year life expectancy should have an opportunity to make an informed decision with their health care provider about whether to be screened for prostate cancer, after receiving information about the potential benefits, risks, and uncertainties associated with prostate cancer screening. Prostate cancer screening should not occur without an informed decision-making process. |

CT-Computed tomography. *All individuals should become familiar with the potential benefits, limitations, and harms associated with cancer screening. †All positive tests (other than colonoscopy) should be followed up with colonoscopy.

these populations include a large number of recent immigrants, rates of cancers related to infectious agents (e.g., stomach, liver) are higher because of higher infection prevalence in their countries of origin. Genetic factors may explain some differences in cancer incidence, such as the higher mutation frequency in breast cancer susceptibility genes *BRCA1* and *BRCA2* among women of Ashkenazi Jewish descent. However, it is important to note that genetic differences associated with race or ethnicity contribute only minimally to disparate cancer burdens between populations.

Please refer to numerous American Cancer Society publications, which can be downloaded at cancer.org/statistics, for more information about cancer burden in select racial/ethnic groups:

- *Cancer Facts & Figures 2016* (includes a special section titled *Cancer in Asian Americans, Native Hawaiians, and Pacific Islanders*)
- *Cancer Facts & Figures for African Americans 2016-2017*
- *Cancer Facts & Figures for Hispanics/Latinos 2015-2017*

Lesbian, Gay, Bisexual, and Transgender (LGBT) Differences in Cancer Risk

The lesbian, gay, bisexual, and transgender (LGBT) population is at greater risk of cancer due to a variety of unique social, economic, and structural factors. These include discrimination, stigma, and ostracism, all of which impact experiences with health care providers and overall health outcomes. These factors cause some LGBT persons to delay seeking health care services.

As a result, they may not undergo regular screening tests and may be diagnosed with cancer at a later stage, when the disease is more difficult to treat. While a compounding problem has been that LGBT individuals have been more likely to lack insurance, the passage of the Affordable Care Act of 2010 and the overturn of the Defense of Marriage Act in 2013 have started to improve access and coverage.

The following examples illustrate challenges affecting the LGBT community's cancer risk:

- In a large nationwide study, lesbians reported having fewer mammograms and pelvic exams than heterosexual women. Another study reported less frequent Pap tests among lesbians.
- Infection with the human papilloma virus (HPV) increases the risk of anal cancer. Estimates of anal cancer among the gay, bisexual, and transgender population is estimated to be 20 times higher than the general population.
- Smoking rates are 50% higher in the LGBT population compared to the non-LGBT population, putting them at greater risk of a host of tobacco-related cancers. This is partially due to the tobacco industry's campaign targeting LGBT people through bar promotions, sponsorships, and advertisements in the LGBT press.
- Studies show that LGBT cancer survivors have continued challenges. In one study, LGBT cancer survivors reported higher levels of depressive symptoms than others. Another study noted that LGB cancer survivors were 60% less likely to report their current health status as good versus non-LGB survivors, and they were twice as likely to continue to smoke.

Selected Cancers

This section contains information on the California cancer burden for select cancers (breast, cervical, childhood, colorectal, lung, prostate, and skin).

Please see the American Cancer Society *Cancer Facts & Figures 2016* publication (cancer.org/statistics) for national statistics about these cancers, as well as additional information, such as risk factors, prevention, signs and symptoms, and treatment.

Breast Cancer

Breast cancer is a malignant tumor that starts in the cells of the breast. The disease occurs primarily in women, but it can also occur in men. Breast cancer is the most common cancer among women in California, regardless of race/ethnicity.

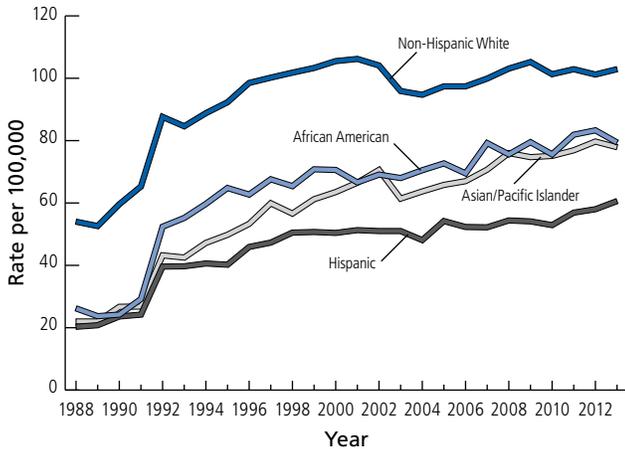
Breast cancer is classified differently based on the way that the cancer cells look under the microscope and whether the cells have spread into surrounding breast tissue. Please see the American Cancer Society *Cancer Facts & Figures 2015* publication

(cancer.org/statistics) for a special section about breast carcinoma *in situ*.

New California Cases: Breast cancer incidence in California has been fairly stable since 1988. There were 25,810 new cases diagnosed in 2013. More cancers are being diagnosed at an early stage, and the rate of late-stage disease has declined. About 71% of female breast cancers diagnosed in the state in 2013 were found at an early stage. This shift to earlier stage diagnoses reflects, in part, the successful efforts of the American Cancer Society and other organizations, which together have increased the number of women who receive regular breast cancer screening.

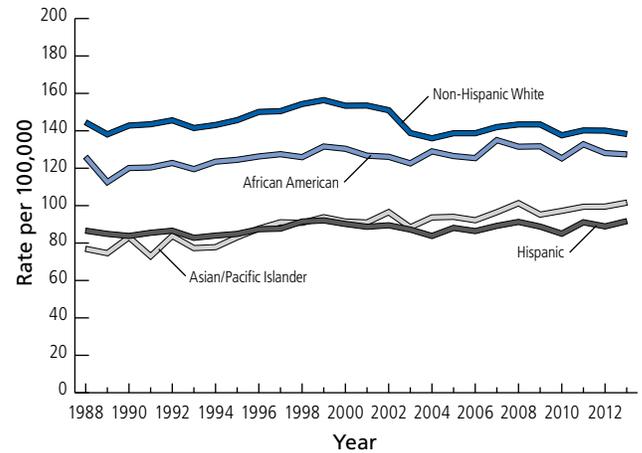
Between 2008-2012, the invasive female breast cancer incidence rate in California as compared to the rest of the nation was 1% lower among Asians/Pacific Islanders, 3% higher among African Americans, 11% lower among Hispanics, and 8% higher among non-Hispanic whites.

Figure 10. Trends in Early Stage Female Breast Cancer Incidence by Race/Ethnicity in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Figure 11. Trends in Female Breast Cancer Incidence by Race/Ethnicity in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Deaths in California: A total of 4,407 breast cancer deaths occurred in California in 2013. Breast cancer mortality in the state has declined by 36% due to the combined effects of better treatment and earlier diagnosis. While this is very good news for California women, breast cancer incidence rates may begin to rise in the next decade as the large number of women born after World War II reach the age in which the disease becomes more common. This group of women may be at higher risk of breast cancer than their mothers due to younger age at first period or menstruation, smaller family size, delayed childbearing, and other factors.

Roughly 170 men are diagnosed with breast cancer each year in California, and about 40 die of the disease annually. Breast cancer in men is clinically very similar to the disease in women, but the prognosis is often poorer because men tend to be diagnosed at a later stage.

Early detection: Early detection is the best defense against breast cancer (see Table 10, page 18). For women at average risk, recently updated American Cancer Society screening guidelines recommend that those 40 to 44 years of age have the choice for annual mammography; those 45 to 54 have annual mammography; and those 55 years of age and older have biennial mammography, or can choose annual mammography, continuing as long as their overall health is good and life expectancy is 10 or more years. Women at increased risk (e.g., family history, genetic predisposition, past breast cancer) should talk with their doctors about the benefits and limitations of starting mammography screening earlier, having additional tests (e.g., breast ultrasound and magnetic resonance imaging [MRI]) and/or having more frequent exams.

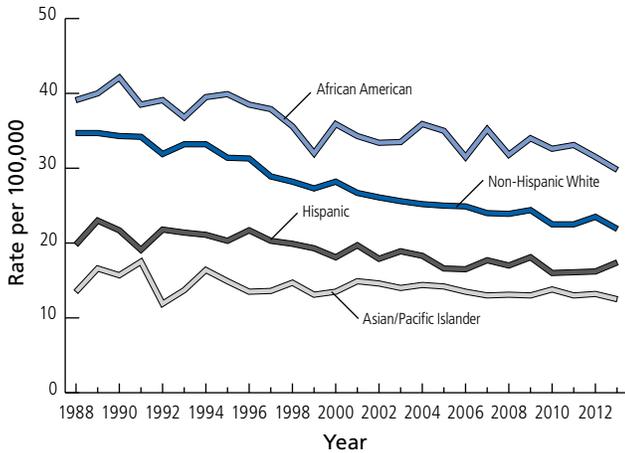
Mammography is a very accurate screening tool for women at both average and increased risk; however, like any medical test, it is not perfect. The test will detect most, but not all, breast cancers in women without symptoms, though the sensitivity is lower for younger women and women with dense breasts. For those women, digital mammography or ultrasound imaging in combination with standard mammography may increase the likelihood of detecting cancer. Mammography also results in some overdiagnosis, which is the detection of cancer that would neither have caused harm nor been diagnosed in the absence of screening. For most women at high risk of breast cancer, annual screening using MRI in addition to mammography is recommended, typically starting at the age of 30.

