

Cancer Trends Progress Report

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Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, February 2018, <http://progressreport.cancer.gov>.

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Online Summary of Trends in US Cancer Control Measures

The Cancer Trends Progress Report, continually updated since its first issue in 2001, summarizes our nation's advances against cancer in relation to [Healthy People](#) targets set forth by the Department of Health and Human Services. The report, intended for policy makers, researchers, and public health professionals, includes key measures of progress along the cancer control continuum and uses national trend data to illustrate where improvements have been made.

Read our [Introduction](#) and [Director's Message](#) to learn more about the report.

Home

Prevention

Tobacco, physical activity, diet, sun, environment, HPV immunization

Early Detection

Breast, cervical, colorectal, lung, prostate cancer screening

Diagnosis

Incidence, Stage at diagnosis

Treatment

Trends in cancer treatment

Life After Cancer

Financial burden of cancer care, Cancer survivorship

End of Life

Mortality, Person-years of life lost

The report, available only online, can be printed in part or in its entirety. Portions of the report are updated annually, while other sections are updated as new data become available. The full report is updated every year.

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About the Report

This section of the report provides an overview of the Cancer Trends Progress Report, a message from NCI's Director of its Division of Cancer Control and Population Sciences, the methodology used for characterizing trends, frequently asked questions and answers, acknowledgements, and a downloadable PDF fact sheet.

- [Introduction](#)
- [Director's Message](#)
- [Methodology for Characterizing Trends](#)

- [Frequently Asked Questions](#)
- [Acknowledgements](#)
- [Fact Sheet \(PDF\)](#)

Printable Version of Report

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Introduction

The nation's investment in cancer research is making a difference. The rate of death from cancer continues to decline among both men and women, among all major racial and ethnic groups, and for the most common types of cancer, including lung, colon, breast, and prostate cancers. The death rate from all cancers combined continues to decline, as it has since the early 1990s. Many people who have had cancer live longer and enjoy a better quality of life than was possible years ago. This steady improvement in survival reflects progress in diagnosing certain cancers at an earlier stage, improvements in treatment, and the results of public health initiatives encouraging preventative measures and screening.

Still, cancer remains a major public health problem that profoundly affects the more than 1.6 million people diagnosed each year, as well as their families and friends.

- Cancer remains the second most common cause of death in the United States, exceeded only by heart disease, accounting for nearly one in every four deaths.
- The incidence of some cancers, including kidney, thyroid, pancreas, liver, uterus, melanoma of the skin, myeloma (cancer of plasma cells), leukemia, testis and oral cavity and pharynx, is rising.
- The burden of some types of cancer weighs more heavily on some groups than on others. The rates of both new cases and deaths from cancer vary by socioeconomic status, sex, and racial and ethnic group.
- The economic burden of cancer also is taking its toll. As the U.S. population ages and newer technologies and treatments become available, national expenditures for cancer continue to rise and could potentially exceed overall medical care expenditures combined.

Why a Progress Report Is Needed

Since the signing of the National Cancer Act in 1971, our country has vigorously fought the devastating effects of cancer. Now it is time to see how far we have come. The *Cancer Trends Progress Report* is a series of reports that describe the nation's progress against cancer through research and related efforts. The report is based on the most recent data at the time of analysis from the National Cancer Institute, the Centers for Disease Control and Prevention, other federal agencies, professional groups, and cancer researchers.

The *Cancer Trends Progress Report* was designed to help the nation review past efforts and plan future ones. The public can use the report to better understand the nature and results of strategies to fight cancer. Researchers, clinicians, and public health providers can focus on the gaps and opportunities identified in the report, paving the way for future progress against cancer. Policymakers can use the report to evaluate our progress relative to our investment in cancer research discovery, program development, and service delivery.

What's in the Report

The *Cancer Trends Progress Report* includes key measures of progress along the cancer control continuum.

- **Prevention.** The measures in this section cover behaviors that can help people prevent cancer, the most important of which is avoiding tobacco use and secondhand smoke exposure. This section also addresses physical activity, dietary choices and alcohol consumption, and exposure to sun and chemicals in the environment.
- **Early Detection.** Screening tests provide ways to find cancers early, when there is the best chance for cure. This section describes the extent to which people are following recommended screening guidelines to detect breast, cervical, colorectal, lung and prostate cancers.
- **Diagnosis.** We can learn much about our progress against cancer by looking at the rates of new cancer cases (incidence) and cancers diagnosed at late stages. This section reviews both these areas.
- **Treatment.** This section describes common treatment options and measures the rates at which people are undergoing those treatments. It also describes new treatment options emerging from ongoing research and monitoring activities.
- **Life After Cancer.** This section addresses trends in the proportion of cancer patients who are alive 5 years after their diagnosis, the costs of cancer care, and the health behaviors among survivors.
- **End of Life.** This section includes the rate of deaths (mortality) from cancer and the estimated number of years of life lost (person-years of life lost) due to cancer.

Where possible, the *Cancer Trends Progress Report* shows changes in these data over time (trends). This report shows whether the trends are "rising", "falling", or "stable" using standard definitions and tests of the statistical significance of the trends (see [Methodology for Categorizing Trends](#)). For some measures, differences in the cancer burden among various U.S. racial and ethnic groups, income groups, and groups by level of educational attainment, are also presented.

Most of the measures for age-adjusted cancer death rates in this report are identical to those presented in Healthy People 2020, a comprehensive set of 10-year health objectives for the nation sponsored by the U.S. Department of Health and Human Services. This enabled us to show the nation's progress relative to cancer-related targets for Healthy People 2020.

How Data Were Selected

In selecting measures that would be meaningful to readers of this report, we relied largely on long-term national - rather than state or local - data collection efforts. (State and local data are available online at [State Cancer Profiles](#)). The report includes more measures for prevention than for other segments of the continuum, because preventive measures hold so much potential in positively impacting national progress to reduce the burden of cancer. A substantial proportion of cancers could be prevented by behavioral choices, making prevention a key focus of the report.

The data in the *Cancer Trends Progress Report* come from a variety of systems and surveys with different collection techniques and reporting times, so time periods may vary. The starting point or baseline year against which to measure how well the nation is progressing toward the Healthy People 2020 targets depends on the data available. For example, data for most Diagnosis, Life After Cancer, and End of Life measures are available starting in 1975, while data for most Prevention, Early Detection, and Treatment measures are available beginning in the late 1980s or early 1990s.

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Director's Message

One of the most important responsibilities of the National Cancer Institute is communicating our nation's progress against cancer to the public. The *Cancer Trends Progress Report* is a classic exemplar of fulfilling that part of our mission. An online summary of trends in US cancer control measures, this web-based report provides up-to-date information on a range of topics across the cancer control continuum—from disease prevention to cancer death or survivorship—and data to help us track the successful implementation of research-based methods of early detection and risk reduction into practice.

The *Cancer Trends Progress Report* draws on data from numerous federal departments and agencies, including the Environmental Protection Agency, the Department of Agriculture, and several offices and agencies within the Department of Health and Human Services, including the Agency for Toxic Substances and Disease Registry, the Centers for Disease Control and Prevention, the Office of Disease Prevention and Health Promotion, the Substance Abuse and Mental Health Administration, and the National Institute on Alcohol Abuse and Alcoholism. This report is developed with consultation from federal partners, consumer advocates, non-profits, and others.

As the report details, the nation is making progress toward major cancer-related targets. The rate of death from all cancers combined continues to decline among both men and women, among all major racial and ethnic groups, and for the most common types of cancer, including colon, lung, female breast, and prostate cancers.

This steady improvement in mortality is partly reflected in progress in diagnosing certain cancers at an earlier stage through increased screening. Along with early detection for breast, cervical, and colorectal cancers, this report now also includes screening rates for lung and prostate cancers. We will continue to monitor any changes in these rates as well as their status according to current screening recommendations from the US Preventive Services Task Force (USPSTF). Improved treatment options have contributed to increased cancer survival. On our page for ovarian cancer treatment, you can see how a higher rate of patients are receiving lifesaving chemotherapy. The *Cancer Trends Progress Report* also has trends related to risk factors and healthy behaviors. For example, the rate of secondhand smoke exposure has decreased significantly as the proportion of smoke-free homes and persons covered by indoor worksite policies prohibiting smoking has risen since the early 1990s. As for exercise, the percentage of adults reporting no physical activity in their leisure time has decreased.

Despite these improvements, the nation is losing ground in other critical areas that demand attention. A substantial proportion of cancers could be prevented through changes in behavior, making prevention a key focus of the report. Up to one-third of cancer cases in the United States are related to excess weight or obesity, physical inactivity, and/or poor nutrition, and thus could be avoided. Cancers caused by cigarette smoking and heavy use of alcohol are largely preventable. Certain cancers related to infectious agents, such as oncogenic types of the human papillomavirus (HPV), the hepatitis B and C viruses, and the human immunodeficiency virus, could be prevented through behavioral changes, the use of protective vaccinations, or antiviral treatments. For example, HPV vaccines prevent persistent infection by the most common types of HPV that cause cancer. Even so, not enough children in the United States are being properly vaccinated against HPV. Only 55 percent of girls and 44 percent of boys aged 13-17 years received the recommended two-dose HPV vaccine series in 2016.

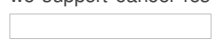
The percentage of adults who are at a healthy weight decreased, and the percentage of adults who are overweight or obese increased. Nearly 40 percent of adults aged 20 years and older were obese in 2016 (an increase from 23 percent in 1991), 32 percent were overweight, and only 27 percent were at a healthy weight.

Avoiding carcinogens is crucial to reducing the risk of cancer. This report also tracks exposure to cancer-causing agents that exist as pollutants in our air, food, water, and soil, including arsenic, benzene, cadmium, nitrate, and radon. Homes at risk for radon exposure, the second-leading cause of lung cancer, have increasing rates of using a working radon mitigation system.

The combination of an aging population and improvements in cancer screening and treatment means more Americans will be cancer survivors in the coming years. As the number of cancer survivors grows and expected survival time increases, the health behaviors of these individuals are becoming an important focus of attention. Adoption or maintenance of healthy lifestyles after a cancer diagnosis has the potential to reduce both cancer- and non-cancer-related morbidity. Unfortunately, too many cancer survivors still smoke cigarettes. This population could benefit from increased access to resources that will help them quit smoking and remain tobacco-free.

Finally, the economic burden of cancer is considerable and important to monitor. As the US population ages and newer technologies and treatments become available, national expenditures for cancer will continue to rise. National and state cancer control strategies should be informed by evidence concerning economic burden and statistical models of the impact of interventions.

Researchers and cancer control professionals can use the *Cancer Trends Progress Report* to elicit research ideas and set priorities for cancer control program planning to advance cancer control progress. We at NCI, along with our partners in this initiative, hope that you will find this report to be a valuable reference tool and a stimulus for action. We must not forget that the numbers in this report reflect the lives and struggles of millions of our fellow citizens. NCI remains committed to advancing scientific progress and facilitating its application on behalf of each of them. This report reflects our overarching mission: we support cancer research to help all people live longer, healthier lives.

 Robert Croyle, Ph.D.
Director, Division of Cancer Control and Population Sciences

National Cancer Institute

Methodology for Characterizing Trends

In order to obtain a consistent characterization of population trends in factors related to the prevention, early detection, or treatment of cancer, the [joinpoint statistical methodology](#) was used in this report. This methodology characterizes a trend using joined linear segments on a logarithmic scale; the point where two segments meet is called a "joinpoint." The methodology is used to characterize trends in cancer incidence and mortality rates (e.g., in the [SEER Cancer Statistics Review](#)).

The Joinpoint software uses statistical criteria to determine:

- The fewest number of segments necessary to characterize a trend
- Where the segments begin and end
- The annual percent change (APC) for each segment. (A linear trend on a log scale implies a constant annual percent change.)

In addition, a 95-percent confidence interval around the APC was used to determine if the APC for each segment differed significantly from zero. Whenever possible, weighted regression lines (utilizing standard errors) were calculated using the Joinpoint software. Using a log response variable, the weight (motivated by the delta method) equals the square of the response variable divided by the square of the standard error. If the standard errors were unavailable, an unweighted regression was used.

Using the results of these analyses, we characterize trends in this report with respect to both their public health importance and statistical significance. If a trend was:

- Changing less than or equal to 0.5% per year ($-0.5 \leq \text{APC} \leq 0.5$), and the APC was not statistically significant, we characterized it as **STABLE**
- Changing more than 0.5% per year ($\text{APC} < -0.5$ or $\text{APC} > 0.5$), and the APC was not statistically significant, we characterized it as **NON-SIGNIFICANT CHANGE**
- Changing with a statistically significant $\text{APC} > 0$, we characterized it as **RISING**
- Changing with a statistically significant $\text{APC} < 0$, we characterized it as **FALLING**

While these categorizations are somewhat arbitrary, they do provide a consistent method to characterize the trends across disparate measures. However, statistical significance in addition to the absolute value of change for incidence and mortality trends were used to ensure consistency with all major publications on national cancer trends.

To avoid statistical anomalies, a joinpoint segment must contain at least 3 observed data points, and no joinpoint segment can begin or end closer than 3 data points from the beginning or end of the data series. Due to these constraints on the joinpoint models, data series with a smaller set of data points are limited as to where a joinpoint can occur and how many joinpoints can be fit into the series. For example, if there are 4 data points or fewer, only 1 segment and no joinpoints can be fit to the series. For 5 to 7 data points, up to 2 segments and 1 joinpoint can be fit to the series. For 8 to 10 data points, up to 3 segments and 2 joinpoints can be fit. To avoid some of these limitations and allow a degree of flexibility as to where a joinpoint can be placed in a series, we established a set of guidelines on what method to use for calculating the APC of a data series based on the number of estimates that make up the data series:

- 2-6 data points: because of the limited number of data points, Joinpoint was not used. Instead, an APC was calculated between each consecutive data point, and the statistical significance of the APC was calculated using a two-sample test based on the standard errors derived from the survey/data source.
- 7-11 data points: a joinpoint analysis with a maximum of 1 joinpoint.
- 12-16 data points: a joinpoint analysis with a maximum of 2 joinpoints.
- 17-21 data points: a joinpoint analysis with a maximum of 3 joinpoints.
- 22-26 data points: a joinpoint analysis with a maximum of 4 joinpoints.
- 27 or more data points: a joinpoint analysis with a maximum of 5 joinpoints.

In addition to the annual percent change (APC) estimates, this report also presents the [average annual percent change](#) (AAPC), a measure which uses the underlying joinpoint model to compute a summary measure of the trend over a fixed pre-specified interval. The AAPC is useful for comparing the most recent trend across different groups (e.g., racial groups or gender) when the final joinpoint segments are not directly comparable because they are of different lengths. Regardless of where the joinpoints occur for the different series, the AAPC can be computed over the same fixed interval for all the series (e.g., 2007–2011 to characterize the most recent trend). The AAPC is computed as a weighted average of the APC's from the joinpoint model, with the weights equal to the length of the APC intervals included. When there are seven or fewer data points, the AAPC was computed based on the connected data points, rather than an underlying joinpoint model. The derivation of the AAPC and its standard error based on a series of connected points is presented in a [technical report](#) from the [Surveillance Research Program](#).

Measures were age-adjusted to the 2000 U.S. standard population using the direct method of standardization (see the tutorial on [Calculating Age-adjusted Rates](#)). Whenever possible, age-adjustment for measures was done using the age-adjustment groups specified for the [Healthy People objective](#) that corresponds to the data series.

Frequently Asked Questions

What is the *Cancer Trends Progress Report*?

The National Cancer Institute's *Cancer Trends Progress Report* is an online report that tracks the nation's progress against cancer across the full cancer continuum - from prevention through the impact of deaths from cancer - and compares that progress to Healthy People 2020 goals set forth by the Department of Health and Human Services.

Why is the report important?

It is the only report of its kind to present - all in one place - the most up-to-date information on trends in the nation's progress against cancer, gathered through a collaborative effort with other key cancer agencies and groups, including the National Cancer Institute, the Centers for Disease Control and Prevention, other federal agencies, professional groups, and cancer researchers.

What is the main message of the report?

The nation has met or is making progress toward a number of major cancer-related Healthy People 2020 targets. However, we are losing ground in other important areas that demand attention. For more information, visit Report Highlights.

What is in the report?

The report includes key measures in the areas of prevention, diagnosis, screening, treatment, end of life, and life after cancer. Progress is tracked over time and determined by the availability of the data. This progress is measured against certain cancer-related targets of [Healthy People 2020](#).

The body of the report includes standardized information for each measure, including background, definition of measure, data source, Healthy People targets, trends and most recent estimates, related cancers, and additional references for each topic area. This information is summarized in chart form in the Summary Tables section of the report. Special color-coded graphics in this section show whether the trend is going in the desired direction and how the nation's progress compares to the Healthy People targets.

How is the information displayed and explained?

Most of the trend graphs were made using a statistical method ([Joinpoint regression analysis](#)) that illustrates real changes in direction instead of merely connecting one dot to another. The report shows whether trends are rising or falling, and it explains why changes might have occurred. Where data are available, differences in the cancer burden are also illustrated by race and ethnicity, educational attainment, and socioeconomic status. A summary of trends is summarized in bullet form in the [Highlights](#) section of the report. Data are downloadable as Excel spreadsheets, and graphs within the report are downloadable as JPEG files which can be used in PowerPoint slides.

Where did the data come from?

The data in the *Cancer Trends Progress Report* come from a variety of systems and surveys with different collection techniques and reporting times, so time periods may vary. Data were sponsored by the National Cancer Institute, the Centers for Disease Control and Prevention, other federal agencies, professional groups, and cancer researchers.

How were data selected?

Measures were selected based on scientific evidence and the availability of periodic or longitudinal national - rather than state or local - data collection and analysis efforts. Criteria for selecting measures included the relevance of what was being measured (e.g., impact on cancer, national policy implications); the scientific rigor underlying the measure (e.g., validity, reliability, and explicitness of evidence base); the feasibility of using the measure (e.g., availability of long-term data); and usability by target audiences (e.g., ease of understanding and applicability). The report includes more measures for prevention because more data on trends are available in that area. Where possible, 1990 was used as the starting point or baseline against which to measure how well the nation is progressing toward the [Healthy People 2020](#) targets.

What data are not in the report?

Not all measures for all relevant areas of cancer progress could be included in this report. In some cases, trend information on a national level is not available. In other cases, there is no reliable information at this time. Although dramatic advances have been made in the treatment of many cancers and the report cites progress made in the treatment of breast and colorectal cancers, a national data system for tracking and assessing progress over time is not yet in place. Some measures such as quality of life, while important in assessing the cancer burden, were not included because there simply is no consensus on how best to track those measures in a population at this time. Future editions of the report will include these as well as population-level measures like the one in this edition describing state laws on smoke-free air.

Where can I find state- and county-level cancer data?

This report cites data at the national level. For cancer data at the state or county level or behavioral risk factor data at the state level, go to NCI's [State Cancer Profiles Web site](#).

Who can use the report?

The report can be used to better understand the nature of cancer and the results of work being done to fight it. Researchers, clinicians, and public health providers can focus on the gaps and opportunities identified, and work to make future progress against cancer. Policymakers can use the report to evaluate our progress relative to our investment in cancer research discovery, program development, and service delivery.

How often will the report be updated?

The online report is updated annually, where data are available. Page notes will display the date of last update.

What is the rationale for the report?

The *Cancer Trends Progress Report* resulted from recommendations in the late 1990s by NCI's Cancer Control Program Review Group (CCPRG) and Surveillance Implementation Group (SIG) to develop a national progress report on the cancer burden. The CCPRG was convened in 1996 by the NCI Director and the NCI Board of Scientific Advisors to evaluate the full scope of the institute's cancer control research program. The SIG was established by the NCI Director to provide advice and recommendations for expanding and enhancing NCI's cancer surveillance research program.

How can I get a copy of the report?

The *Cancer Trends Progress Report* is available online only however portions of the report or the entire report may be downloaded and printed using the 'Generate Custom Report' feature. Reports from years 2001, 2003, 2005, 2007, 2009/ 2010, and 2011/ 2012 are [archived online](#).

Where can more information on cancer be found?

- <https://www.cancer.gov>
- 1-800-4-CANCER (1-800-422-6237)

Where should I direct my questions or comments about the *Cancer Trends Progress Report*?

Send questions to [Progress Report Help](#).

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- Agency for Toxic Substances and Disease Registry
- National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention
- National Center for Environmental Health, Centers for Disease Control and Prevention
- National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention
- National Center for Health Statistics, Centers for Disease Control and Prevention
- National Institute on Alcohol Abuse and Alcoholism
- Office of Disease Prevention and Health Promotion
- Substance Abuse and Mental Health Services Administration
- U.S. Census Bureau
- U.S. Department of Agriculture
- U.S. Environmental Protection Agency

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Data Sources

Americans for Nonsmokers' Rights Foundation(<http://www.no-smoke.org/>)

Americans for Nonsmokers' Rights is the leading national lobbying organization (501 (c) 4), dedicated to nonsmokers' rights, taking on the tobacco industry at all levels of government, protecting nonsmokers from exposure to secondhand smoke, and preventing tobacco addiction among youth. ANR pursues an action-oriented program of policy and legislation.

Measures: Secondhand smoke.

Berkeley Mortality Database(<http://www.demog.berkeley.edu>)

This database contains life tables for national populations and, whenever available, the raw data used in constructing these tables. The raw data generally consist of birth and death counts from vital statistics, plus population counts from periodic censuses.

Measures: Financial burden of cancer care.

Continuing Survey of Food Intakes by Individuals(<http://www.ars.usda.gov/Services/docs.htm?docid=14392>)

A part of the National Nutrition Monitoring System which was the first nationwide dietary intake survey designed to be conducted annually.

Measures: Fruit and vegetable consumption, Red meat consumption, Fat consumption.

Federal Trade Commission and Staff Reports

The Federal Trade Commission provides annual reports on sales, advertising, and promotion for both cigarettes and smokeless tobacco.

Measures: Tobacco company marketing expenditures.

Morbidity and Mortality Weekly Report(<http://www.cdc.gov/mmwr/>)

Often called "the voice of CDC," the MMWR series is the agency's primary vehicle for scientific publication of timely, reliable, authoritative, accurate, objective, and useful public health information and recommendations.

Measures: Medicaid coverage of tobacco dependence treatments.

National Center for Health Statistics (NCHS) Life-Tables

The life tables in this report are current life tables for the United States based on age-specific death rates.

Measures: Person-years of life lost (PYLL).

National Health and Nutrition Examination Survey

The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations.

Measures: Fruit and vegetable consumption, Red meat consumption, Fat consumption, Weight, Secondhand smoke.

National Health Interview Survey Cancer Control Topical Module

The National Health Interview Survey (NHIS) is an annual nationwide survey of 36,000 households conducted by the National Center for Health Statistics and administered by the U.S. Census Bureau.

Measures: Adult smoking, Quitting smoking, Physical activity, Sun protection, Breast cancer screening, Cervical cancer screening, Colorectal cancer screening, Lung cancer screening, Prostate cancer screening, Cancer survivors and smoking, Cancer survivors and physical activity, Cancer survivors and obesity.

National Institute on Alcohol Abuse and Alcoholism Surveillance Reports

The Division of Epidemiology and Prevention Research within the National Institute on Alcohol Abuse and Alcoholism prepares annual reports highlighting per capita alcohol consumption in the U.S.

Measures: Alcohol consumption.

National Report on Human Exposure to Environmental Chemicals

The National Report on Human Exposure to Environmental Chemicals (National Exposure Report) is a series of ongoing assessments of the U.S. population's exposure to environmental chemicals.

Measures: Arsenic, Benzene, Cadmium, Nitrate.

National Survey on Drug Use and Health

The National Survey on Drug Use and Health (NSDUH), formerly called the National Household Survey on Drug Abuse (NHSDA), is an annual survey sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA). The survey is the primary source of information on the use of illicit drugs, alcohol, and tobacco in the civilian, non-institutionalized population of the United States aged 12 years old or older.

Measures: Age at smoking initiation.

National Vital Statistics System(<http://www.cdc.gov/nchs/nvss.htm>)

These data are provided through contracts between NCHS and vital registration systems operated in the various jurisdictions legally responsible for the registration of vital events – births, deaths, marriages, divorces, and fetal deaths.

Measures: Financial burden of cancer care.

Surveillance, Epidemiology, and End Results (SEER)

The Surveillance, Epidemiology and End Results (SEER) Program collects information on incidence, prevalence and survival from specific geographic areas representing 26 percent of the US population and compile reports on all of these plus cancer mortality for the entire country.

Measures: Incidence, Stage at diagnosis, Breast cancer treatment, Kidney cancer treatment, Survival.

SEER-Medicare Linked Database

The SEER-Medicare data reflect the linkage of two large population-based sources of data that provide detailed information about Medicare beneficiaries with cancer. The data come from the SEER program of cancer registries that collect clinical, demographic and cause of death information for persons with cancer and the Medicare claims for covered health care services from the time of a person's Medicare eligibility until death.

Measures: Financial burden of cancer care.

SEER Patterns of Care

The SEER Patterns of Care (POC) studies provide important information on cancer treatments as documented in hospital records.

Measures: Bladder cancer treatment, Breast cancer treatment, Colorectal cancer treatment, Lung cancer treatment, Ovarian cancer treatment, Prostate cancer treatment.

Tobacco Use Supplement to the Current Population Survey(<http://appliedresearch.cancer.gov/tus-cps/>)

The Tobacco Use Supplement to the Current Population Survey (TUS-CPS) is an NCI-sponsored survey of tobacco use that has been administered as part of the U.S. Census Bureau's Current Population Survey. The TUS-CPS is a key source of national and state level data on smoking and other tobacco use in

the U.S. household population. These data can be used by researchers to monitor progress in the control of tobacco use, conduct tobacco-related research, and evaluate tobacco control programs.

Measures: Clinician's advice to quit smoking, Secondhand smoke.

U.S. Census Bureau Population Projections

The population projections associated with this release were produced by the Population Division as an interim product to meet the immediate needs of our user community for national projections that incorporate the results of Census 2000. The population projections associated with this release were produced by the Population Division as an interim product to meet the immediate needs of our user community for national projections that incorporate the results of Census 2000.

Measures: Financial burden of cancer care.

U.S. EPA. Report on the Environment (ROE).

EPA's Report on the Environment (ROE) shows how the condition of the U.S. environment and human health is changing over time. The ROE presents the best available indicators of national trends in five theme areas: Air, Water, Land, Human Exposure and Health, and Ecological Condition.

Measures:Radon.

Youth Risk Behavior Surveillance System(<http://www.cdc.gov/healthyyouth/data/yrbs/index.htm>)

The Youth Risk Behavior Surveillance System (YRBSS) monitors priority health-risk behaviors and the prevalence of obesity and asthma among youth and young adults.

Measures: Youth smoking.

Highlights

Last Updated:

February 2018

Report highlights are categorized into one of the three following groups: Making Progress, Areas of Concern, and Other Trends to Consider.

Making Progress

The nation is making progress toward major cancer-related targets for Healthy People 2020, a comprehensive set of 10-year health objectives sponsored by the US Department of Health and Human Services.

Prevention

- Cigarette smoking prevalence among adults declined slowly between 1991 and 2011 and then more rapidly between 2011 and 2016.
- Smoking prevalence among adolescents has declined since the late 1990s, with 10.8% in 2015 having smoked cigarettes in the past month. In contrast, any use of e-cigarettes in the past month was 24.1% in 2015.
- Initiation of the use of cigarettes among children and adolescents aged 12-17 started falling more rapidly in 2010, reaching the Healthy People 2020 goal of 4.3% in 2013. As of 2014, it is 3.8%.
- The percentage of success in recent smoking cessation among adult smokers has risen since 2003. In 2016, 7.6% became former smokers who had quit 6-12 months ago, approaching the Healthy People 2020 goal of 8%.
- The rate of secondhand smoke exposure has decreased significantly for all population subgroups since the early 1990s. Also, the proportion of adults reporting a smoke-free home continued to increase in 2015, approaching the Healthy People 2020 target of 87%.
- Adult sun protective behaviors (e.g., using sunscreen, wearing protective clothing, seeking shade) rose from 2005 to 2010 and have been stable since then.
- Female teen indoor tanning has decreased significantly among high school students since 2013. Many states have enacted policies to control the indoor tanning industry, and some are restricting minors' access to indoor tanning facilities. The most recent estimate (2013-2015) of the percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year is 10.6%, dropping below the Healthy People 2020 target of 14%.
- Radon control is a new measure added to this report. The percentage of homes in high radon areas with installed radon mitigation systems has been increasing.

Early Detection

- Colorectal test use rates for adults (home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years) aged 50-75 years increased from 58.8% in 2013 to 62.9% in 2015.

Diagnosis

- Lung cancer incidence rates in men have continued to fall since 1982 and, for women, since 2006.
- Recent trends show a decline in the incidence of uterine cervical, Hodgkin lymphoma, esophageal squamous cell, larynx, stomach, and ovarian cancers.

Treatment

- The proportion of patients aged 20 years and older with localized/regional kidney cancer receiving partial nephrectomy has increased from 2000-2014 while the proportion receiving complete nephrectomy has decreased. Partial nephrectomy is now the preferred treatment for patients with early-stage kidney cancer; it may prevent serious side effects like chronic kidney disease.
- The rate of ovarian cancer patients receiving lifesaving chemotherapy has been increasing in the most recent data years (2002-2011). This includes patients in all stages, I through IV.

Life after Cancer

- The length of cancer survival has increased slowly for all cancers combined. Five-year relative survival for all cancer sites is 69% and is approaching the Healthy People 2020 goal of 71.7%. Improving survival reflects real changes due to improved early detection and treatment, which can extend life. However, the artefactual lengthening of survival associated with detecting cancers earlier, resulting in people living longer with a diagnosis of cancer without necessarily extending life, will also contribute to improved survival.
- The proportion of adult cancer survivors who are current smokers continues to decline, with the greatest improvement seen among survivors aged 18-44.
- The proportion of adult cancer survivors who report no physical activity in their leisure time continues to decline for both men and women.

End of Life

- The rate of death from cancer continues to decline among both men and women in all major racial and ethnic groups.
- Mortality for the most common types of cancer (colorectal, female breast, lung, and prostate) continues to fall. For colorectal and lung cancer, these declines are evident among both sexes and all major racial and ethnic groups except American Indians and Alaska Natives. For breast cancer, recent declines are evident except among Hispanics. For prostate cancer, the declines are evident among all the major racial and ethnic groups. Changes in trends among smaller subpopulation groups are more difficult to determine.
- Death rates from cancers of the stomach, ovary, and larynx and non-Hodgkin and Hodgkin lymphoma are all falling at greater than 1% per year. Death rates from leukemia and cancers of the kidney and renal pelvis and esophagus are also falling, but at rates of less than 1% per year.

Areas of Concern

The nation is losing ground in other important areas that demand attention.

Prevention

- Although the percentage of smokers attempting to quit smoking has been rising each year since 2005 and was 53.4% most recently, it is still far below the Healthy People 2020 goal of 80%. The percentage who successfully quit remains low, at 7.6% in 2016.
- Although progress has been made in reducing exposure to secondhand smoke among all populations, nonsmokers aged 3 and older living below the poverty level and black non-Hispanics are more likely to be living in homes where someone smokes regularly.
- The Surgeon General's Report on E-cigarette Use Among Youth and Young Adults, published in 2016, highlights the concern about the growing use of e-cigarettes by young people. E-cigarette aerosols can contain nicotine, ultrafine particles, and other harmful and potentially harmful constituents. In 2015, the use of e-cigarettes among high school students in the past month exceeded the use of conventional cigarettes.