In 2014, 77% of California women 40 years of age and older reported that they had a mammogram in the past two years. Non-Hispanic white women were most likely to have been recently screened within the past two years (57%), while screening among Hispanic, non-Hispanic black, and Asian/Pacific Islander women were 25%, 8%, and 6%, respectively.

Survival: Overall, 64% of breast cancer diagnoses are localized disease (cancer has not spread to lymph nodes or other locations outside the breast), for which the five-year relative survival rate is 99%. If the cancer has spread to tissues or lymph nodes under the arm (regional stage), the survival rate is 86%. If the spread is to lymph nodes around the collarbone or to distant lymph nodes or organs (distant stage), the survival rate falls to 29%. In 2016, there will be an estimated 341,000 women and 1,800 men living in California who have had a history of invasive breast cancer.

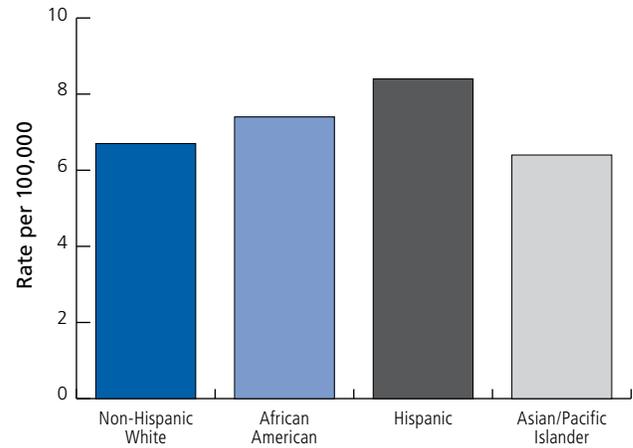
Many studies have shown that overweight and obesity adversely affect survival for postmenopausal women with breast cancer. In addition, breast cancer survivors who are more physically

Figure 12. Trends in Female Breast Cancer Mortality by Race/Ethnicity in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Figure 13. Invasive Cervical Cancer Incidence by Race/Ethnicity, 2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

active, particularly after diagnosis, are less likely to die from breast cancer, or other causes, than those who are inactive.

See the American Cancer Society *Breast Cancer Facts & Figures 2015-2016*, available online at cancer.org/statistics, for more information about breast cancer.

Cervical Cancer

Cervical cancer is cancer that starts in the cervix. The cervix is the lower part of the uterus (womb).

New California Cases: A total of 1,401 new cases of cervical cancer were diagnosed in California in 2013. In general, the risk of developing cancer is much lower for persons of Hispanic and Asian/Pacific Islander origin than for non-Hispanic whites and African Americans. However, this is not true for cervical cancer. Hispanic women have the highest risk of developing cervical cancer, about 1½ times higher than non-Hispanic white and Asian/Pacific Islander women. Cervical cancer is one of the top 10 cancers diagnosed among many of the groups recently immigrating to the state.

Deaths in California: A total of 492 deaths from cervical cancer occurred in California in 2013. Mortality rates have declined rapidly in the past decades due to prevention and early detection as a result of screening with the Pap test, but have begun to level off in recent years. From 2009-2013, rates were stable among both women younger than 50 years of age, and among those 50 and older.

Early detection: The Society recommends that all people with cervixes (e.g., women and transgender men, hereafter in this section referred to as “women”) begin cervical cancer screening

at 21 years of age. For women ages 21-29, screening should be a Pap test every three years. For women ages 30 to 65, screening should be a Pap test combined with a human papilloma virus (HPV) test every five years, or a Pap test every three years (see Table 10, page 18). Screening for cervical cancer is an opportunity for early detection and prevention. Pap tests can identify precancerous changes for removal before they become cancer. In California, 79% of women 21 years of age and older reported having a Pap test within the past three years. Non-Hispanic white women were most likely to have had a Pap test within the past three years (45%) followed by Hispanic (36%), Asian and Pacific Islander (7%), and non-Hispanic black (6%) women in 2014.

Another important topic in cervical cancer prevention is the human papilloma virus (HPV). Infection with the virus is the number one risk factor for cervical cancer. In fact, almost all – more than 99% – cervical cancers are related to HPV. While nearly all cervical cancers are related to the virus, most genital HPV infections do not cause cervical cancer. Vaccines are available to protect against the most common types of the virus that cause cervical cancer (and various other HPV-associated cancers). The American Cancer Society recommends the HPV vaccine for adolescents at ages 11-12. HPV vaccines cannot protect against established infections, nor do they protect against all types of HPV, which is why vaccinated women should still be screened for cervical cancer.

Survival: If abnormal findings are detected early through a Pap test and treated, survival is virtually 100%. As with all other cancers, the five-year survival rate of cervical cancer depends largely on the stage in which the cancer is detected and treated. If detected in the early stages (*in situ* or stage 1), cervical cancer can have a survival rate as high as 92% (localized). Cervical

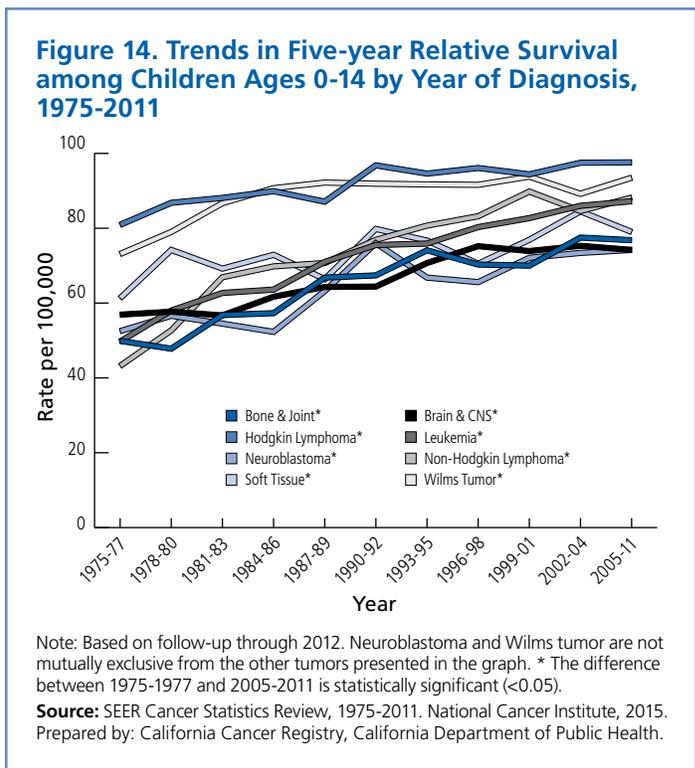
cancers detected at distant stage have an approximate 18% five-year survival rate. With what is known about cervical cancer prevention, early detection, and treatment, cervical cancer deaths can be reduced to virtually zero if prevention and early detection guidelines are followed.

Childhood Cancer (Ages 0-14 years)

Major categories of pediatric cancer include leukemia (31% of all childhood cancers, including benign brain tumors), brain and other central nervous system tumors (25%), neuroblastoma (6%), Wilms tumor (5%), non-Hodgkin lymphoma (4%), Hodgkin lymphoma (4%), rhabdomyosarcoma (3%), osteosarcoma (3%), retinoblastoma (2%), and Ewing sarcoma (1%).

New California Cases: More than 1,700 children and young adults under the age of 20 are diagnosed with cancer in California each year. Of these, more than 1,000 are between 0-14 years. When compared to the rest of the nation, the cancer incidence rate among children 0-14 years in the state between 2008-2012 was the same among non-Hispanic whites, 4% higher among African Americans, 3% higher among Hispanics, and 13% higher among Asians/Pacific Islanders.

Deaths in California: Although accidents kill about three times more children than cancer, an estimated 1 of every 265 children will develop some form of cancer before they are 20 years old.



Mortality rates for childhood cancer in California have declined by 64% over the past four decades, from 7.3 (per 100,000) in 1970 to 2.6 in 2013. The substantial progress in reducing childhood cancer mortality is largely attributable to improvements in treatment and high rates of participation in clinical trials.