- As of September 2017, only 11 states provided comprehensive coverage of all nine evidence-based cessation treatments (medications, individual and group counseling) for all Medicaid enrollees.
- Tobacco advertising and promotion are causally related to increased tobacco use. The US Federal Trade Commission reports cigarette and smokeless tobacco advertising and promotion expenditures for the largest cigarette companies and major smokeless tobacco product manufacturers. In 2014, the adjusted combined annual expenditure for cigarette advertising and promotion was \$8.5 billion. In 2014, the five parent companies of the major manufacturers of smokeless tobacco products in the US spent \$600.8 million on advertising and promotion.
- Although 70% of adults reported practicing sun protective behaviors, more than 35% reported having had one or more sunburn in the past 12 months. Reports of sunburn are even higher among subgroups; in 2015, 46% of non-Hispanic white adults and adults ages 18-24 reported at least one sunburn in the past year.
- In 2015, more than 55% of teens reported having been sunburned during the past 12 months. This report will continue to include this relatively new measure and any changes over time.
- Young adults ages 18-24, especially young men, show lower levels of sun-protective behaviors (e.g., using sunscreen, wearing protective clothing, seeking shade) than adults aged 25 and older.
- Excess weight or obesity, physical inactivity, and poor nutrition are preventable conditions that are associated with elevated cancer risk. Despite modest increases over time, only 22% of adults report meeting federal guidelines for aerobic and muscle-strengthening physical activity. In 2016, 26.1% of men met the federal guidelines for aerobic and muscle-strengthening physical activity (which exceeded the Healthy People goal 20.1%), but only 18.7% of women met the guidelines.
- Alcohol consumption, which can increase the risk of some cancers, has risen slightly since the mid-1990s.
- Most cervical cancer can be prevented through HPV vaccination and effective screening. Although this report shows the HPV vaccination trend is rising for both girls and boys aged 13-17, these levels are still low. In 2016, 55% of girls and 43.6% of boys, aged 13-17, received 2+ doses of the HPV vaccine.

Early Detection

- More progress is needed to reach Healthy People 2020 targets for cancer screening tests that can identify breast and colorectal cancer at early stages. In 2015, the breast cancer screening rate was 71.6% (below the Healthy People 2020 target of 81.1%), and the rate of colorectal cancer screening was 62.9% (below the target of 70.5%).
- In 2012, the US Preventive Services Task Force recommended Pap testing every 3 years; women aged 30 and older who want to test less often were also offered the alternative of Pap/HPV co-testing every 5 years. While we have been tracking triennial Pap testing for some time, this report added PAP/HPV co-testing every 5 years. In 2015, 81% of women reported being compliant with at least one of the two screening regimens. Trends in triennial Pap testing have been falling slightly since 2000, and this decline has not been compensated for by the addition of women having the newer PAP/HPV co-testing regimen. The rate of cervical cancer screening was 78.7% (below the target of 93.0%).
- Early detection of lung cancer is a new section added to this report. In 2015, only 5.5% of adults aged 55-80 years who meet the US Preventive Services Task Force criteria for lung cancer screening had a CT scan to check for lung cancer within the past year.

Diagnosis

- The incidence of some cancers, including cancer of the thyroid, liver and intrahepatic bile duct, melanoma, myeloma, and leukemia, has been increasing at more than 1% per year, whereas the incidence of other cancers, including testicular, oral cancers, and adenocarcinoma of the esophagus, are increasing at less than 1% per year. For some cancers, e.g., thyroid cancer, the increase is associated with the earlier detection of thyroid tumors, some of which may prove to be relatively indolent.
- Breast cancer incidence rates among women have been slowly increasing since 2004.

Life after Cancer

- Estimates of national expenditures for cancer care in 2017 for the top five cancer sites were \$19.3, \$16.3, \$14.8, \$14.3, and \$13.9 billion for female breast, colorectal, prostate, lymphoma, and lung, respectively. Even for patients with health insurance, out-of-pocket costs for cancer care often pose a significant financial burden. As the US population ages and newer technologies and treatments become available, national expenditures for cancer will continue to rise, and cancer costs may increase at a faster rate than overall medical expenditures.
- Unexplained cancer-related disparities remain among population subgroups. For example, although there have been improvements in overall 5-year survival for both black and white women, a disparity of almost 10 percentage points has persisted. The 5-year relative survival for women diagnosed with cancer in 2008 was 80.9% for blacks and 89.2% for whites.
- A growing proportion of cancer survivors aged 20 and older are obese. Efforts are needed to help cancer survivors adopt or maintain a healthy lifestyle after cancer, which has the potential to reduce both cancer- and non-cancer-related morbidity.
- The proportion of adult cancer survivors who are obese has been rising and is now 31%. The proportion of obese cancer survivors is now greater than the Healthy people 2020 goal of 30.5%, and is slightly above the rate in the rate of obesity in the overall adult population.

End of Life

- Recent trends in the death rates for thyroid, liver, brain, and corpus and uterine cancers have been increasing.

Other Trends to Consider

While this report provides trends in cancer rates, and factors that influence cancer rates, for some trends it is not possible to characterize the direction of the trend as progress or an area of concern. For example, the recent US Preventive Services Task Force recommendation for prostate cancer screening supports individualized decision making about screening for prostate cancer after discussion with a clinician, so that each man has an opportunity to understand the potential benefits and harms of screening and to incorporate his values and preferences into his decision. Thus, although we report trends in prostate cancer screening, it is not possible to characterize any direction as positive or negative. In this section, we note several of these types of trends.

Early Detection

- Early detection of prostate cancer is a new section added to this report. In 2015, 35.7% of men aged 50 and older had a prostate-specific antigen (PSA) test within the past year.

Diagnosis

- Since the mid-1980s, colorectal cancer incidence rates have decreased steadily, with slight exceptions, and reached the Healthy People 2020 target in 2011. The declines in colorectal cancer incidence can be attributed to increased screening, which not only contributes to reduced incidence through the identification and removal of precancerous lesions but also improves the detection of cancer at an earlier stage. Despite the long-term decline in incidence, starting in 2012 age-adjusted rates flattened, due to a rise among younger adults.
- Prostate cancer incidence rates have been declining since 2000, with a large drop in 2012, the same year that the US Preventive Services Task

Force recommended against population-based prostate specific antigen (PSA) screening for prostate cancer.

Trends at a Glance

Last Updated:

February 2018

The Trends-at-a-Glance offers an overview of trend direction measure by measure. Trends noted as stable or non-significant change (NSC) are not changing significantly. The difference between "stable" and "non-significant change" is based on statistical computations described in the [Methodology for Characterizing Trends](#) appendix.

The table below provides a snapshot of recent national trends (as characterized by the Average Annual Percent Change (AAPC)) for measures included in this report. Green indicates that the recent trend is moving in the desired direction. Red indicates that the recent trend is not moving in the desired direction. Purple indicates that the recent trend is moving but it is indeterminate whether the direction is desired or not. There is no background color for trends that are stable or show a non-significant change in direction. The column labeled "Recent trend time period" shows the dates associated with each trend. These dates depend upon the recency of available data.

Click on any measure title in the "Measure" column to read more about the measure. For a more complete summary of the measures, including their progress compared with the Healthy People 2020 target (where one exists), see the [Summary Tables](#) by topic.

Cancer Trends Progress Report - Trends at a Glance

Measure	Desired Direction	Recent Trend	Recent Trend Time Period
<u>Prevention</u>			
<u>Tobacco Use Initiation (Ages 12-17)</u>			
All tobacco products	Falling	Falling	2010-2014
Cigarettes	Falling	Falling	2010-2014
Smokeless tobacco	Falling	Falling	2010-2014
Cigars	Falling	Falling	2010-2014
<u>Youth Tobacco Use</u>			
Cigarettes, Cigars and Smokeless Tobacco	Falling	Falling	2011-2015
Cigarettes	Falling	Falling	2011-2015
Smokeless tobacco	Falling	Stable	2011-2015
Cigars	Falling	Falling	2011-2015
<u>Adult Tobacco Use</u>			
Cigarettes	Falling	Falling	2012-2016
Smokeless Tobacco	Falling	Stable	2012-2016
Cigars	Falling	Non-Significant Change	2010-2016
E-Cigarettes	Falling	Non-Significant Change	2014-2016
<u>Quitting Smoking</u>			
Attempted to quit smoking	Rising	Rising	2012-2016
Successfully quit smoking	Rising	Rising	2012-2016
<u>Clinicians' Advice to Quit Smoking</u>			
Physicians' advice to quit smoking	Rising	Non-Significant Change	2010-2015
Dentists' advice to quit smoking	Rising	Falling	2006-2011
Medicaid Coverage of Tobacco Dependency Treatments	Rising	Rising	2006-2010
<u>Fruit and Vegetable Consumption</u>			
Fruit and Vegetables	Rising	Stable	2009-2014
Fruit	Rising	Stable	2009-2014
Vegetables	Rising	Stable	2009-2014
Red Meat Consumption	Falling	Falling	2009-2014
Fat Consumption (Saturated fat)	Falling	Stable	2009-2014
Alcohol Consumption	Falling	Rising	2011-2015
<u>Physical Activity</u>			
No physical activity in leisure time	Falling	Falling	2012-2016
Meet physical activity guidelines	Rising	Non-Significant Change	2012-2016
<u>Weight</u>			
Healthy Weight	Rising	Falling	2011-2016
Overweight	Falling	Non-Significant Change	2011-2016
Obese	Falling	Rising	2011-2016

<u>Sun-Protective Behavior</u>			
Use sun protective measures	Rising	Stable	2010-2015
Use sunscreen (SPF 15+)	Rising	Rising	2010-2015
Wear protective clothing	Rising	Falling	2010-2015
Seek shade	Rising	Rising	2010-2015
<u>Indoor Tanning</u>			
Adolescents	Falling	Falling	2011-2015
Adults	Falling	Falling	2010-2015
<u>Sunburn</u>			
Secondhand Smoke Exposure	Falling	Falling	2007-2012
Smoke-free Home Rules	Rising	Rising	2010-2015
<u>Smoke-free Workplace Rules and Laws</u>			
Smoke-free workplace	Rising	Non-Significant Change	2010-2015
Indoor air laws for workplaces	Rising	Rising	2012-2016
Indoor air laws for restaurants	Rising	Non-Significant Change	2012-2016
Indoor air laws for bars	Rising	Non-Significant Change	2012-2016
<u>Tobacco Company Marketing Expenditures</u>			
Cigarettes	Falling	Non-Significant Change	2010-2014
Smokeless tobacco	Falling	Non-Significant Change	2010-2014
<u>HPV Immunization (Have received 3+ doses of vaccination)</u>			
Females, Ages 13-15	Rising	Rising	2012-2016
Males, Ages 13-15	Rising	Rising	2012-2016
<u>Arsenic Exposure</u>			
Benzene Exposure	Falling	Non-Significant Change	2001-2006
<u>Cadmium Exposure</u>			
Nitrate Exposure	Falling	Non-Significant Change	2009-2014
<u>Radon</u>			
Radon	Rising	Rising	2009-2013
<u>Early Detection</u>			
<u>Breast Cancer Screening</u>			
Breast Cancer Screening	Rising	Stable	2010-2015
<u>Cervical Cancer Screening</u>			
Cervical Cancer Screening	Rising	Falling	2010-2015
<u>Colorectal Cancer Screening</u>			
Guideline screening	Rising	Non-Significant Change	2010-2015
Home FOBT	<u>Indeterminate</u> ¹	Falling	2010-2015
Sigmoidoscopy/colonoscopy	Rising	Non-Significant Change	2010-2015
<u>Lung Cancer Screening</u>			
Lung Cancer Screening	Rising	Non-Significant Change	2010-2015
<u>Prostate Cancer Screening</u>			
Prostate Cancer Screening	<u>Indeterminate</u> ¹	Falling	2010-2015
<u>Diagnosis</u>			
<u>Incidence</u>			
All cancer sites combined	Falling	Falling	2010-2014
Colon and rectum	Falling	Falling	2010-2014
Lung and bronchus	Falling	Falling	2010-2014
Female breast	<u>Indeterminate</u> ¹	Rising	2010-2014
Prostate	Falling	Falling	2010-2014
Cervix uteri	Falling	Falling	2010-2014
<u>Stage at Diagnosis</u>			
Late stage breast cancer	Falling	Falling	2010-2014
Late stage lung cancer	Falling	Falling	2010-2014
Distant stage colon cancer	Falling	Falling	2010-2014
Distant stage rectum cancer	Falling	Falling	2010-2014
Distant stage cervix cancer	Falling	Rising	2010-2014

Distant stage prostate cancer	Falling	Non-Significant Change	2010-2014
<u>Treatment</u>			
Bladder Cancer Treatment (Intravesical therapy for disease Ta G1-2)	Rising	Non-Significant Change	2003-2009
Breast Cancer Treatment (Breast conserving surgery with radiation)	<u>Indeterminate</u> ¹	Stable	2010-2014
Colorectal Cancer Treatment (Guideline therapy)	Rising	Rising	2005-2010
Kidney Cancer Treatment (Partial nephrectomy)	Rising	Rising	2010-2014
Lung Cancer Treatment (Chemotherapy)	Rising	Stable	2005-2010
<u>Ovarian Cancer Treatment (Chemotherapy)</u>			
Stage I/II Diagnoses	Rising	Rising	2002-2011
Stage III/IV Diagnoses	Rising	Rising	2002-2011
Prostate Cancer Treatment (Hormonal therapy)	<u>Indeterminate</u> ¹	Falling	2002-2008
<u>Life After Cancer</u>			
<u>Survival</u>			
All cancer sites combined	Rising	Rising	2005-2009
Colon and rectum	Rising	Stable	2005-2009
Lung and bronchus	Rising	Rising	2005-2009
Female breast	Rising	Rising	2005-2009
Prostate	Rising	Stable	2005-2009
Cancer Survivors and Smoking	Falling	Falling	2012-2016
Cancer Survivors and Physical Activity	Falling	Falling	2012-2016
Cancer Survivors and Obesity	Falling	Rising	2012-2016
<u>End of Life</u>			
<u>Mortality</u>			
All cancer sites combined	Falling	Falling	2010-2014
Colon and rectum	Falling	Falling	2010-2014
Lung and bronchus	Falling	Falling	2010-2014
Female breast	Falling	Falling	2010-2014
Prostate	Falling	Falling	2010-2014
Cervix uteri	Falling	Falling	2010-2014
Oral cavity and pharynx	Falling	Falling	2010-2014
Melanoma of the skin	Falling	Non-Significant Change	2010-2014

¹ The desired direction of the recent trend is difficult to interpret due to outside factors which may be driving its direction (e.g., early detection driving breast cancer incidence rates upward temporarily, screening rates for older tests such as home FOBT going down as they are replaced by newer technologies such as colonoscopy).

Recent Updates and Archive

On This Page:

- [Recent Updates](#)
- [Revision History](#)
- [Previous Releases](#)

Recent Updates

For each measure in the report, the table below highlights the most recent year of data available for the measure and the date which the measure page in this report was updated. For a summary of corrections that may have been made to the individual measure pages, please see the [Revision History](#).

Recent Updates to the Cancer Trends Progress Report

Measure	Year of Most Recent Estimate	Page Last Updated
<u>Prevention</u>		
Tobacco Use Initiation	2014	February 2018
Youth Tobacco Use	2015	January 2017
Adult Tobacco Use	2016	February 2018
Quitting Smoking	2016	February 2018
Clinicians' Advice to Quit Smoking	2015	February 2018
Medicaid Coverage of Tobacco Dependency Treatments	2016	February 2018
Fruit and Vegetable Consumption	2014	February 2018
Red Meat Consumption	2014	February 2018
Fat Consumption	2014	February 2018
Alcohol Consumption	2015	February 2018
Physical Activity	2016	February 2018
Weight	2016	February 2018
Sun Protective Behavior	2015	January 2017
Indoor tanning	2015	January 2017
Sunburn	2015	January 2017
Secondhand Smoke Exposure	2012	January 2017
Smoke-free Home Rules	2015	February 2018
Smoke-free Workplace Rules and Laws		
Smoke-free Workplace Rules	2015	February 2018
Indoor Air Laws	2016	February 2018
Tobacco Company Marketing Expenditures	2014	February 2018
HPV Immunization	2016	February 2018
Arsenic Exposure	2014	February 2018
Benzene Exposure	2006	November 2015
Cadmium Exposure	2014	February 2018
Nitrate Exposure	2014	February 2018
Radon Exposure	2013	January 2017
<u>Early Detection</u>		
Breast Cancer Screening	2015	January 2017
Cervical Cancer Screening	2015	January 2017
Colorectal Cancer Screening	2015	January 2017
Lung Cancer Screening	2015	February 2018
Prostate Cancer Screening	2015	February 2018
<u>Diagnosis</u>		
Incidence	2014	February 2018
Stage at Diagnosis	2014	February 2018
<u>Treatment</u>		
Bladder Cancer Treatment	2009	March 2015
Breast Cancer Treatment	2014	February 2018

Colorectal Cancer Treatment	2010	March 2015
Kidney Cancer Treatment	2014	February 2018
Lung Cancer Treatment	2010	March 2015
Ovarian Cancer Treatment	2011	January 2017
Prostate Cancer Treatment	2008	March 2015
Life After Cancer		
Financial Burden of Cancer Care	2017	February 2018
Survival	2009	February 2018
Cancer Survivors and Smoking	2016	February 2018
Cancer Survivors and Physical Activity	2016	February 2018
Cancer Survivors and Obesity	2016	February 2018
End of Life		
Mortality	2014	February 2018
Person-Years of Life Lost	2014	February 2018

Revision History

The revision history provides a timeline of when measure pages were updated as well as any corrections that were made to the content of the measure pages.