Survival: Survival for all invasive childhood cancers combined has improved markedly over the past 30 years due to new and improved treatments. Nationwide, the five-year relative survival rate increased from 58% for diagnoses in the mid-1970s to 83% in the most recent time period (2005-2011). In California, the five-year relative survival for children and adolescents diagnosed between 2004 and 2013 for all cancers combined (excluding benign brain/central nervous system tumors) was 81.9%. However, rates vary considerably depending on cancer type, patient age, and other characteristics. For the most recent time period (2005-2011), the five-year survival among children 0-14 years with Hodgkin lymphoma was 98%; Wilms tumor, 94%; non-Hodgkin lymphoma, 88%; leukemia, 87%; neuroblastoma, 74%; brain and other central nervous system tumors, 74%; soft tissue, 79%; and bone and joint, 77%.

Pediatric cancer patients may experience treatment-related side effects long after active treatment. Late treatment effects include impairment in the function of specific organs, secondary cancers, and cognitive deficits. The Children’s Oncology Group (COG) has developed long-term follow-up guidelines for screening and management of late effects in survivors of childhood cancer. Visit the COG website at survivorshipguidelines.org for more information on childhood cancer management.

Table 11. Number of Children Diagnosed with Cancer by Age at Diagnosis and Race/Ethnicity in California, 2013

| Race/Ethnicity | 0-4 Years | 5-9 years | 10-14 years | Total |
|------------------------|-----------|-----------|-------------|-------|
| Non-Hispanic White | 180 | 119 | 130 | 429 |
| African American | 37 | 15 | 17 | 69 |
| Hispanic | 258 | 153 | 200 | 611 |
| Asian/Pacific Islander | 62 | 33 | 31 | 126 |

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

Table 12. Cancer Incidence among Children Ages 0-14 by Race/Ethnicity in California, 2013

| Race/Ethnicity | Cases | Rate |
|------------------------|-------|------|
| Non-Hispanic White | 429 | 19.7 |
| Non-Hispanic Black | 69 | 14.4 |
| Hispanic | 611 | 15.3 |
| Asian/Pacific Islander | 126 | 13.6 |

Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health. Prepared by: California Cancer Registry, California Department of Public Health.

See the Special Section: Childhood & Adolescent Cancers in the American Cancer Society *Cancer Facts & Figures 2014* publication at cancer.org/statistics for additional information.

Colorectal Cancer

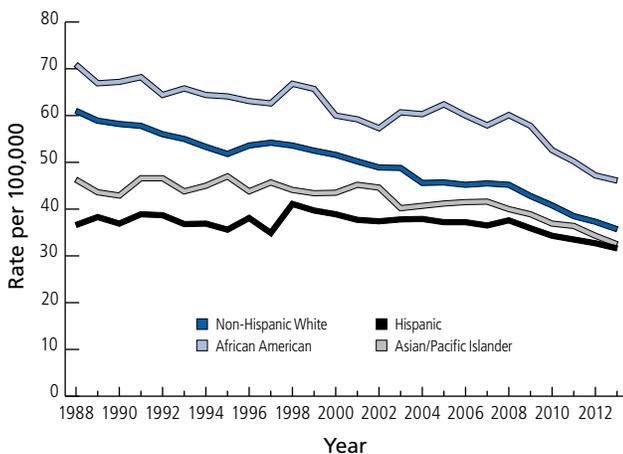
Colorectal cancer is cancer of the colon or rectum. It is the second-leading cause of cancer death when men and women are combined. Screening offers an opportunity for the early detection of colorectal cancer and prevention of the disease.

New California cases: In 2013, there were 9,725 cases of colon and 4,308 cases of rectal cancer diagnosed in California. Colorectal cancer risk has declined steadily in the state over the past 25 years, largely attributed to screening. Incidence rates declined substantially for all four major racial/ethnic groups since 1988. The rates decreased 42% among non-Hispanic whites, 35% among African Americans, 30% among Asians/Pacific Islanders, and 14% among Hispanics.

In 2008-2012, the invasive colorectal cancer incidence rate in California, as compared to the rest of the nation, was 3% higher among Asians/Pacific Islanders, 1% higher among African Americans, 11% lower among Hispanics, and 5% lower among non-Hispanic whites.

The risk of colorectal cancer increases with age. In 2013, nearly 90% of cases were diagnosed in individuals 50 years of age and older. Modifiable factors associated with increased risk include obesity, physical inactivity, a diet high in red or processed meat, alcohol consumption, long-term smoking, and possibly very low intake of fruits and vegetables. Hereditary and medical factors that increase risk include a personal or family history of colorec-

Figure 15. Trends in Invasive Colon and Rectum Cancer Incidence by Race/Ethnicity in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

American Cancer Society Recommendations for Early Detection of Colorectal Cancer

People at average risk

The American Cancer Society believes that preventing colorectal cancer (and not just finding it early) should be a major reason for being tested. Finding and removing polyps keep some people from getting colorectal cancer. Tests that have the best chance of finding both polyps and cancer are preferred if these tests are available.

Beginning at age 50, both men and women at average risk for developing colorectal cancer should use one of the screening tests below:

Tests that find polyps and cancer

- Flexible sigmoidoscopy every five years*
- Colonoscopy every 10 years
- Double-contrast barium enema every five years*
- CT colonography (virtual colonoscopy) every five years*

Tests that mainly find cancer

- Guaiac-based fecal occult blood test (gFOBT) every year*. **
- Fecal immunochemical test (FIT) every year*. **
- Stool DNA test (sDNA) every three years*

*Colonoscopy should be done if test results are positive.

**For FOBT or FIT used as a screening test, the take-home multiple sample method should be used. An FOBT or FIT done during a digital rectal exam in the doctor's office is not adequate for screening.

People at increased or high risk

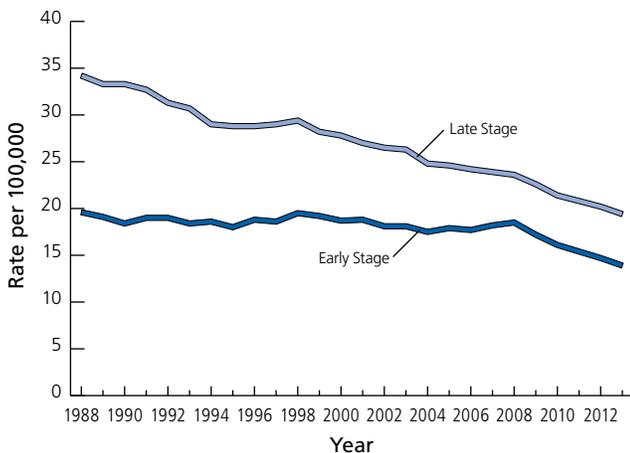
If there is an increased or high risk of colorectal cancer, begin screening before age 50 and/or be screened more often. The following conditions make the risk higher than average:

- A personal history of colorectal cancer or adenomatous polyps
- A personal history of inflammatory bowel disease (ulcerative colitis or Crohn's disease)
- A strong family history of colorectal cancer or polyps
- A known family history of a hereditary colorectal cancer syndrome such as familial adenomatous polyposis (FAP) or hereditary non-polyposis colon cancer (HNPCC)

tal cancer and/or polyps, a personal history of chronic inflammatory bowel disease (ulcerative colitis, Crohn's disease), certain inherited genetic conditions (e.g., Lynch syndrome, also known as hereditary non-polyposis colorectal cancer, and familial adenomatous polyposis [FAP]), and type 2 diabetes.

Deaths in California: A total of 4,125 deaths from colon and 1,032 deaths from rectal cancer occurred in California in 2013. Over the past 25 years, mortality rates decreased by 42% for all

Figure 16. Trends in Colon and Rectum Cancer Incidence by Stage at Diagnosis in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

rates combined. This trend reflects declining incidence rates and improvements in early detection and treatment.

Early detection: Beginning at the age of 50, men and women who are at average risk for developing colorectal cancer should begin screening. Screening can detect and allow for the removal of colorectal polyps that might become cancerous, as well as detect cancer at an early stage, when treatment is usually less extensive and more successful. There are a number of recommended screening options, which differ by the extent of bowel preparation, as well as test performance, limitations, time interval, and cost.

In 2014, 55% of California adults ages 50 and older reported having had a sigmoidoscopy in the past 5 years or a colonoscopy within the past 10 years. The proportion screened was even lower among persons in poverty (34% male, 38% female) and among Hispanics (40% male, 36% female). Nineteen percent of Californians older than age 50 reported having a fecal occult blood test (FOBT) using a home kit in the past year. Individuals with low incomes and Hispanics were less likely to have had the exam (16% each, respectively).

Overall, 63% of adults 50 years and older reported having been compliant with an appropriate screening method for colorectal cancer in 2014 – by either an FOBT within the past year, a sigmoidoscopy within the past five years, or a colonoscopy within the past 10 years.

Survival: The five-year relative survival rate for Californians with colorectal cancer is 68%. However, when colorectal cancers are detected at an early, localized stage, the five-year survival is

92%. Unfortunately, only 42% of colorectal cancers are diagnosed at an early stage, in part due to the underuse of screening. If the cancer has spread regionally to involve nearby organs or lymph nodes at the time of diagnosis, the five-year survival drops to 72%. If the disease has spread to distant organs, the five-year survival is 14%. The American Cancer Society recommends that both men and women at average risk begin routine screening for colorectal cancer at age 50.

Visit cancer.org/statistics to see the American Cancer Society *Colorectal Cancer Facts & Figures 2014-2016* publication.

Lung Cancer

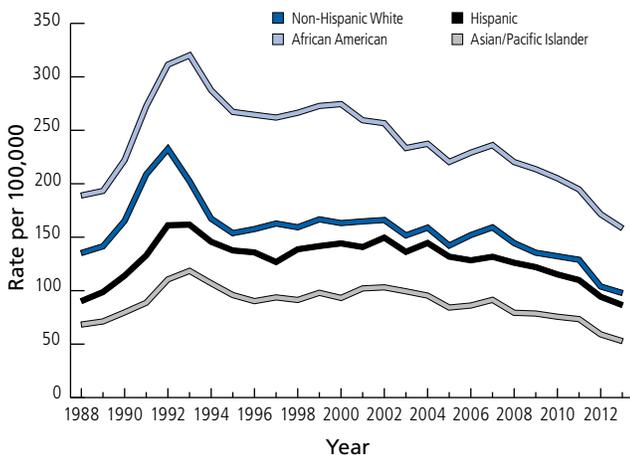
New California cases: In 2013, 16,636 new cases of lung cancer were diagnosed, accounting for about 10% of all cancer diagnoses in California. The incidence rate has been declining since the mid-1980s in men, but only since the mid-2000s in women. From 1988 to 2013, lung cancer incidence rates decreased by 2.5% per year in men and by 1.1% per year in women.

Deaths in California: Lung cancer accounts for more deaths than any other cancer in both men and women. A total of 12,408 deaths, accounting for about 22% of all cancer deaths, occurred in California in 2013. From 1988 to 2013, rates decreased 2.7% per year in men and 1.4% per year in women. Gender differences in lung cancer mortality reflect historical differences in patterns of smoking uptake and cessation over the past 50 years.

Early detection: In 2010, results from the National Lung Screening Trial showed 20% fewer lung cancer deaths among current and former heavy smokers who were screened with spiral CT compared to standard chest x-ray. In January 2013, the American Cancer Society issued guidelines for the early detection of lung cancer based on a systematic review of the evidence. These guidelines endorse a process of shared decision making between clinicians who have access to high-volume, high-quality lung cancer screening programs and current or former adult smokers (who quit within the previous 15 years) who are 55 to 74 years of age, in good health, and with at least a 30-year pack history of smoking. A pack-year is defined as smoking 20 cigarettes a day for one year. Shared decision making should include a discussion of the benefits, uncertainties, and harms associated with lung cancer screening. In December 2013, the US Preventive Services Task Force issued similar guidelines. For more information on lung cancer screening, see Table 10, page 18.

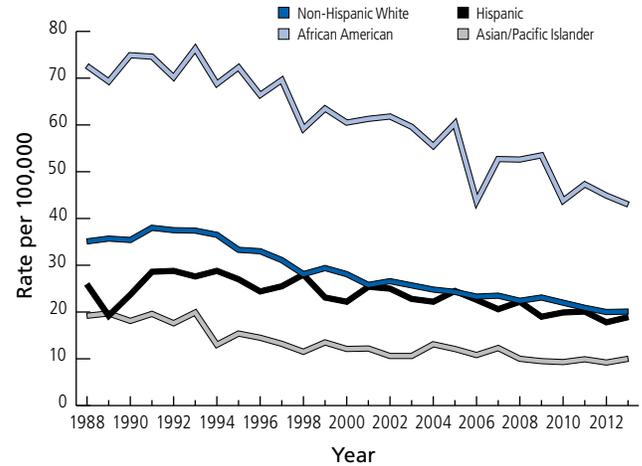
Survival: The national one- and five-year relative survival rates for lung cancer are 44% and 17%, respectively. Only 16% of lung cancers are diagnosed at a localized stage, for which the five-year survival rate is 57%. More than half are diagnosed at a distant stage, for which the one- and five-year survival is 26% and 4%, respectively. The five-year survival for small cell lung cancer (7%) is lower than that for non-small cell (21%).

Figure 17. Trends in Prostate Cancer Incidence by Race/Ethnicity in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Figure 18. Trends in Prostate Cancer Mortality by Race/Ethnicity in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
 Prepared by: California Cancer Registry, California Department of Public Health.

Prostate Cancer

New California cases: In 2013, there were 18,655 new cases of prostate cancer diagnosed in California. It is the most frequently diagnosed cancer in men in almost all racial/ethnic groups in the state, aside from skin cancer. The number of prostate cancers diagnosed each year rose dramatically in the early 1990s when the prostate-specific antigen (PSA) test began to be widely used to detect this cancer. Incidence rates peaked in 1992-93 and were approximately 14% lower in 2013 than in 1988. These trends are consistent with the rapid introduction of a new, sensitive screening method.

The only well-established risk factors for prostate cancer are increasing age, African ancestry, a family history of the disease, and certain inherited genetic conditions. For reasons that remain unclear, the risk of prostate cancer is 70% higher in African Americans than in non-Hispanic whites.

In 2008-2012, the prostate cancer incidence rate in California, as compared to the rest of the nation, was 5% lower among Asians/Pacific Islanders, 13% lower among African Americans, 8% lower among Hispanics, and 6% lower among non-Hispanic whites.

Deaths in California: With a total of 3,112 deaths in 2013 in California, prostate cancer is the second-leading cause of cancer death in men. Prostate cancer death rates have been decreasing since the early 1990s in men of all races/ethnicities, though they remain more than twice as high in African Americans as in any other group. Overall, prostate cancer death rates decreased by 2.7% per year from 1988 to 2013. Prostate cancer mortality in California decreased by 44% after 1988, with declines among men in each racial/ethnic group.

Early detection: No organizations presently endorse routine prostate cancer screening for people with prostates (e.g., men and transgender women, hereafter in this section referred to as “men”) at average risk because of concerns about the high rate of overdiagnosis, along with the significant potential for serious side effects associated with treatment. The American Cancer Society recommends that beginning at age 50, men who are at average risk of prostate cancer and have a life expectancy of at least 10 years have a conversation with their health care provider about the benefits and limitations of PSA testing. Men should have an opportunity to make an informed decision about whether to be tested based on their personal values and preferences. Men at high risk of developing prostate cancer (black men or those with a close relative diagnosed with prostate cancer before the age of 65) should have this discussion beginning at age 45, and men at even higher risk (those with several close relatives diagnosed at an early age) should have this discussion at age 40.

In 2014, 67% of California men ages 50 and older reported having had at least one PSA (prostate-specific antigen) test. White men (69%) were more likely to have been tested than Hispanic and black men (14% and 8%, respectively). Men from households above the poverty level were more likely to have had a prostate cancer screening test than men from households below the poverty level.

Survival: The majority (92%) of prostate cancers are discovered in the local or regional stages, for which the five-year relative survival rate approaches 100%. Over the past 25 years, the five-year relative survival rate for all stages combined has increased from 68% to 99%. According to the most recent data, 10- and

15-year relative survival rates are 98% and 95%, respectively. Obesity and smoking are associated with an increased risk of dying from prostate cancer.

Skin Cancer

New California Cases: Skin cancer is the most commonly diagnosed cancer in the US. However, the actual number of the most common types – basal cell and squamous cell skin cancer, more commonly referred to as nonmelanoma skin cancer – is very difficult to estimate because these cases are not required to be reported to cancer registries. Nonmelanoma skin cancer is usually highly curable.

A total of 8,683 new cases of melanoma cancer were diagnosed in California in 2013. Melanoma is rare among African Americans; lifetime risk of developing the disease is 0.1%, compared to 2.4% among whites. Incidence rates are higher in women than in men before the age of 45, but by the age of 60, rates in men are more than double those in women and by the age of 80 they are almost triple.