Date	Revision
2/12/2018	The February 2018 Update to the Cancer Trends Progress Report was released. All measure pages with new available data have been updated. Please consult the table above for a full list. Measures for Lung Cancer Screening and Prostate Cancer Screening are new to this release.
8/23/2017	The Healthy People 2020 targets cited on the Fat Consumption measure page were updated to reflect the latest revision of the applicable Healthy People targets.
1/18/2017	The January 2017 Update to the Cancer Trends Progress Report was released. All measure pages with new available data have been updated. Please consult the table above for a full list.
11/4/2015	<ul style="list-style-type: none"> The Incidence, Stage at Diagnosis, and Survival measures were updated to include the SEER November 2014 release. The Mortality and Person-Years of Life Lost measures were updated to include U.S. mortality estimates through 2012. Graphs highlighting additional by-groups were added for the Arsenic, Benzene, Cadmium and Nitrate measures. The cost of cancer care graphs in the Financial Burden of Cancer Care measure were updated to 2015. The Alcohol Consumption measure was updated to include estimates through 2013.
11/4/2015	The desired direction for complete nephrectomy was switched from rising to falling in all Kidney Cancer Treatment graphs.
3/18/2015	The Cancer Trends Progress Report was updated with a new website design and updated estimates for all measures.

Previous Releases

The following PDFs are collected reports of previous Cancer Trends Progress Report releases.

- [Cancer Trends Progress Report - January 2017 Update \(PDF, 18.8MB\)](#)
- [Cancer Trends Progress Report - November 2015 Update \(PDF, 17.6MB\)](#)
- [Cancer Trends Progress Report - March 2015 Update \(PDF, 8.1MB\)](#)
- [Cancer Trends Progress Report - 2011/2012 Update \(PDF, 2.3MB\)](#)
- [Cancer Trends Progress Report - 2009/2010 Update \(PDF, 2.1MB\)](#)
- [Cancer Trends Progress Report - 2007 Update \(PDF, 2.2MB\)](#)
- [Cancer Trends Progress Report - 2005 Update \(PDF, 811KB\)](#)
- [Cancer Trends Progress Report - 2003 Update \(PDF, 10.6MB\)](#)
- [Cancer Trends Progress Report - 2001 Update \(PDF, 2.1 MB\)](#)

Prevention

Cancer can be caused by a variety of factors and may develop over a number of years. Some risk factors can be controlled. Choosing the right health behaviors and preventing exposure to certain environmental risk factors can help prevent the development of cancer. For this reason, it is important to follow national trends data to monitor the reduction of these risk factors. This section focuses on national trends data from three major groups of risk factors: behavioral, environmental, and policy/regulatory factors.

Behavioral Factors

Smoking, poor nutrition, and physical inactivity are just some of the human behaviors that have been linked to the development of many common cancers. This section describes trends in the following behaviors, which can influence the likelihood of getting cancer.

Tobacco Use

Smoking causes at least 30 percent of all cancer deaths in the United States. Avoiding tobacco use is the single most important step Americans can take to reduce the cancer burden in this country.

- [Tobacco Use Initiation](#)
- [Youth Tobacco Use](#)
- [Adult Tobacco Use](#)

Smoking Cessation

Tobacco use can lead to nicotine dependence and serious health problems. Quitting smoking greatly reduces the risk of developing smoking-related diseases, including cancer.

- [Quitting Smoking](#)
- [Clinicians' Advice to Quit Smoking](#)

Diet, Physical Activity, and Weight

Considerable evidence indicates that maintaining a healthy lifestyle has the potential to reduce cancer-related morbidity. Up to one-third of cancer cases in the United States are related to poor nutrition, physical inactivity, and/or excess body weight or obesity, and thus could be prevented.

- [Fruit and Vegetable Consumption](#)
- [Red Meat Consumption](#)
- [Fat Consumption](#)

- [Alcohol Consumption](#)
- [Physical Activity](#)
- [Weight](#)

UV Exposure and Sun Protective Practices

Reducing unprotected exposure to the sun and avoiding artificial ultraviolet (UV) light from indoor tanning beds, tanning booths, and sun lamps can lower the risk of skin cancer.

- [Sun-Protective Behavior](#)
- [Indoor Tanning](#)
- [Sunburn](#)

Tobacco Policy/Regulatory Factors

Effective policy and regulation are necessary to reduce the burden of cancer on the country. Federal law restricts the time, manner, and place of tobacco advertising and promotions because they are known to increase Americans' tobacco use. Federal law also requires state Medicaid programs to make tobacco cessation services available to pregnant women, but an expansion of coverage is needed to make these services available to more people.

- [Tobacco Company Marketing Expenditures](#)
- [Medicaid Coverage of Tobacco Dependence Treatments](#)

HPV Immunization

Most cervical cancers can be prevented through vaccination against human papillomavirus (HPV) and effective screening.

- [HPV Immunization](#)

Environmental Factors

Certain chemicals, biological agents, toxins, and other environmental factors are associated with the development of cancer. This section reports national trends data associated with environmental exposures and their relationship to cancer. The environmental measures highlighted here were chosen based on the availability of national trends data and, in some cases, the measures' inclusion in Healthy People 2020.

Secondhand Smoke

Secondhand smoke (also known as environmental tobacco smoke) continues to be a leading environmental hazard. Conclusive scientific evidence shows that secondhand smoke causes premature death and disease, including cancer, in children and adults who do not smoke.

- [Secondhand Smoke Exposure](#)
- [Smoke-free Home Rules](#)
- [Smoke-free Workplace Rules and Laws](#)

Chemical and Environmental Exposures

Exposure to carcinogens that exist as pollutants in our air, food, water, and soil, also influence the incidence of cancer. Most exposure to toxic substances and hazardous wastes results from human activities, particularly through agricultural and industrial production. Chemicals were selected for inclusion in this report based on the following set of criteria: (1) likely or probable carcinogen as classified by IARC classification (Group 1 or 2A), (2) available biomarker data from the National Health and Nutrition Examination Survey (NHANES) since 2004, and (3) ubiquitous (i.e. >50% with detectable levels) in the U.S. general population (based on NHANES data).

- [Arsenic](#)
- [Benzene](#)
- [Cadmium](#)

- [Nitrate](#)
- [Radon](#)

Tobacco Use

Smoking causes at least 30 percent of all cancer deaths in the United States. Avoiding tobacco use is the single most important step Americans can take to reduce the cancer burden in this country.

- [Tobacco Use Initiation](#)
- [Youth Tobacco Use](#)
- [Adult Tobacco Use](#)

Tobacco Use Initiation

Last Updated:

February 2018

Introduction

Tobacco smoking often starts during adolescence but can have detrimental health effects throughout life. Nearly 90 percent of adult daily smokers in the United States began smoking by age 18 and 98 percent first smoked by age 26. Initiation of smoking during adolescence is closely associated with persistent smoking in adulthood and with the many adverse health effects associated with chronic smoking.

While cigarettes represent the predominant form of tobacco, data for other tobacco products such as cigars and smokeless tobacco have recently been tracked as well. Understanding trends in the initiation of --cigarette and cigar smoking, and smokeless tobacco use, and their combined use -- among youth enables policy makers to target prevention resources more effectively. To decrease tobacco use and susceptibility to use among youth, restrictions on advertising, promotion, and availability of tobacco products to youth should be combined with full implementation of evidence-based, community-wide, comprehensive tobacco control policies such as product taxes and smoke-free air laws. (See also Chapters on "Youth Tobacco Use" and "Adult Tobacco Smoking and Smokeless Tobacco Use").

Measure

The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated cigarette smoking during the past 12 months.
The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated cigar smoking during the past 12 months.
The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated smokeless tobacco use during the past 12 months.

The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated use of any of these tobacco products during the past 12 months.

Healthy People 2020 Target

- Reduce the initiation of the use of tobacco products by children and adolescents aged 12 to 17 years to 5.8 percent.
- Reduce the initiation of the use of cigarettes by children and adolescents aged 12 to 17 years to 4.3 percent.
- Reduce the initiation of the use of smokeless tobacco products by children and adolescents aged 12 to 17 years to 0.6 percent.
- Reduce the initiation of the use of cigars by children and adolescents aged 12 to 17 years to 2.9 percent.
- Reduce the initiation of the use of tobacco products by young adults aged 18 to 25 years to 8.9 percent.
- Reduce the initiation of the use of cigarettes by young adults aged 18 to 25 years to 6.4 percent.
- Reduce the initiation of the use of smokeless tobacco products by young adults aged 18 to 25 years to 0.2 percent.
- Reduce the initiation of the use of cigars by young adults aged 18 to 25 years to 4.3 percent.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

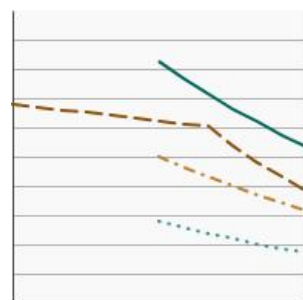
Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health, 2002-2014.

Trends and Most Recent Estimates Product Comparison

Ages 12-17

Initiation of the use of tobacco products among children and adolescents aged 12-17 years by type of tobacco product, 2002-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

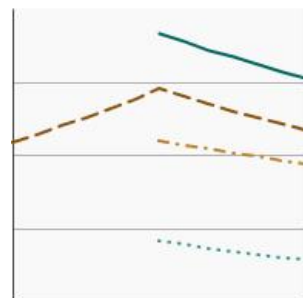
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
All Tobacco Products	5.5	5.1 - 6.0
Cigarettes	3.8	3.4 - 4.2
Smokeless Tobacco	1.8	1.6 - 2.1
Cigars	3.4	3.0 - 3.7

Ages 18-25

Initiation of the use of tobacco products among young adults aged 18-25 years by type of tobacco product, 2002-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

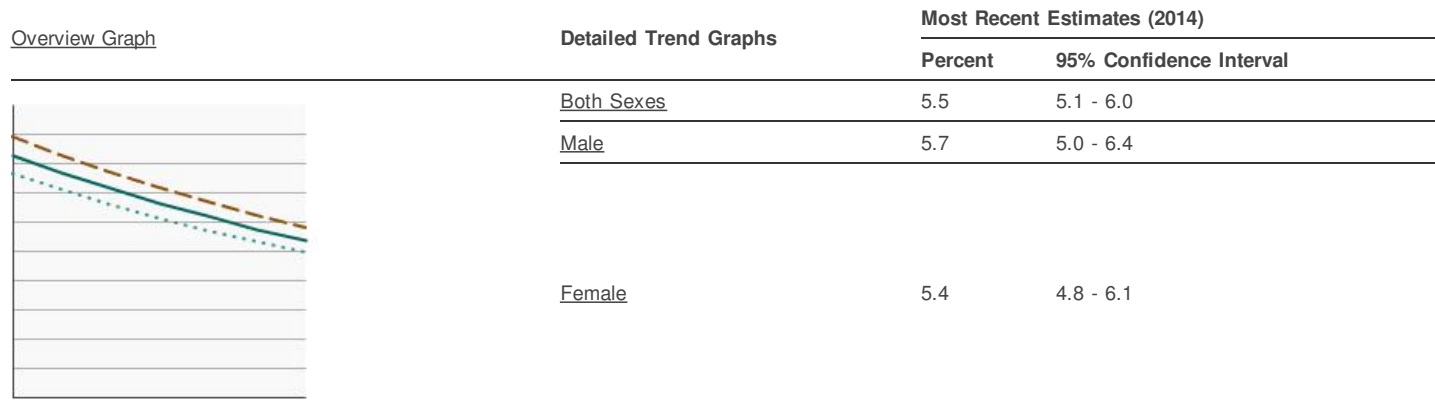
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
All Tobacco Products	9.3	8.4 - 10.3
Cigarettes	7.2	6.4 - 8.0
Smokeless Tobacco	1.6	1.4 - 2.0
Cigars	5.7	5.1 - 6.3

All Tobacco Products

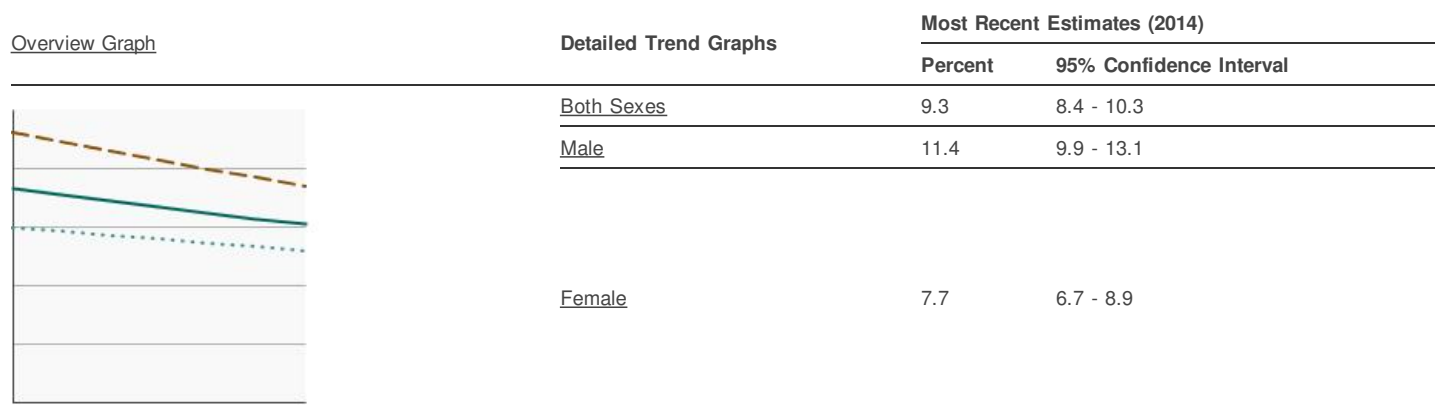
Ages 12-17 by Sex

Initiation of the use of any tobacco product among children and adolescents aged 12-17 years by sex, 2008-2014



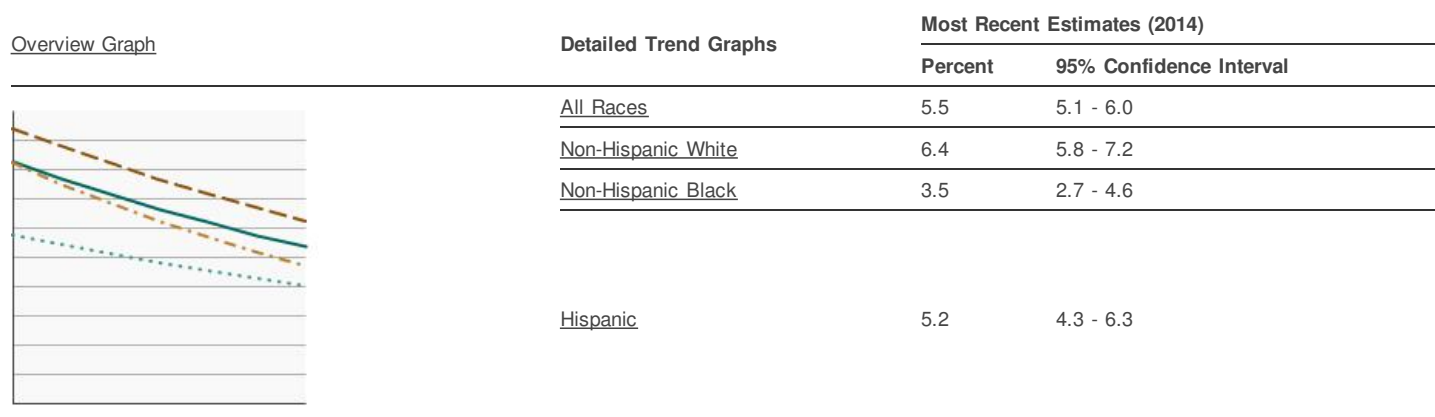
Ages 18-25 by Sex

Initiation of the use of any tobacco product among young adults aged 18-25 years by sex, 2008-2014



Ages 12-17 by Race/Ethnicity

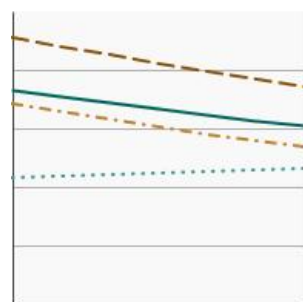
Initiation of the use of any tobacco product among children and adolescents aged 12-17 years by race/ethnicity, 2008-2014



Ages 18-25 by Race/Ethnicity

Initiation of the use of any tobacco product among young adults aged 18-25 years by race/ethnicity, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

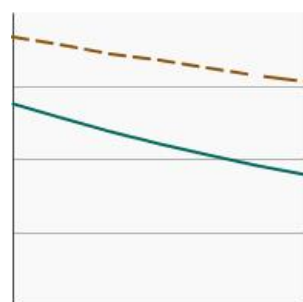
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
All Races	9.3	8.4 - 10.3
Non-Hispanic White	11.5	10.1 - 13.0
Non-Hispanic Black	6.8	5.4 - 8.7
Hispanic	7.7	6.0 - 9.9

By Age

Initiation of the use of any tobacco products among children, adolescents and young adults by age at initiation, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

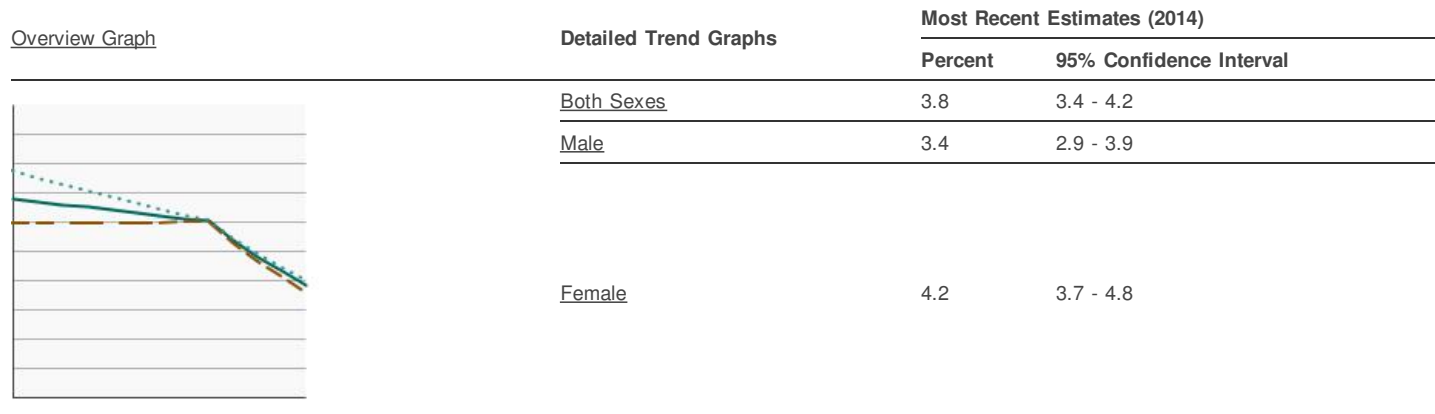
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
Ages 12-17	5.5	5.1 - 6.0
Ages 18-25	9.3	8.4 - 10.3

Cigarettes

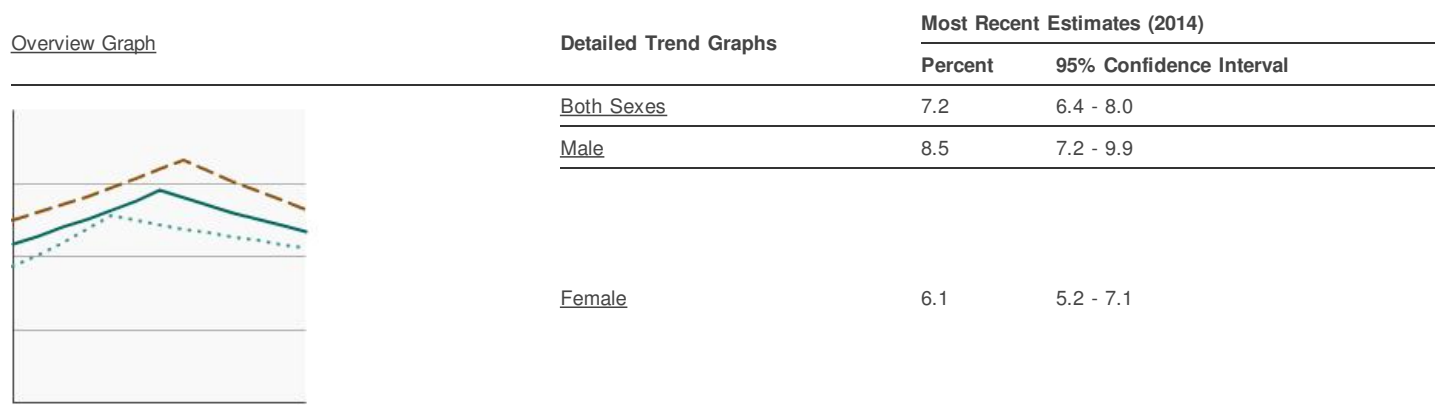
Ages 12-17 by Sex

Initiation of the use of cigarettes among children and adolescents aged 12-17 years by sex, 2002-2014



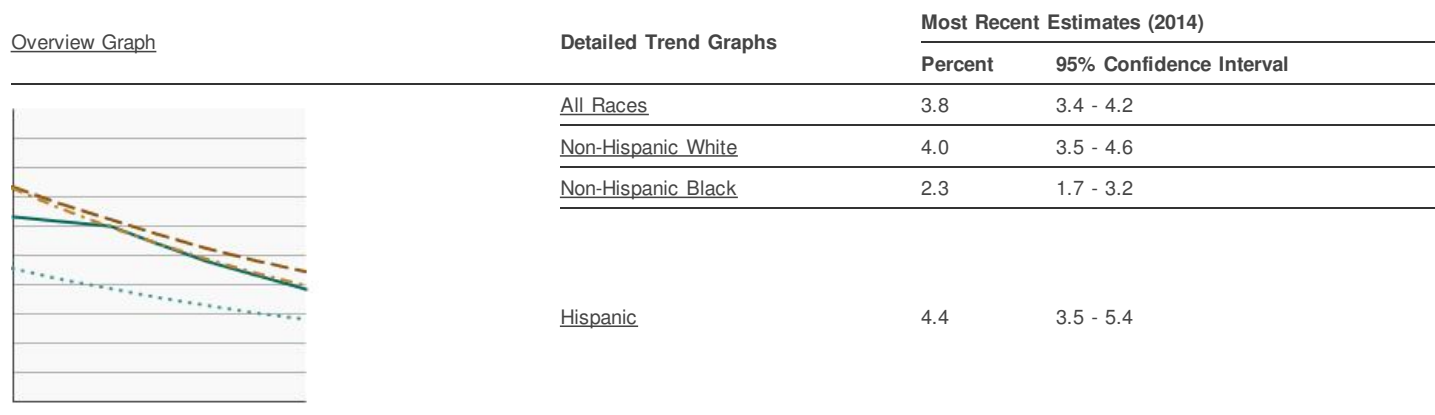
Ages 18-25 by Sex

Initiation of the use of cigarettes among young adults aged 18-25 years by sex, 2002-2014



Ages 12-17 by Race/Ethnicity

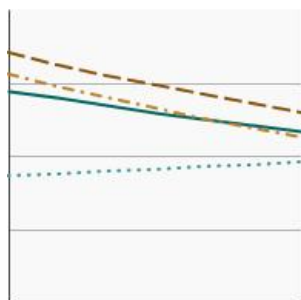
Initiation of the use of cigarettes among children and adolescents aged 12-17 years by race/ethnicity, 2008-2014



Ages 18-25 by Race/Ethnicity

Initiation of the use of cigarettes among young adults aged 18-25 years by race/ethnicity, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

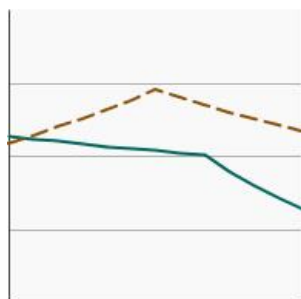
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
All Races	7.2	6.4 - 8.0
Non-Hispanic White	8.2	7.0 - 9.5
Non-Hispanic Black	6.2	4.7 - 8.2
Hispanic	6.3	4.8 - 8.2

By Age

Initiation of the use of cigarettes among children, adolescents and young adults by age at initiation, 2002-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

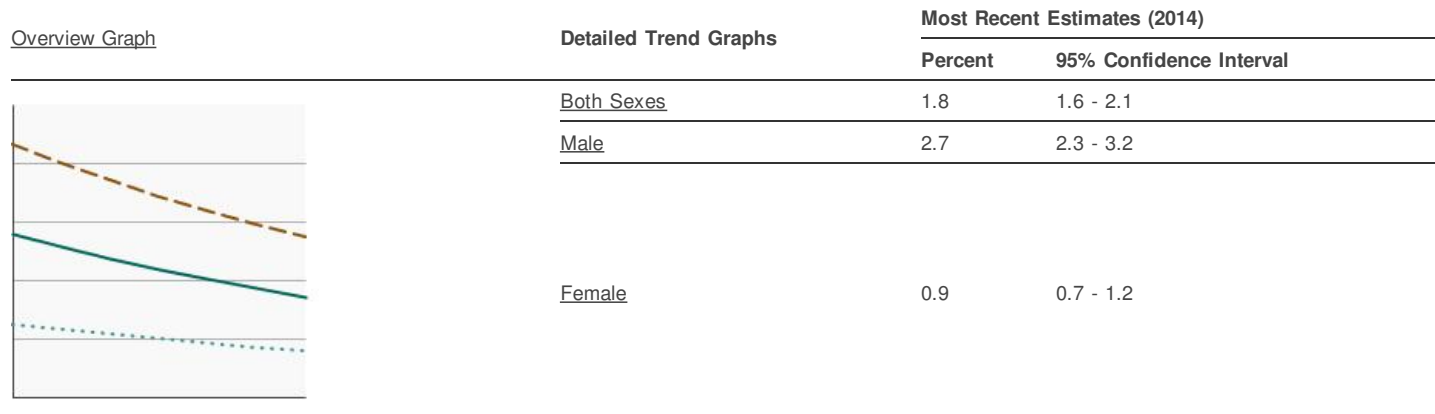
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
Ages 12-17	3.8	3.4 - 4.2
Ages 18-25	7.2	6.4 - 8.0

Smokeless Tobacco

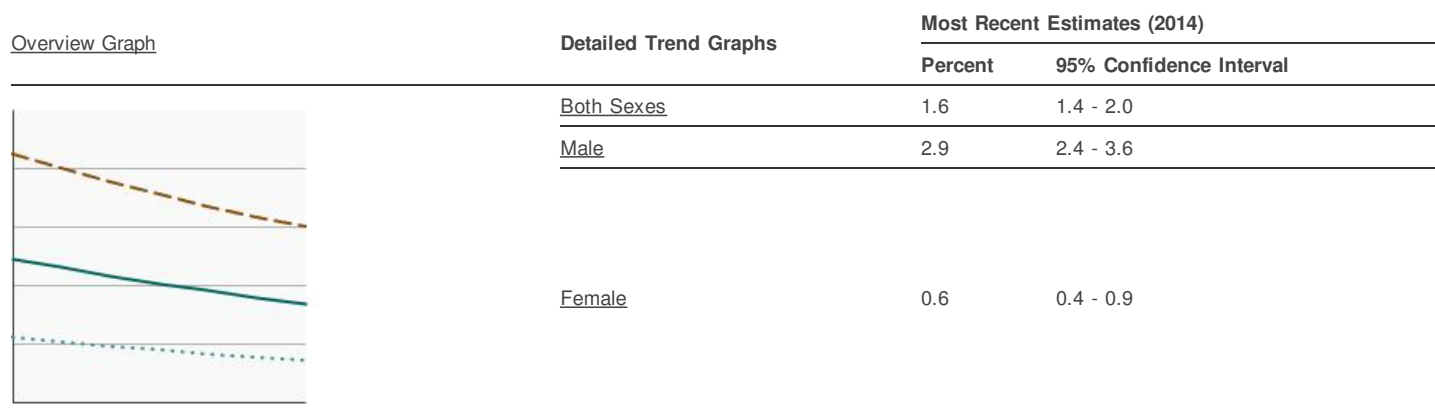
Ages 12-17 by Sex

Initiation of the use of smokeless tobacco among children and adolescents aged 12-17 years by sex, 2008-2014



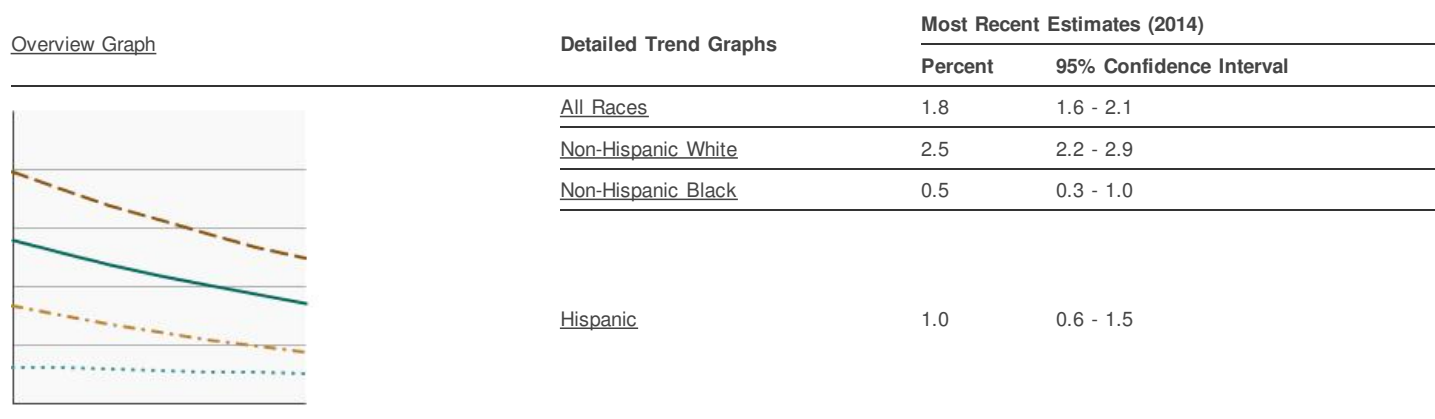
Ages 18-25 by Sex

Initiation of the use of smokeless tobacco among young adults aged 18-25 years by sex, 2008-2014



Ages 12-17 by Race/Ethnicity

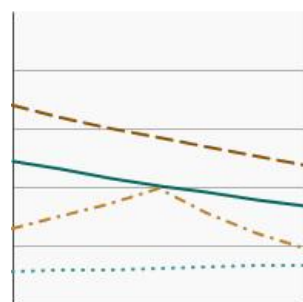
Initiation of the use of smokeless tobacco among children and adolescents aged 12-17 years by race/ethnicity, 2008-2014



Ages 18-25 by Race/Ethnicity

Initiation of the use of smokeless tobacco among young adults aged 18-25 years by race/ethnicity, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

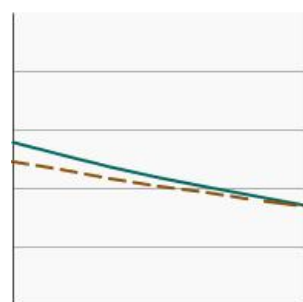
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
All Races	1.6	1.4 - 2.0
Non-Hispanic White	2.2	1.8 - 2.7
Non-Hispanic Black	0.9	0.5 - 1.5
Hispanic	1.1	0.6 - 1.8

By Age

Initiation of the use of smokeless tobacco among children, adolescents and young adults by age at initiation, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