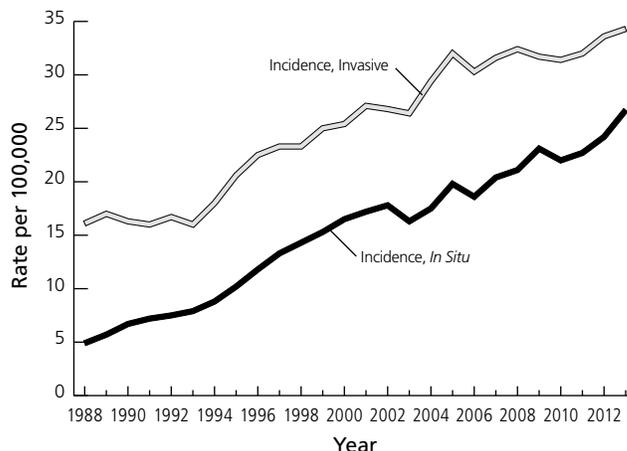
In California, incidence rates of *in situ* (localized stage) melanoma of the skin have increased in the past 26 years for all racial/ethnic groups, a statistically significant increase for Hispanics and non-Hispanic whites. Incidence rates of invasive melanoma of the skin have also increased for non-Hispanic whites and Hispanics, and remained relatively stable for African Americans and Asians/Pacific Islanders.

Deaths in California: Melanoma accounts for less than 2% of all skin cancer cases, but the vast majority of skin cancer deaths. A total of 914 deaths from melanoma and 360 deaths from other types of skin cancer (does not include nonmelanoma skin cancer) occurred in California in 2013. Between 2009 and 2013, mortality rates of melanoma among individuals younger than 50 in the state decreased by 4.3% per year, while rates also decreased by 0.2% per year among those 50 and older.

Early detection: Risk factors vary for different types of skin cancer. For melanoma, major risk factors include a personal or family history of melanoma and the presence of atypical, large, or numerous (more than 50) moles. Other risk factors for all types of skin cancer include sun sensitivity (e.g., sunburning easily, difficulty tanning, or natural blond or red hair color); a history of excessive sun exposure, including sunburns; use of tanning booths; diseases or treatments that suppress the immune system; and a past history of skin cancer.

The best way to detect skin cancer early is to recognize new or changing skin growths, particularly those that look different from other moles. All major areas of the skin should be examined regularly, and any new or unusual lesions, or a progressive change in a lesion's appearance (size, shape, or color, etc.), should be evaluated promptly by a physician. Melanomas often start as

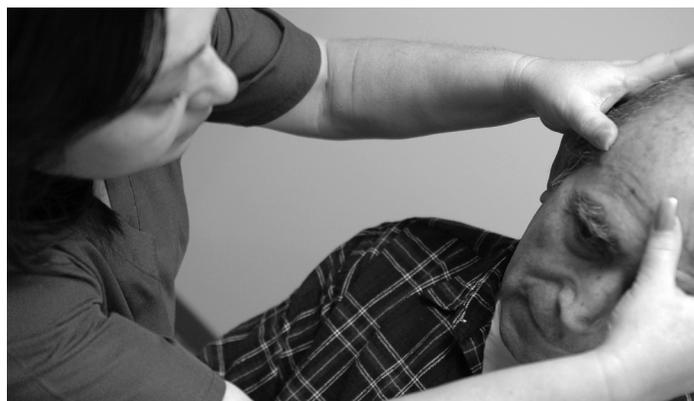
Figure 19. Trends in Melanoma Incidence among Non-Hispanic Whites in California, 1988-2013



Note: Rates are per 100,000 and age-adjusted to the 2000 US standard population.
Source: California Cancer Registry, California Department of Public Health.
Prepared by: California Cancer Registry, California Department of Public Health.

a small, mole-like growth that increases in size and may change color. A simple ABCD rule outlines warning signs of the most common type of melanoma: A is for asymmetry (one half of the mole does not match the other half); B is for border irregularity (the edges are ragged, notched, or blurred); C is for color (the pigmentation is not uniform, with variable degrees of tan, brown, or black); D is for diameter greater than 6 millimeters (about the size of a pencil eraser).

Survival: Almost all cases of basal cell and squamous cell skin cancer can be cured, especially if the cancer is detected and treated early. Although melanoma is also highly curable when detected in its earliest stages, it is more likely than nonmelanoma skin cancers to spread to other parts of the body. The 5- and 10-year relative survival rates for people with melanoma are 92% and 89%, respectively. For localized melanoma (84% of cases), the five-year survival rate is 99%; survival declines to 64% and 17% for regional and distant-stage disease, respectively.



American Cancer Society California Division

Our Commitment

In 2016, an estimated 173,200 Californians will hear the words “you have cancer,” a diagnosis that brings major changes to patients and their loved ones. When someone is diagnosed with the disease, the American Cancer Society is there every step of the way, offering cancer information, day-to-day help, and emotional support – 24 hours a day, seven days a week at cancer.org or 1-800-227-2345.

Financial Support

Generous American Cancer Society donors enable us to fund research, prevention and early detection education, advocacy, and patient services. Our funding of innovative research is one reason why the cancer death rate has declined by 23% since 1991. In 2015, 28 grants totaling \$10,281,500 were awarded to California researchers. Without the support of individual and corporate donors, the Society could not accomplish its mission of saving lives.

Volunteer Engagement

American Cancer Society volunteers are passionate about creating a world free of the pain and suffering of cancer. Dedicated Society volunteers help raise vital funds, help patients and caregivers through their cancer experience, and provide office support. They come from all walks of life and represent nearly every occupation, age, sexual orientation, and ethnic group.

In California, volunteers are the backbone of our local programs, services, and events. They provide free rides for cancer patients to and from treatments; they help women in active cancer treatment manage appearance-related side effects; they offer understanding, support, and hope to those facing breast cancer; and they help organize and participate in the Society’s many fundraising events. Visit cancer.org/volunteer or call 1-800-227-2345 to learn more about how you can help save lives. Together, we are a united force against all cancers.

Communities

The American Cancer Society is a 2.5 million-strong volunteer and staff community. Whether it’s providing emotional support, the latest cancer information, or a home away from home when treatment is far away, the Society is there for patients, their families, and caregivers when they need us. We recognize and applaud the work of our volunteers, without whom these programs and services would not be possible.

In 2015, the American Cancer Society, Inc., California Division, reached 35,778 individuals with patient-related information and services, including 18,964 patients diagnosed within the past year.

- 26,026 callers received free patient-related information and support from American Cancer Society cancer information specialists at our 24/7 toll-free information line.
- 2,769 cancer patients received transportation assistance from the Society for a total of more than 64,111 one-way trips.
- 672 cancer patients received help with lodging for a total of 8,821 nights.
- 492 breast cancer patients were visited by Reach To Recovery® volunteers, our one-on-one support program for women facing or living with breast cancer.
- 3,909 cancer patients attended Look Good Feel Better® sessions to learn how to deal with appearance-related side effects of treatment.
- 5,473 cancer patients received free wigs or other head coverings.
- 9,268 cancer patients received Personal Health Manager Kits and information

Partnering with Health Systems

At the American Cancer Society, we believe that creating a world free from the pain and suffering of cancer is a team effort. Our Primary Care, Hospital, and State Health Systems teams engage critical partners to maximize our impact in serving California’s diverse communities.

Primary Care Systems

In 2015, the Society’s California Division identified more than 210 primary care systems, including Federally Qualified Health Centers (FQHCs), Indian Health Centers, and Community Health Centers to increase cancer screening rates in medically underserved communities by implementing evidence-based client- and provider-oriented intervention strategies. The Primary Care Systems team partnered with 96 California clinic systems to implement evidence-based interventions around breast, cervical, and colorectal cancer screening. In addition, the Community Health Advocates implementing Nationwide Grants for Empowerment and Equity (CHANGE) grant program awarded the California Division \$530,000, allowing the Primary Care Systems team to successfully manage and support 11 CHANGE grants.

Hospital Systems

The Society's hospital initiatives focus on working directly with nearly 200 hospital systems with special focus on National Cancer Institute Comprehensive Cancer Centers, Commission on Cancer (CoC) accredited hospitals, Kaiser Permanente, and other hospitals that serve large numbers of cancer patients. The goal of these partnerships is to prevent cancer and to provide the best quality of care and support to those affected by this disease. In 2015 those partnerships enabled the Society to: provide free support programs to cancer patients and their families; participate in community-based survivorship activities; support hospitals in meeting Quality of Cancer Care Standards set by the CoC; and partner on community outreach focused on cancer prevention and early detection.