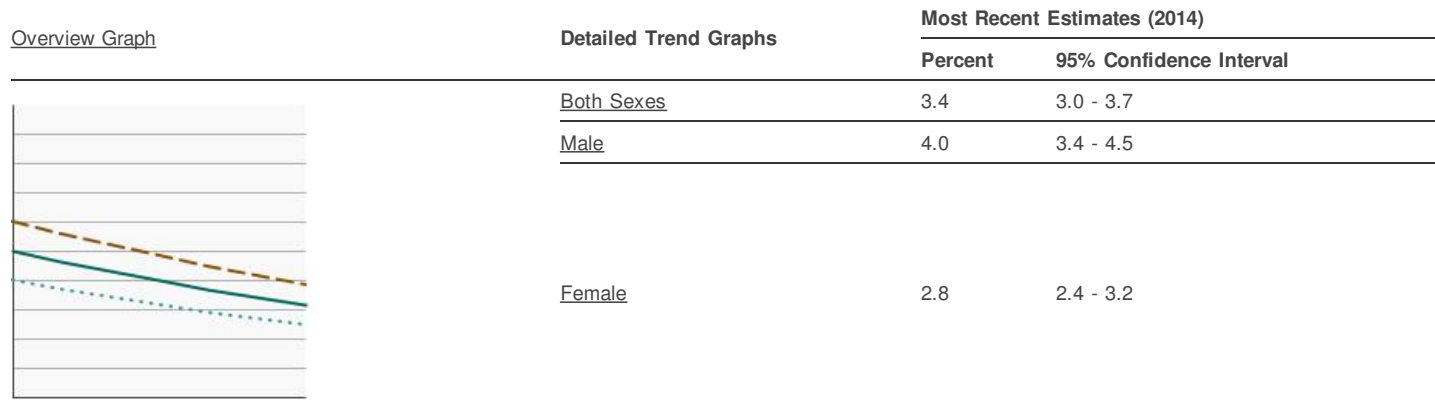
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
Ages 12-17	1.8	1.6 - 2.1
Ages 18-25	1.6	1.4 - 2.0

Cigars

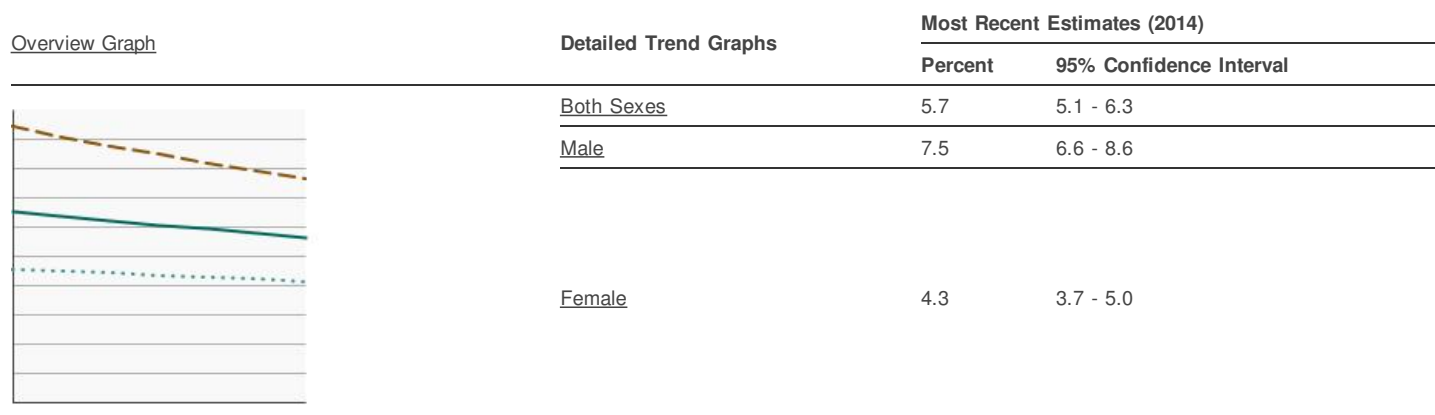
Ages 12-17 by Sex

Initiation of the use of cigars among children and adolescents aged 12-17 years by sex, 2008-2014



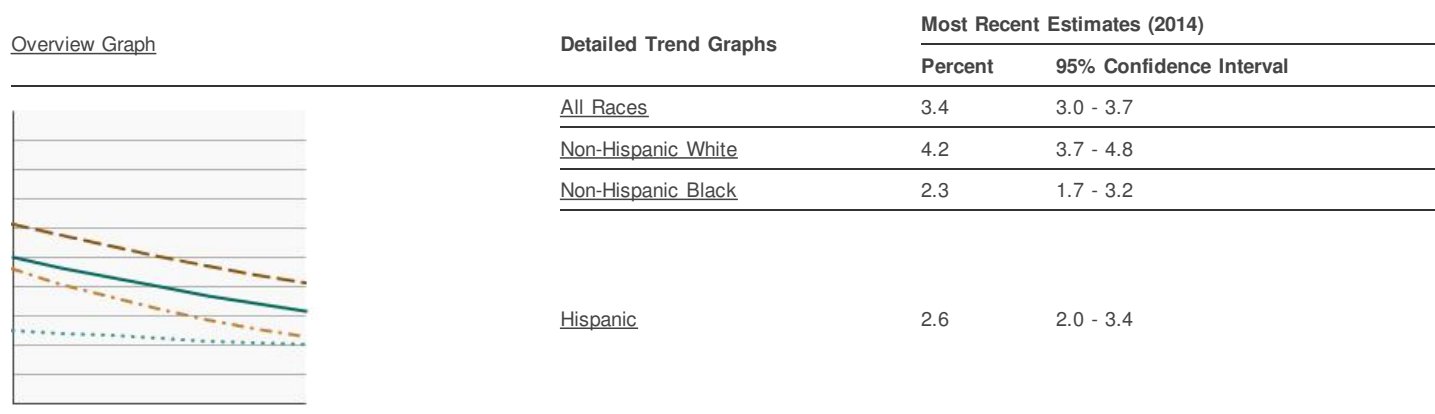
Ages 18-25 by Sex

Initiation of the use of cigars among young adults aged 18-25 years by sex, 2008-2014



Ages 12-17 by Race/Ethnicity

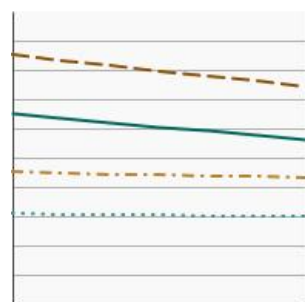
Initiation of the use of cigars among children and adolescents aged 12-17 years by race/ethnicity, 2008-2014



Ages 18-25 by Race/Ethnicity

Initiation of the use of cigars among young adults aged 18-25 years by race/ethnicity, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

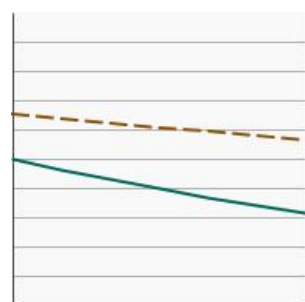
Most Recent Estimates (2014)

	Percent	95% Confidence Interval
All Races	5.7	5.1 - 6.3
Non-Hispanic White	7.7	6.8 - 8.6
Non-Hispanic Black	3.3	2.4 - 4.6
Hispanic	3.5	2.7 - 4.6

By Age

Initiation of the use of cigars among children, adolescents and young adults by age at initiation, 2008-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2014)

	Percent	95% Confidence Interval
Ages 12-17	3.4	3.0 - 3.7
Ages 18-25	5.7	5.1 - 6.3

Cancers Related to Tobacco Use Initiation

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Acute Myeloid Leukemia \(AML\)](#)
- [Anus](#)
- [Bladder](#)
- [Cervix Uteri](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Kidney and Renal Pelvis](#)

- [Larynx](#)
- [Liver and Intrahepatic Bile Duct](#)
- [Lung and Bronchus](#)
- [Oral Cavity and Pharynx](#)
- [Pancreas](#)
- [Stomach](#)

Evidence-based Resources

Tobacco control resources are available that support collaboration, identify evidence-based approaches and list [research-tested interventions](#) on the [Cancer Control P.L.A.N.E.T.](#) web portal. To identify high-risk populations and prioritize cancer control efforts, state and county-level tobacco data can be found on [State Cancer Profiles](#).

Additional Information on Tobacco Use Initiation For the public

- [Tobacco and Cancer](#). American Cancer Society.
- [Youth Tobacco Prevention](#). Centers for Disease Control and Prevention.
- [50 Years of Progress: A Report of the Surgeon General, 2014](#). U.S. Department of Health and Human Services.
- [Youth and Tobacco](#). U.S. Food and Drug Administration.

For health professionals

- [Best Practices for Comprehensive Tobacco Control Programs—2014](#). Centers for Disease Control and Prevention.

Scientific reports

- [2014 Surgeon General's Report - The Health Consequences of Smoking: 50 Years of Progress](#)(<http://www.surgeongeneral.gov/library/reports/50-years-of-progress/>). SurgeonGeneral.gov.
- [2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults](#). Centers for Disease Control and Prevention.
- [CDC Grand Rounds: Current Opportunities in Tobacco Control](#). Centers for Disease Control and Prevention. MMWR 2010;59(16):487–492.
- [Cigarette use among high school students – United States, 1991–2009](#). Centers for Disease Control and Prevention. MMWR 2010;59(26):797–801.
- [Tobacco product use among middle and high school students – United States, 2011–2012](#). Centers for Disease Control and Prevention. MMWR 2013;62(45): 893-897.
- [Smoking initiation associated with specific periods in the life course from birth to young adulthood: data from the National Longitudinal Survey of Youth 1997](#). Chen X, Jacques-Tiura AJ. Am J Public Health 2014;104(2):e119–26.
- [Individual- and community-level correlates of cigarette-smoking trajectories from age 13 to 32 in a U.S. population-based sample](#). Fuemmeler B, Lee CT, Ranby KW, Clark T, et al. Drug Alcohol Depend. 2013;132(1–2):301–8.
- [Smoking and Tobacco Control Monographs. Monograph 14: Changing Adolescent Smoking Prevalence](#). National Cancer Institute.
- [Smoking and Tobacco Control Monographs. Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use](#). National Cancer Institute.
- [Risk factors for adolescent smoking: parental smoking and the mediating role of nicotine dependence](#). Selya AS, Dierker LC, Rose JS, Hedeker D, Mermelstein RJ. Drug Alcohol Depend. 2012;124(3):311–8.
- [Preventing Tobacco Use Among Youth and Young Adults, 2012](#). U.S Department of Health and Human Services, Public Health Service, Office of the Surgeon General.

For smokers

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](#). National Cancer Institute.
- [Tobacco](#). National Cancer Institute.
- [North American Quitline Consortium](#)(<http://www.naquitline.org/>).

Youth Tobacco Use

Last Updated:

January 2017

Introduction

Tobacco use is initiated and established primarily during adolescence: nearly 90 percent of adult smokers in the United States began smoking by age 18, and 98 percent first smoked by age 26. Each day in the United States, more than 3,800 youth 18 years of age or younger smoke their first cigarette, and more than 1,000 become daily cigarette smokers.

Teen smoking rates reached a peak in 1996 and have been declining since then. In addition, a substantial proportion of youth use other tobacco products, including cigars, smokeless tobacco, pipes, hookahs, and electronic cigarettes. In fact, between 2011 and 2012 there were significant increases in the use of nonconventional tobacco products such as electronic cigarettes and hookahs. Monitoring and preventing youth tobacco use needs to incorporate other products, including new and emerging products.

There are many factors associated with youth tobacco use, including social influences and physical environment, and cognitive, affective, biological, and genetic factors. Because of nicotine dependence and social factors, initiation of smoking during adolescence is closely associated with persistent smoking in adulthood and with the many adverse health effects associated with chronic smoking. It is therefore critical to prevent smoking very early.

Understanding trends in the prevalence of tobacco use among youth enables policy makers to target prevention resources more effectively. To decrease tobacco use and susceptibility to use among youth, restrictions on advertising, promotion, and availability of tobacco products to youth should be combined with full implementation of evidence-based, community-wide, comprehensive tobacco control policies such as product taxes and smoke-free air laws.

Measure

The percentage of high school students (grades 9–12) who reported use of cigarettes, cigars, or smokeless tobacco on at least 1 day during the 30 days before the survey.

Healthy People 2020 Target

- Reduce to 21 percent the proportion of adolescents in grades 9–12 who used tobacco products in the past 30 days.
- Reduce to 16 percent the proportion of adolescents in grades 9–12 who smoked cigarettes in the past 30 days.
- Reduce to 6.9 percent the proportion of adolescents in grades 9–12 who used smokeless (chewing tobacco or snuff) tobacco in the past 30 days.
- Reduce to 8 percent the proportion of adolescents in grades 9–12 who smoked cigars in the past 30 days.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

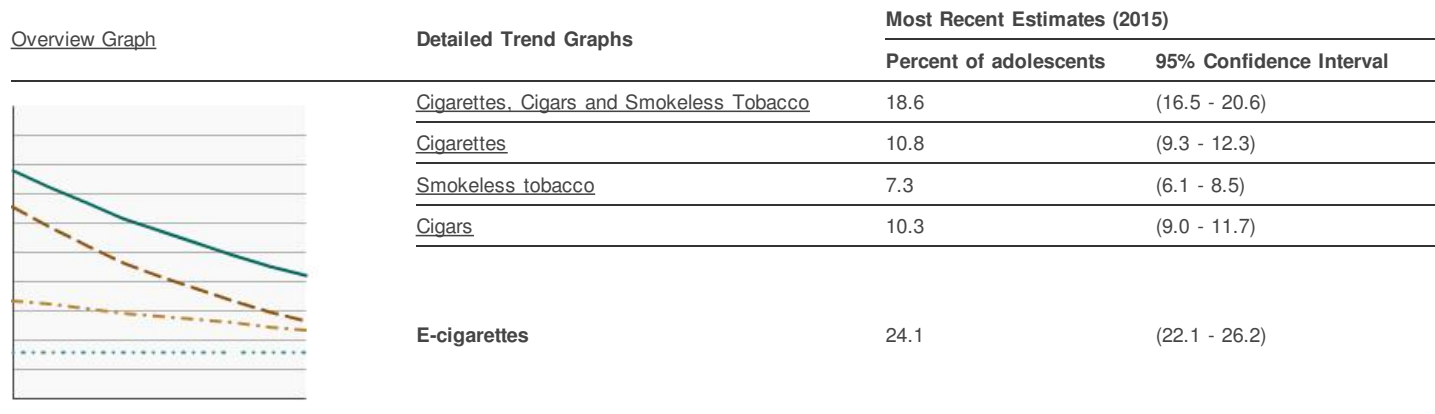
Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Youth Risk Behavior Surveillance System (YRBSS), 1999–2015.

Trends and Most Recent Estimates By Type of Tobacco Product

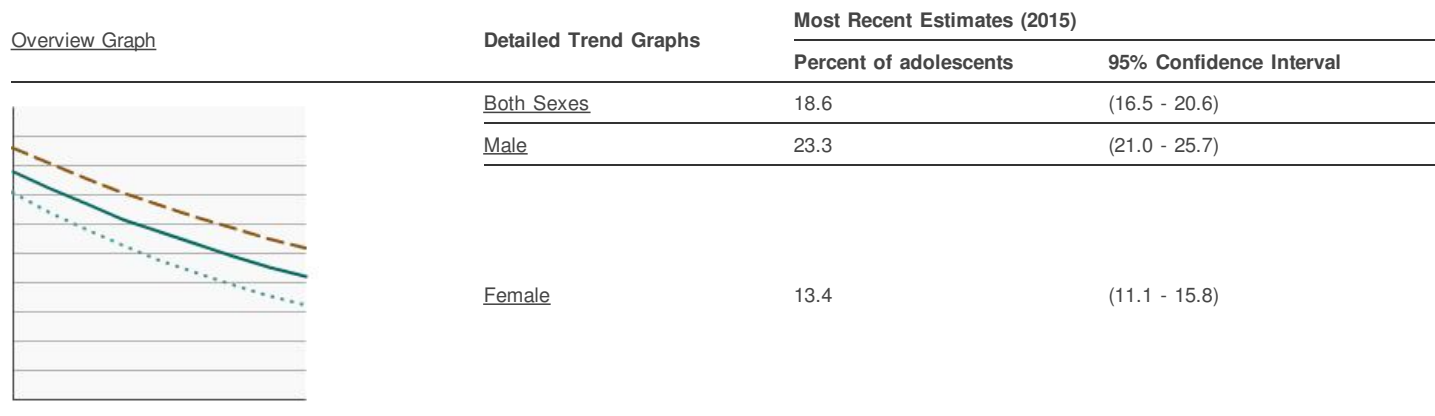
Percentage of high school students (grades 9-12) who used cigarettes, cigars, or smokeless tobacco in the last month by type of tobacco product, 1999-2015



Cigarettes, Cigars and Smokeless Tobacco

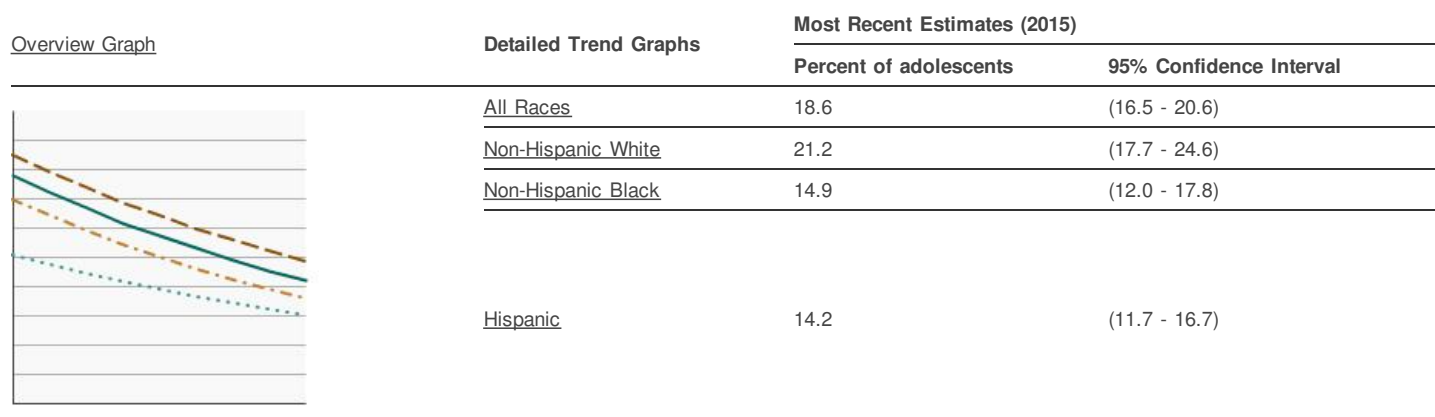
By Sex

Percentage of high school students (grades 9-12) who were current users of cigarettes, cigars, or smokeless tobacco by sex, 1999-2015



By Race/Ethnicity

Percentage of high school students (grades 9-12) who were current users of cigarettes, cigars, or smokeless tobacco by race/ethnicity, 1999-2015

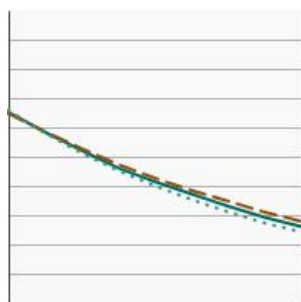


Cigarettes

By Sex

Percentage of high school students (grades 9-12) who smoked cigarettes in the past month by sex, 1999-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

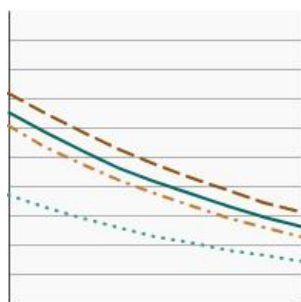
	Percent of adolescents	95% Confidence Interval
Both Sexes	10.8	(9.3 - 12.3)
Male	11.8	(10.4 - 13.2)
Female	9.8	(8.0 - 11.5)

□

By Race/Ethnicity

Percentage of high school students (grades 9-12) who smoked cigarettes in the past month by race/ethnicity, 1999-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

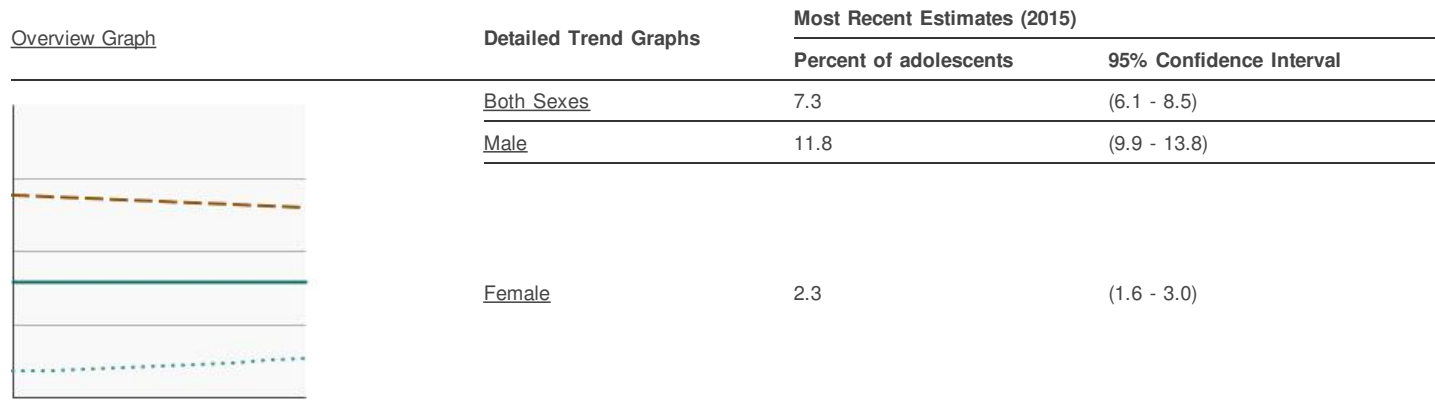
	Percent of adolescents	95% Confidence Interval
All Races	10.8	(9.3 - 12.3)
Non-Hispanic White	12.4	(9.9 - 14.9)
Non-Hispanic Black	6.5	(4.6 - 8.4)
Hispanic	9.2	(7.9 - 10.6)

□

Smokeless Tobacco

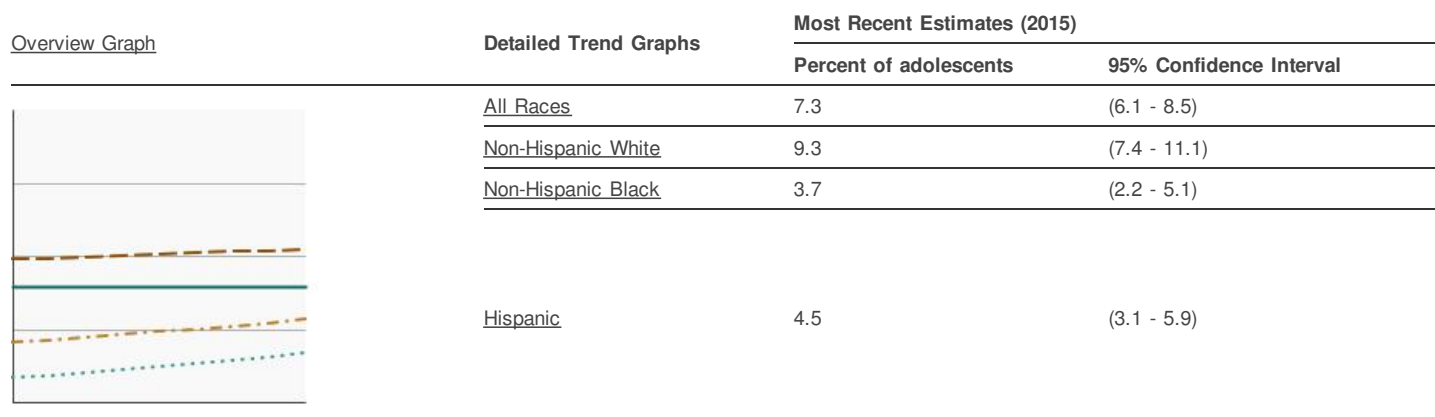
By Sex

Percentage of high school students (grades 9-12) who used smokeless tobacco in the past month by sex, 1999-2015



By Race/Ethnicity

Percentage of high school students (grades 9-12) who used smokeless tobacco in the past month by race/ethnicity, 1999-2015

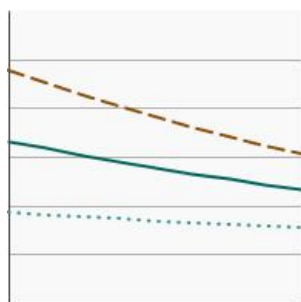


Cigars

By Sex

Percentage of high school students (grades 9-12) who smoked cigars in the past month by sex, 1999-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

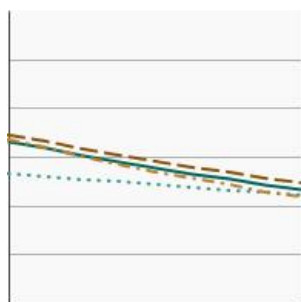
	Percent of adolescents	95% Confidence Interval
Both Sexes	10.3	(9.0 - 11.7)
Male	14.0	(12.3 - 15.7)
Female	6.3	(5.0 - 7.7)

□

By Race/Ethnicity

Percentage of high school students (grades 9-12) who smoked cigars in the past month by race/ethnicity, 1999-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

	Percent of adolescents	95% Confidence Interval
All Races	10.3	(9.0 - 11.7)
Non-Hispanic White	10.4	(8.6 - 12.3)
Non-Hispanic Black	11.0	(8.2 - 13.9)
Hispanic	9.5	(7.6 - 11.4)

□

E-cigarettes

By Sex

Percentage of high school students (grades 9-12) who used electronic cigarettes in the past month by sex, 2015

[Overview graph](#)

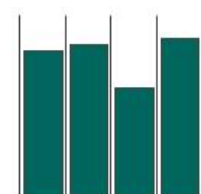


Sex	Used E-cigarette in last month	
	Percent of adolescents	95% Confidence Interval
Both Sexes	24.1	(22.1 - 26.2)
Male	22.6	(20.6 - 24.9)
Female	25.6	(23.0 - 28.4)

By Race/Ethnicity

Percentage of high school students (grades 9-12) who used electronic cigarettes in the past month by race/ethnicity, 2015

[Overview graph](#)



Race	Used E-cigarette in last month	
	Percent of adolescents	95% Confidence Interval
All Races	24.1	(22.1 - 26.2)
Non-Hispanic White	25.2	(22.2 - 28.5)
Non-Hispanic Black	18.0	(14.9 - 21.7)
Hispanic	26.3	(23.6 - 29.1)

Cancers Related to Youth Tobacco Use

Youth tobacco use can lead to long term adult tobacco use, responsible for a number of smoking related cancers.

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Acute Myeloid Leukemia \(AML\)](#)
- [Anus](#)
- [Bladder](#)
- [Cervix Uteri](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Kidney and Renal Pelvis](#)

- [Larynx](#)
- [Liver and Intrahepatic Bile Duct](#)
- [Lung and Bronchus](#)
- [Oral Cavity and Pharynx](#)
- [Pancreas](#)
- [Stomach](#)

Evidence-based Resources

Tobacco control resources are available that support collaboration, identify evidence-based approaches and list [research-tested interventions](#) on the [Cancer Control P.L.A.N.E.T.](#) web portal. To identify high-risk populations and prioritize cancer control efforts, state and county-level tobacco data can be found on [State Cancer Profiles](#).

Additional Information on Youth Tobacco Use For the public

- [Tobacco and Cancer](#). American Cancer Society.
- [2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults](#). Centers for Disease Control and Prevention.
- [Youth Tobacco Prevention](#). Centers for Disease Control and Prevention.
- [Smokefreeteen.gov](#). National Cancer Institute.
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For health professionals

- [Best Practices for Comprehensive Tobacco Control Programs—2014](#). Centers for Disease Control and Prevention.
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- [Smoking and Tobacco Control Monographs. Monograph 14: Changing Adolescent Smoking Prevalence](#). National Cancer Institute.
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For smokers

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](#). National Cancer Institute.
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Adult Tobacco Use

Last Updated:

[February 2018](#)

Introduction

Cigarette smoking is the leading preventable cause of death in the United States. It increases the risk of cancers of the lung, larynx, mouth, esophagus, pharynx, bladder, pancreas, kidney, cervix, stomach, and acute myeloid leukemia. Altogether it causes approximately 30 percent of all U.S. cancer deaths each year. The prevalence of adult cigarette smoking in the United States has dropped over 50% since the first Surgeon General Report on the harms of tobacco in 1964, when it was 42%. Yet, since 1991, there has been a slower decrease in smoking rates, with an estimated 29.7 million adults still smoking cigarettes daily. The American Cancer Society estimates that in 2015, almost 171,000 of the estimated 589,430 cancer-related deaths will be caused by tobacco.

Tobacco use does not end with cigarettes. Other forms of tobacco use are common. In 2016, the National Survey on Drug Use and Health, a survey by the US Substance Abuse and Mental Health Service Administration, reported that 11.8 million adults smoked cigars and 8.4 million adults used smokeless tobacco.

A cigar is defined as a roll of tobacco wrapped in leaf tobacco or in a substance that contains tobacco (whereas a cigarette is defined as a roll of tobacco wrapped most often in paper or some other non-tobacco substance). There are three major types of cigars currently sold in the U.S. - large cigars, cigarillos, and little cigars. Little cigars are about the same size as a cigarette and often include a filter. Historically, cigar smoking in the United States has been a behavior of older men, but the industry's increased marketing of these products to targeted groups in the 1990s has increased the prevalence of use among adolescents and young adults.

Cigar smoke, like cigarette smoke, contains the same toxic and carcinogenic compounds that are harmful to both smokers and nonsmokers. Cigar smoking causes oral cavity cancers (cancers of the lip, tongue, mouth, and throat) and cancers of the larynx (voice box), esophagus, and lung. Gum disease and tooth loss are also linked to cigar smoking, and heavy cigar smokers and those who inhale deeply may further be at increased risk of developing coronary heart disease. Heavy cigar smoking increases the risk for lung diseases, such as emphysema and chronic bronchitis.

Smokeless tobacco is tobacco that is not burned. It is also known as oral tobacco, chewing tobacco, chew, plug, twist, spit or spitting tobacco, snuff, dip, or snus. Snuff is a finely cut or powdered tobacco that is either placed between the cheek and gum, or sniffed through the nose, respectively. Some moist snuff and all snus come in tea bag-like pouches. Chewing tobacco is used by putting a wad (loose leaves, plug, or twist) of tobacco inside the cheek. Smokeless tobacco can also take the form of dissolvable tobacco (lozenge, film or stick), but this type is not widely distributed in the U.S.

Chewing tobacco and snuff contain at least 28 cancer-causing agents. Use of smokeless tobacco causes oral, esophageal, and pancreatic cancer.

Smokeless tobacco also causes serious oral health problems, including gum disease, other non-cancerous oral lesions, and tooth loss, and increases the risk of heart disease.

Measure

Cigarettes: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigarette smokers.

Smokeless tobacco: Percentage of adults aged 18 years and older who, at the time of the interview, were smokeless tobacco users.

Cigars: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigar smokers.

Healthy People 2020 Target

- Reduce to 12 percent the proportion of adults who are current cigarette smokers.
- Reduce to 0.3 percent the proportion of adults who are current smokeless tobacco users.
- Reduce to 0.2 percent the proportion of adults who are current cigar smokers.

[Healthy People 2020](#) is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

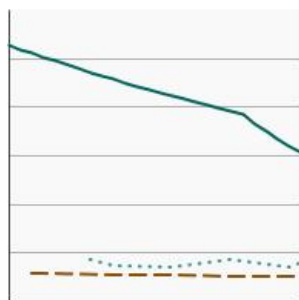
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1990–2016.