State Health Systems

The State Health Systems team partners with health systems with a statewide presence that can influence the general public's cancer screening and healthy living activities. Partnerships with health insurers (Commercial, Medi-Cal, Medicare), quality improvement organizations, public health departments, and state programs such as the Breast and Cervical Cancer Early Detection Program focus on initiatives related to cancer prevention, early detection, and improving cancer patients' quality of life. In 2015, the State Health Systems team continued successful partnerships with health plans to reach members with potentially lifesaving cancer screening messages and to reach providers and members with Society information and education resources. This team, in collaboration with the California Cancer Registry and the Society's Communications team, produces the annual *California Cancer Facts & Figures* publication.

Cancer and the Environment

In addition to the Society's traditional role in primary prevention, the California Division, with input from its Cancer and the Environment team, monitors research, policy, and practice to reduce use of and exposure to cancer-causing substances, especially in vulnerable populations and disadvantaged communities that experience an unequal burden of the contaminated environment.

80% by 2018 Colorectal Cancer Screening Initiative

Throughout its history, the Society has implemented aggressive awareness campaigns targeting the public and health care professionals. Recognizing the importance of addressing colorectal cancer as a public health problem, the Society and the Centers for Disease Control and Prevention established the National Colorectal Cancer Roundtable in 1997. In 2013, the Roundtable launched its 80% by 2018 initiative with the bold goal of increasing the rate of regular colorectal cancer screening among adults



Visit nccrt.org for 80% by 2018 colorectal cancer screening resources.

50 and older to 80% by 2018, with an emphasis on economically disadvantaged individuals, who are least likely to be tested. The Society's California Division is committed to increasing screening and saving lives from colorectal cancer by improving access to screening in underserved communities, providing information and support to those facing a colorectal cancer diagnosis, conducting research to help save lives from colorectal cancer, and advocating for increased access to quality screening and treatment for all people with colorectal cancer. Visit nccrt.org to learn more about 80% by 2018.

HPV Vaccination as Cancer Prevention

Vaccines are among the few medical interventions capable of achieving almost complete eradication of a disease. It is not often we have an opportunity to prevent cancer, or in this case multiple cancers, with a single tool. More than 27,000 cancers are attributable to the HPV virus each year in the US – 17,600 in women and 9,300 in men. Rates of several of these cancers are still increasing. However, HPV vaccines prevent most cervical, vaginal, vulvar, and anal cancers and are expected to prevent most penile and oropharyngeal cancers. The HPV vaccination is underused despite the overwhelming evidence for its safety and effectiveness.

While vaccination rates continue to improve for other adolescent vaccines, HPV vaccination rates have not. Only 1-in-3 girls and 1-in-5 boys in the US are fully vaccinated, far less than the Healthy People 2020 goal of 80%. For the vaccine to be most effective, it is best to begin early. Therefore, the American Cancer Society recommends initiating the three-part HPV vaccine for adolescents at ages 11-12.

The Society has recently become increasingly involved in promoting HPV vaccination. In 2014, we received two awards from the Centers for Disease Control and Prevention (CDC) to expand

cancer prevention activities to increase HPV vaccination. One award has allowed the Society to establish the National HPV Vaccination Roundtable, a national coalition of organizations working together to increase HPV vaccination. The second award, the Vaccinate Adolescents against Cancers (HPV VACs) project, works with the Society's Health Systems staff to increase

vaccination through our health system partners. The Health Systems staff is working to disseminate educational materials, provide clinician outreach and training, and increase and form strong partnerships. The Society's California Division is proud to have funded three federally qualified health centers through the HPV VACs project in 2015.

American Cancer Society Research Program

Research is at the heart of the American Cancer Society's mission. For 70 years, the Society has been finding answers that save lives – from changes in lifestyle to new approaches in therapies to improving cancer patients' quality of life. No single private, not-for-profit organization in the US has invested more to find the causes and cures of cancer than the American Cancer Society. We relentlessly pursue the answers that help us understand how to prevent, detect, and treat all cancer types. We combine

the world's best and brightest researchers with the world's largest, oldest, and most effective community-based anticancer organization to put answers into action.

The Society's comprehensive research program has two focus areas. Our Extramural Research program awards grants to promising young researchers through a rigorous peer-review process. Our Intramural Research program, led by staff scientists, encompasses epidemiology, surveillance and health services research, behavioral research, economic and health policy research, and statistics and evaluation. Visit cancer.org/research to learn more about the Society's currently funded research projects and to download the American Cancer Society's national *Cancer Facts & Figures 2016*.

Table 13. Summary of Research Grants and Fellowships in Effect during Fiscal Year Ending December 31, 2015

| Institution | # Grants | Total |
|--|------------|---------------------|
| Beckman Research Institute of the City of Hope | 5 | \$4,937,000 |
| California Institute of Technology | 4 | \$1,145,000 |
| Cedars-Sinai Medical Center | 2 | \$1,245,000 |
| Children's Hospital of Los Angeles | 2 | \$1,520,000 |
| Kaiser Foundation Research Institute | 1 | \$792,000 |
| Leland Stanford Junior University | 1 | \$720,000 |
| Salk Institute for Biological Studies | 4 | \$521,000 |
| Sanford-Burnham Institute for Medical Research | 1 | \$720,000 |
| Stanford University | 7 | \$2,722,000 |
| The Regents of the University of California, San Diego | 9 | \$4,001,000 |
| The Regents of the University of California, San Francisco | 22 | \$7,833,000 |
| The Scripps Research Institute | 4 | \$1,249,166 |
| University of California, Berkeley | 6 | \$2,482,500 |
| University of California, Davis | 4 | \$1,988,000 |
| University of California, Irvine | 5 | \$3,376,000 |
| University of California, Los Angeles | 12 | \$6,074,500 |
| University of California, San Diego Medical Center | 1 | \$720,000 |
| University of California, Santa Cruz | 2 | \$1,440,000 |
| University of Southern California | 11 | \$8,154,500 |
| California Total | 103 | \$51,640,666 |

Note: These awards represent multiple-year funding for grants that may be carried over several years.

Nobel Prize Winners

The Society has become an expert at identifying visionary scientists earlier in their careers, and our track record speaks for itself, as 47 of our funded researchers are Nobel Prize winners.



American Cancer Society Cancer Action Network

What is ACS CAN?

The American Cancer Society Cancer Action Network (ACS CAN) is the nonpartisan, nonprofit advocacy affiliate of the American Cancer Society. ACS CAN is the nation's leading advocate for public policies that are helping to defeat cancer. The organization ensures that cancer patients, survivors, and their families have a voice in public policy matters at all levels of government. ACS CAN works to encourage elected officials and candidates to make cancer a top national priority.

Why ACS CAN?

Defeating cancer is as much a matter of public policy as scientific discovery. Lawmakers play a critical role in determining how much progress our country makes toward defeating cancer. ACS CAN's work has resulted in enormous progress through increased funding for cancer research and prevention programs, stronger tobacco control policies nationwide, and improved access to the full range of cancer care for people diagnosed with the disease and their families.

Advocacy successes in California include the establishment of the California Cancer Registry, as well as the state Breast and Cervical Cancer Early Detection and Treatment programs and state Breast Cancer Research Program. Decade after decade, California is often first to pass cancer-fighting policies to protect public health. Some of the health wins over the past 40 years include the creation of smoke-free indoor and outdoor public places, improvements to school nutrition standards, restaurant menu labeling that shows calories, indoor tanning restrictions for minors, and access to affordable health care insurance.

What does ACS CAN do?

ACS CAN follows the science when supporting evidence-based policy and legislative solutions designed to eliminate cancer as a major health problem. The organization utilizes its expert lobbying, policy, grassroots, and media advocacy capacity to amplify the voices of patients in support of laws and policies that help save lives from cancer. ACS CAN educates the public and the media by serving as a trusted source of information about candidate positions on cancer-related concerns and key issue campaigns across the country that impact those affected by cancer.

ACS CAN does not endorse candidates or political parties. Like cancer itself, ACS CAN is nonpartisan.

Who is ACS CAN?

At the heart of ACS CAN's grassroots advocacy movement is a cadre of volunteer Legislative Ambassadors who have taken on leadership roles to advocate for cancer patients and their families at the local, state, and federal levels of government. In California, there are nearly 600 Legislative Ambassadors who are the voices in their communities to influence lawmakers on important cancer-related legislation and policy. They generate support for federal and state legislative priorities, and also advocate for local ordinances and initiatives on smoke-free public places and multi-unit housing, tobacco retail licensing, and school nutrition and physical activity policies.

Legislative Ambassadors make possible the community-based grassroots movement that gives ordinary people extraordinary power to fight cancer in the legislative arena. Legislative Ambassadors are kept informed of legislative activities in Sacramento; Washington DC; and in their local communities. Legislative Ambassadors are briefed on the progress of cancer-related legislation, and are notified when grassroots action is needed and legislators need to be contacted.

Visit acscan.org/California for more information on becoming a Legislative Ambassador and updated information on ACS CAN's local, state, and federal legislative efforts.

What are the 2016 Public Policy Priorities?

Tobacco Control

ACS CAN is working at the federal, state, and local levels to promote policies that reduce tobacco use, the largest preventable cause of disease and premature death in the US. At the federal level, ACS CAN is working to help pass the Trans-Pacific Trade Partnership to curb the tobacco industry's ongoing efforts to overturn effective tobacco control policies worldwide. In California, ACS CAN is working to revive the American Cancer Society's decades-old legacy of tobacco control leadership. ACS CAN is a member of the Save Lives California Coalition and will be playing a key role in helping to pass a \$2 tobacco tax ballot initiative in November that will fund tobacco control and other health priorities. Other statewide priorities include regulating e-cigarettes like tobacco products, raising the minimum sales age for tobacco to 21, expanding smoke-free policies, and improving access to effective smoking cessation.

Cancer Research

Cancer research funded by the federal government is critical to finding cures. At the federal level, ACS CAN works each year to increase funding for cancer research through the National Institutes of Health and the National Cancer Institute. The 2015 Congress approved the largest increase in medical research funding in more than a decade, with a \$2 billion increase to the National Institutes of Health and a \$264 million increase to the National Cancer Institute.

This success was quickly followed by President Obama's announcement in his 2016 State of the Union address to launch a Cancer Moonshot, with a call for \$1 billion in funding for specific cancer prevention and research initiatives. Vice President Joe Biden is spearheading the initiative, which has the potential to change the course of the disease.

ACS CAN continues to work to ensure that these unprecedented funding levels are maintained in future budgets. In California, the organization is actively engaging in efforts to modernize and increase the efficiency of the California Cancer Registry, the cornerstone of cancer research in California. ACS CAN also monitors the state budget process in order to preserve and protect funding for state tobacco-related disease and breast cancer research programs in the state.

Access to Care and the Affordable Care Act

Individuals without health insurance are more likely to be diagnosed with cancer at a later stage and more likely to die from the disease. ACS CAN believes all Americans should have access to affordable, quality health care coverage. At the federal level, the organization will focus on strengthening and protecting the coverage, affordability, prevention, and quality of care provisions of the Affordable Care Act, notably by improving access to drug coverage and network adequacy.

In California, more than 4.5 million state residents have gained access to health care coverage because of the Affordable Care Act. California was one of the first states to expand coverage to Medi-Cal (California's Medicaid), and due to successful outreach and enrollment programs, nearly 4 million low-income residents are newly insured. ACS CAN will continue to work to ensure that the Affordable Care Act's patient protections are strongly implemented and made accessible through provisions designed to improve health care quality and delivery.

Early Detection and Screening

Programs that increase access to proven cancer screenings, especially among medically underserved populations, help save lives and are good for the economy. ACS CAN supports cancer control efforts at the Centers for Disease Control and Prevention (CDC), including the National Breast and Cervical Cancer Early

Detection Program. In California, ACS CAN supports the Every Woman Counts program, which provides free breast and cervical cancer screening for uninsured and underinsured women. For those diagnosed with breast or cervical cancer, free treatment is available from the Breast and Cervical Cancer Treatment Program, which provides care through the Medi-Cal program. This year, ACS CAN is working with the Komen Foundation to update California's program to align with the federal standards, expanding access to this critical program.

Colorectal Cancer – Removing Screening Barriers

In pursuit of the Society's goal of collaborating with the National Colorectal Cancer Roundtable and numerous other organizations to increase colorectal cancer screening rates to 80% among all adults ages 50 and older by 2018, ACS CAN works with the state's California Colon Cancer Control Program. In 2016, ACS CAN will work with the California Colorectal Cancer Coalition to remove cost barriers to colorectal cancer screening in the state.

Healthy Eating and Active Living

Up to one in three cancer deaths in the US is linked to obesity, poor nutrition, or physical inactivity. At the federal level, ACS CAN will work to protect and support implementation of quality nutrition standards for food served in schools and menu labeling in restaurants and other similar retailers. In California, ACS CAN will work to increase opportunities for physical activity and increase access to healthy foods both at school and in communities. Because of the tremendous influence that the surrounding environment has on access to healthy foods and safe opportunities to be physically active, ACS CAN will also support healthy community strategies in California that include Safe Routes to School, community gardens, complete streets policies, safe playgrounds and parks, farmers' markets, and more.

Quality of Life/Pain and Palliative Care

No one with cancer should suffer needlessly from pain, nausea, and other symptoms of their treatment as their doctors concentrate on treating their disease. ACS CAN is working to improve patients' quality of life through expanded access to palliative care and pain management policies. Palliative care is specialized medical care that focuses on providing the best possible quality of life for a patient and their family by offering relief from the pain, stress, and other symptoms of a serious illness. It utilizes a coordinated team-based approach among medical professionals to help ensure all the patient's needs are met throughout treatment and survivorship. At the federal level, ACS CAN is working to facilitate access to palliative care and coordinated care management for cancer patients and survivors. At the state level, the organization is actively engaging in policy initiatives that improve patient access to palliative care and ensure that patients have access to the pain management they need.

California's Cancer Control Activities

Cancer Surveillance

Cancer rates among Californians are monitored by the California Cancer Registry (CCR), which has collected information on almost all cancers diagnosed in the state since 1988. To date, the CCR has collected detailed information on more than 4 million cases of cancer, with more than 160,000 new cases added annually. The database includes information on demographics, cancer type, extent of disease at diagnosis, treatment, and survival. With this high-quality data, leading cancer researchers are able to advance scientific knowledge about the causes, treatments, cures, and prevention of cancer.

The CCR, in conjunction with the American Cancer Society, produces *California Cancer Facts & Figures* each year. Additionally, through annual and special-topic reports, the CCR keeps health professionals, policy makers, cancer advocates, and researchers informed about the status of cancer in California. CCR data are the cornerstone of cancer research in the state.

Table 14. Cancer Reporting in California

| Year | Milestone |
|------|--|
| 1947 | California Tumor Registry established in selected large hospitals |
| 1960 | Alameda County Cancer Registry established as the first population-based cancer registry in California |
| 1969 | San Francisco Bay Area Registry included in National Cancer Institute (NCI) Third National Cancer Survey |
| 1972 | Cancer Surveillance Program (CSP) of Los Angeles County established |
| 1983 | Cancer Surveillance Program of Orange County established |
| 1985 | California Cancer Reporting Law signed into effect (CCR established) |
| 1988 | Population-based cancer reporting initiated statewide |
| 1992 | CSP of Los Angeles included in SEER Program |
| 1997 | 50 years of cancer reporting in California |
| 2000 | Published 10 years of complete statewide reporting |
| 2001 | Greater California Registry included in SEER Program |
| 2007 | 20 years of statewide population-based cancer reporting |
| 2009 | Published 20 years of complete statewide cancer reporting |
| 2012 | 25 years of statewide population-based cancer reporting |

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

Tobacco Control

The strongest anti-tobacco legislation in the nation was passed by the citizens of California in 1988 – the Tobacco Tax and Health Promotion Act (Proposition 99). Since then, the California Department of Public Health (CDPH) has used funds from Proposition 99 taxes on tobacco products to launch an award-winning anti-smoking media campaign, to fund local prevention programs, and to monitor smoking prevalence and other use of tobacco products throughout the state. Lung cancer mortality rates are now falling faster in California than elsewhere in the US.

Cancer Prevention

The Nutrition Education and Obesity Prevention Branch is a statewide movement of local, state, and national partners collectively working toward improving the health status of low-income Californians through increased fruit and vegetable consumption and daily physical activity. Multiple venues are used to facilitate behavior change in the homes, schools, work-sites, and communities of low-income Californians to create environments that support fruit and vegetable consumption and physical activity.

Comprehensive Cancer Control

The Centers for Disease Control and Prevention (CDC) defines comprehensive cancer control as “a collaborative process through which a community pools resources to reduce the burden of cancer that results in risk reduction, early detection, better treatment, and enhanced survivorship.” California’s Comprehensive Cancer Control Program (CCCP) is a vehicle to implement comprehensive cancer control. The purpose of the CCCP is to oversee a statewide comprehensive cancer control coalition, the California Dialogue on Cancer (CDOC), to help determine state priorities related to cancer and oversee the implementation of California’s comprehensive cancer control plan.

The CDOC is a coalition of cancer control stakeholders from across the state. Stakeholders represent a variety of organizations and interest areas, including state and local government, private and nonprofit organizations, health, medical, and business communities, academic institutions, researchers, cancer survivors, caregivers, and advocates. The vision of CDOC is to reduce cancer suffering and mortality in California. CDOC was created to provide guidance and coordination for comprehensive cancer control in California while minimizing duplication of efforts by the California Department of Public Health, the Amer-

ican Cancer Society, and other organizations engaged in cancer prevention and control activities. CDOC is tasked with the implementation of California's comprehensive cancer control plan. The plan is in its third iteration, with goals and measurable objectives to be achieved through 2020. Workgroups have been established to conduct activities based on objectives and strategies identified in the plan, coalition priorities, and other relevant issues in cancer control. Increasing colorectal cancer screening rates has been a CDOC priority for several years and has contributed to the organization's instrumental role in establishing the California Colorectal Cancer Coalition (C4). CDOC now joins C4, the American Cancer Society, and dozens of other organizations in the 80% by 2018 initiative to increase colorectal cancer screening among adults ages 50 and older to 80% by 2018.

Breast and Cervical Detection

Every Woman Counts (EWC) provides free clinical breast exams, mammograms, pelvic exams, and Pap tests to California's underserved women. The EWC, which originally was a California Department of Public Health program, is now part of the Department of Health Care Service's Cancer Detection and Treatment Branch (CDTB). The mission of the EWC is to save

lives by preventing and reducing the devastating effects of cancer for Californians through education, early detection, diagnosis and treatment, and integrated preventive services, with special emphasis on the underserved. Regional cancer detection partnerships assist in outreach and education to women, quality assurance, and provider education. To determine eligibility for free screening, women can call 1-800-511-2300. Assistance is available in English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean.

Colon Cancer Control

The California Colon Cancer Control Program (C4P) is a program that provides community outreach and education for communities, medical professionals, and health systems for improving colorectal cancer screening. C4P contracts with Federally Qualified Health Systems to assist in the implementation of evidence-based interventions proven to effectively increase colorectal cancer screening rates. In addition, C4P partners with provider organizations, health insurers, Medi-Cal Managed Care plans, and other statewide organizations to promote the shared national goal of 80% of adults ages 50 and older screened by 2018.

California Cancer Registry

The California Cancer Registry (CCR) is a collaborative effort among the California Department of Public Health's Chronic Disease Surveillance and Research Branch (CDSRB); the Institute for Population Health Improvement, UC Davis Health System; regional cancer registries; health care providers; cancer registrars; and cancer researchers throughout the state and the nation. The CDSRB collects, analyzes, and disseminates information on cancer incidence and mortality. The statewide population-based cancer surveillance system monitors the incidence and mortality of specific cancers over time and analyzes differential cancer risks by geographic region, age, race/ethnicity, sex, and other social characteristics of the population. It gathers cancer incidence data through the CCR, and conducts and collaborates with other researchers on special cancer research projects concerning the etiology, treatment, risk factors, and prevention of specific cancers. In addition, the system is designed to monitor patient survival with respect to the type of cancer, extent of disease, therapy, demographics, and other parameters of prognostic importance. In general, data generated from the CCR are utilized to:

- Monitor the amount of cancer and cancer incidence trends by geographic area and time in order to detect potential cancer problems of public health significance in occupational settings and the environment, and to assist in their investigation.

- Provide information to stimulate the development and targeting of resources to benefit local communities, cancer patients, and their families.
- Promote high-quality research into epidemiology and clinical medicine by enabling population-based studies to be performed to provide better information for cancer control.
- Inform health professionals and educate citizens regarding specific health risks, early detection, and treatment for cancers known to be elevated in their communities.
- Respond to public concerns and questions about cancer.

In California, legislation declaring mandatory cancer reporting became effective in 1985. Since January 1988, under the Statewide Cancer Reporting Law (Section 103885 of the Health and Safety Code), the CCR has covered the entire population of the state through the regional population-based registries.

Regional Cancer Registries

Region 1/8: Cancer Prevention Institute of California, 2201 Walnut Ave., Suite 300, Fremont, CA 94538 | 510.608.5000; Fax: 510.608.5095

Counties: Alameda, Contra Costa, Marin, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, and Santa Cruz

Region 2: Cancer Registry of Central California, 1680 W. Shaw Ave., Fresno, CA 93711 | 530.345.2483; Fax: 530.345.3214

Counties: Fresno, Kern, Kings, Madera, Mariposa, Merced, Stanislaus, Tulare, and Tuolumne

Region 3: Sacramento and Sierra Cancer Registry, 1825 Bell St., Suite 102, Sacramento, CA 95825 | 916.779.0300; Fax: 916.564.9300

Counties: Alpine, Amador, Calaveras, El Dorado, Nevada, Placer, Sacramento, San Joaquin, Sierra, Solano, Sutter, Yolo, and Yuba

Region 4: Central Coast Cancer Registry, 1825 Bell St., Suite 102, Sacramento, CA 95825 | 916.779.0300; Fax: 916.564.9300

Counties: San Luis Obispo, Santa Barbara, and Ventura

Region 5: Desert Sierra Cancer Surveillance Program, 11306 Mountain View Ave., Suite B100, Loma Linda, CA 92354 | 909.558.6174; Fax: 909.558.6178

Counties: Inyo, Mono, Riverside, and San Bernardino

Region 6: Cancer Registry of Northern California, 25 Jan Court, Suite 130, Chico, CA 95928 | 530.345.2483; Fax: 530.345.3214

Counties: Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Napa, Plumas, Shasta, Siskiyou, Sonoma, Tehama, and Trinity

Region 7: San Diego and Imperial Cancer Registry, 1825 Bell St., Suite 102, Sacramento, CA 95825 | 916.779.0300; Fax: 916.564.9300

Counties: Imperial and San Diego

Region 9: Cancer Surveillance Program – University of Southern California, Soto Street Building, Suite 305, 2001 North Soto St., MC 9238, Los Angeles, CA 90089-9238 | 323.442.2300; Fax: 323.442.2301

County: Los Angeles

Region 10: Orange County Cancer Registry, 1825 Bell St., Suite 102, Sacramento, CA 95825 | 916.779.0300; Fax: 916.564.9300

County: Orange

For more information:

The American Cancer Society publishes eight national *Facts & Figures* publications, which present current trends in cancer occurrence and survival, as well as information on symptoms, prevention, early detection, and treatment.

Visit cancer.org/statistics to download a free PDF version of any of these *Facts & Figures* publications:

- *Cancer Facts & Figures 2016*
- *Cancer Prevention & Early Detection Facts & Figures 2015-2016*
- *Breast Cancer Facts & Figures 2015-2016*
- *Colorectal Cancer Facts & Figures 2014-2016*
- *Cancer Facts & Figures for African Americans 2016-2017*
- *Cancer Facts & Figures for Hispanics/Latinos 2015-2017*
- *Cancer Treatment & Survivorship Facts & Figures 2016-2017*
- *Global Cancer Facts & Figures 3rd Edition*

NEW American Cancer Society Cancer Statistics Center

The Society's Cancer Statistics Center website (cancerstatisticscenter.cancer.org) is a comprehensive interactive resource for learning about the cancer burden in the US. The website provides detailed statistics on a range of topics, including the current year's estimated numbers of new cancer cases and deaths, current cancer incidence, mortality, survival rates and trends, and state-level risk factor and screening metrics.

The website offers a new way to explore the annual *Cancer Facts & Figures* report, which the Society has been producing since 1951. For the first time, the website merges data from *Cancer Statistics*, an annual paper by Society researchers that is published in the American Cancer Society journal *CA: A Cancer Journal for Clinicians*. The Cancer Statistics Center website promotes cancer prevention and control by providing precise, accurate, and timely information to cancer control advocates, journalists, government and private public health agencies, as well as policy makers, patients, survivors, and the general public.

California Cancer Registry Tools and Reports

The California Cancer Registry of the California Department of Public Health provides California cancer data used by health researchers, program planners, and public health advocates.

Visit the California Cancer Registry website at ccrcal.org for the following resources:

- California Cancer Registry's *Cancer in California, 1988-2011*
- Annual Statistical Tables by Cancer Site, 1988-2012
- Data & Mapping Tool (generate customized maps and tables of California cancer incidence or mortality rates)

Regions & Counties



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510.893.7900

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San Diego, CA 92108
619.299.4200

Greater Bay Area/Redwood Empire
601 Montgomery St., Suite 650
San Francisco, CA 94111
415.394.7100

Great Valley
1545 River Park Drive, Suite 100
Sacramento, CA 95815
916.446.7933

Los Angeles
3333 Wilshire Blvd., Suite 900
Los Angeles, CA 90010-1110
213.386.7660

Orange County
1940 E. Deere Ave., Suite 100
Santa Ana, CA 92705
949.261.9446

Silicon Coastal
747 Camden Ave., Suite B
Campbell, CA 95008
408.871.1062



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