Trends and Most Recent Estimates By Type of Tobacco Product

Percentage of adults aged 18 years and older who were current tobacco users by type of tobacco product used, 1991-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2016)

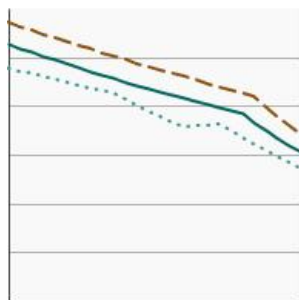
	Percent of adults	95% Confidence Interval
Cigarettes	15.7	15.0 - 16.4
Smokeless Tobacco	2.4	2.2 - 2.7
Cigars	4.0	3.6 - 4.3

Cigarettes

By Sex

Percentage of adults aged 18 years and older who were current cigarette smokers by sex, 1991-2016

[Overview Graph](#)



Detailed Trend Graphs

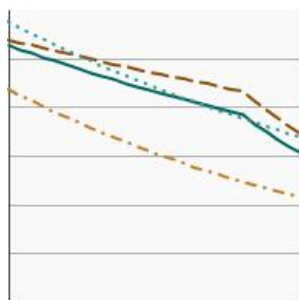
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
Both Sexes	15.7	15.0 - 16.4
Male	17.7	16.8 - 18.6
Female	13.7	12.9 - 14.6

By Race/Ethnicity

Percentage of adults aged 18 years and older who were current cigarette smokers by race/ethnicity, 1991-2016

[Overview Graph](#)



Detailed Trend Graphs

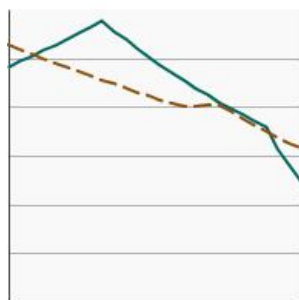
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	15.7	15.0 - 16.4
Non-Hispanic White	17.4	16.6 - 18.2
Non-Hispanic Black	17.1	15.3 - 19.0
Hispanic	10.5	9.1 - 12.1

By Age

Percentage of adults aged 18 years and older who were current cigarette smokers by age, 1991-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2016)

Ages 18-24

Percent of adults

95% Confidence Interval

13.0

11.4 - 14.7

Ages 25+

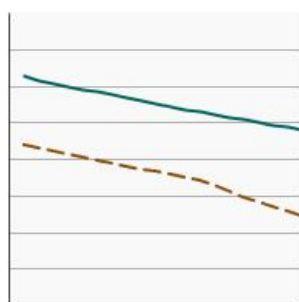
16.0

15.3 - 16.8

By Poverty Income Level

Percentage of adults aged 18 years and older who were current cigarette smokers by poverty income level, 1997-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2016)

<200% of federal poverty level

Percent of adults

95% Confidence Interval

23.5

22.3 - 24.8

>=200% of federal poverty level

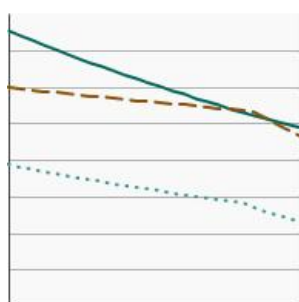
12.6

11.9 - 13.3

By Education Level

Percentage of adults aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2016)

Less than High School

Percent of adults

95% Confidence Interval

26.0

23.7 - 28.4

High School

23.6

22.1 - 25.1

Greater than High School

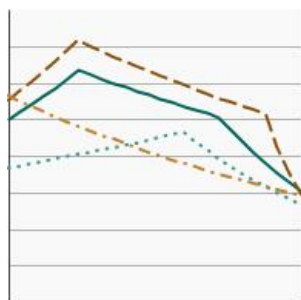
11.7

11.0 - 12.4

Males Ages 18-24 by Race/Ethnicity

Percentage of males aged 18-24 years who were current cigarette smokers by race/ethnicity, 1991-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

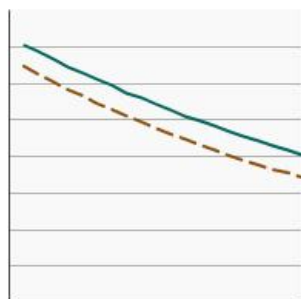
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	14.6	12.2 - 17.3
Non-Hispanic White	15.6	12.6 - 19.1
Non-Hispanic Black	12.0	6.7 - 20.8
Hispanic	14.4	9.2 - 21.8

Males Ages 18-24 by Poverty Income Level

Percentage of males aged 18-24 years who were current cigarette smokers by poverty income level, 1997-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

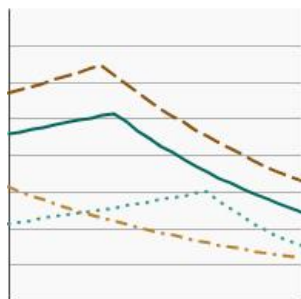
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	16.3	12.9 - 20.5
>=200% of federal poverty level	13.2	9.9 - 17.4

Females Ages 18-24 by Race/Ethnicity

Percentage of females aged 18-24 years who were current cigarette smokers by race/ethnicity, 1991-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	11.3	9.4 - 13.6
Non-Hispanic White	14.9	12.1 - 18.3
Non-Hispanic Black	7.6	4.6 - 12.2
Hispanic	4.9	2.3 - 10.1

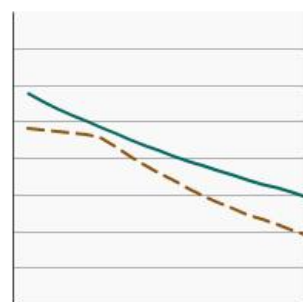
Females Ages 18-24 by Poverty Income Level

Percentage of females aged 18-24 years who were current cigarette smokers by poverty income level, 1997-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)



	Percent of adults	95% Confidence Interval
<200% of federal poverty level	12.6	10.1 - 15.6
>=200% of federal poverty level	9.7	7.2 - 13.1

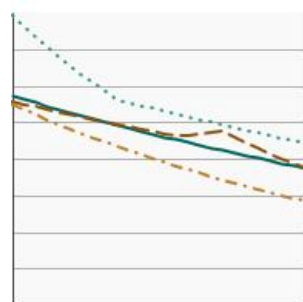
Males Ages 25 and Older by Race/Ethnicity

Percentage of males aged 25 years and older who were current cigarette smokers by race/ethnicity, 1991-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)



	Percent of adults	95% Confidence Interval
All Races	18.1	17.2 - 19.1
Non-Hispanic White	19.0	17.9 - 20.2
Non-Hispanic Black	22.3	19.1 - 25.8
Hispanic	13.8	11.4 - 16.6

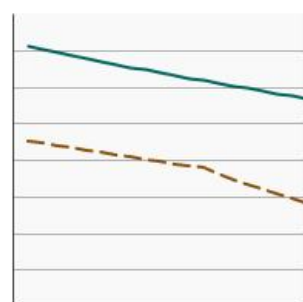
Males Ages 25 and Older by Poverty Income Level

Percentage of males aged 25 years and older who were current cigarette smokers by poverty income level, 1997-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

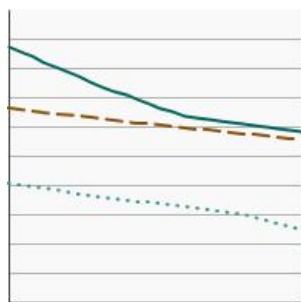


	Percent of adults	95% Confidence Interval
<200% of federal poverty level	28.3	26.2 - 30.5
>=200% of federal poverty level	14.8	13.8 - 15.8

Males Ages 25 and Older by Education Level

Percentage of males aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

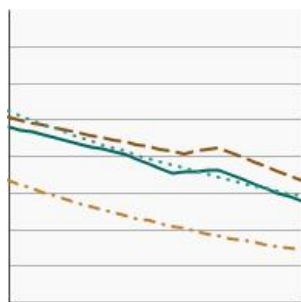
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
Less than High School	30.6	27.2 - 34.1
High School	26.2	24.2 - 28.4
Greater than High School	12.7	11.7 - 13.7

Females Ages 25 and Older by Race/Ethnicity

Percentage of females aged 25 years and older who were current cigarette smokers by race/ethnicity, 1991-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

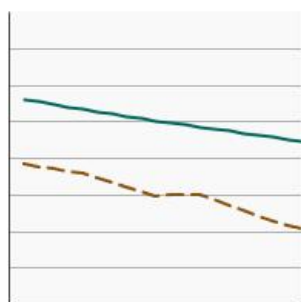
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	14.0	13.2 - 14.9
Non-Hispanic White	16.4	15.4 - 17.5
Non-Hispanic Black	14.7	12.6 - 17.2
Hispanic	7.5	6.0 - 9.2

Females Ages 25 and Older by Poverty Income Level

Percentage of females aged 25 years and older who were current cigarette smokers by poverty income level, 1997-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	22.2	20.5 - 24.0
≥200% of federal poverty level	10.5	9.7 - 11.4

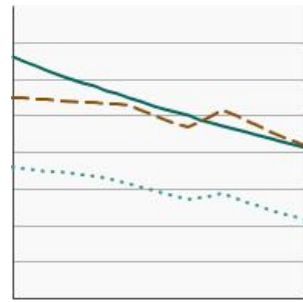
Females Ages 25 and Older by Education Level

Percentage of females aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



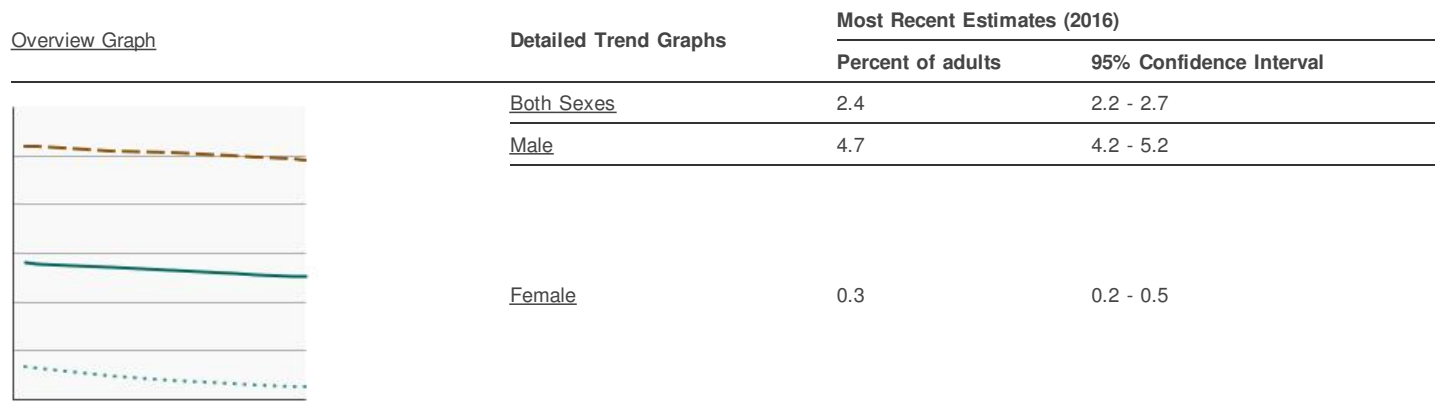
	Percent of adults	95% Confidence Interval
Less than High School	21.1	18.3 - 24.2
High School	20.9	19.0 - 23.0
Greater than High School	10.8	10.0 - 11.6

□

Smokeless Tobacco

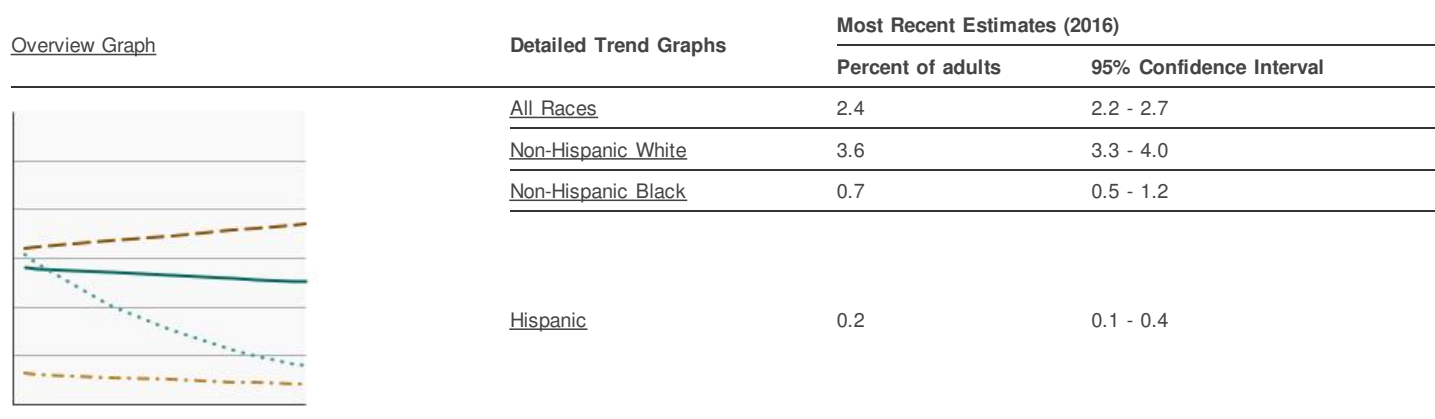
By Sex

Percentage of adults aged 18 years and older who were current smokeless tobacco users by sex, 1993-2016



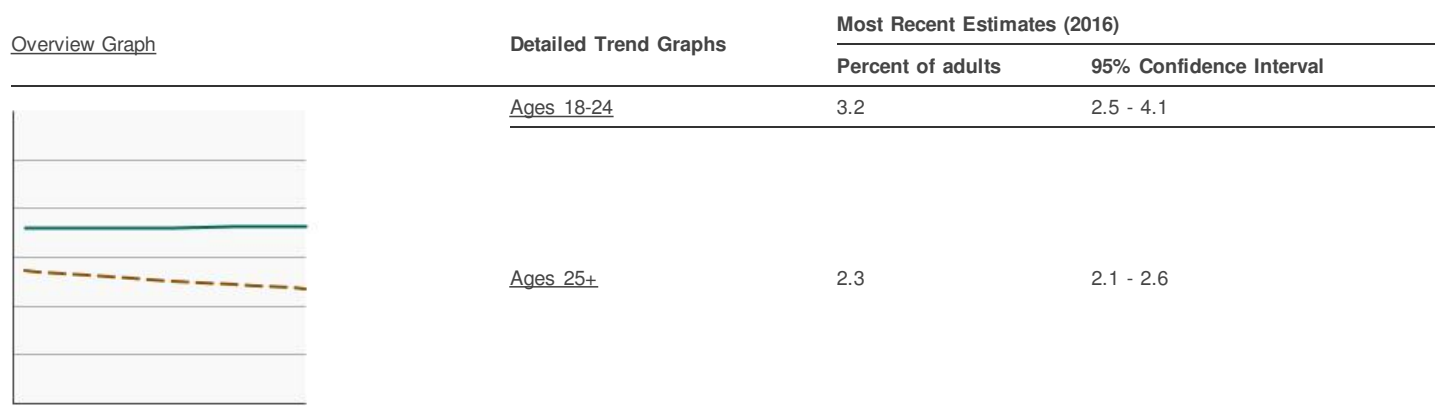
By Race/Ethnicity

Percentage of adults aged 18 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2016



By Age

Percentage of adults aged 18 years and older who were current smokeless tobacco users by age, 1993-2016



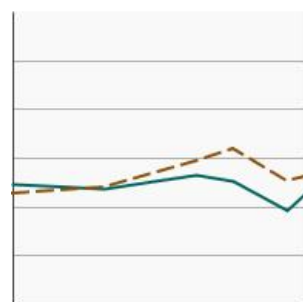
By Poverty Income Level

Percentage of adults aged 18 years and older who were current smokeless tobacco users by poverty income level, 2000-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)



[<200% of federal poverty level](#)

Percent of adults

95% Confidence Interval

2.3

1.9 - 2.7

[>=200% of federal poverty level](#)

2.6

2.3 - 3.0

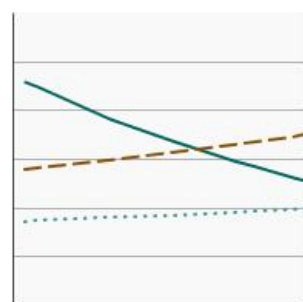
By Education Level

Percentage of adults aged 25+ years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)



[Less than High School](#)

3.3

2.5 - 4.3

[High School](#)

3.3

2.7 - 3.9

[Greater than High School](#)

1.8

1.6 - 2.1

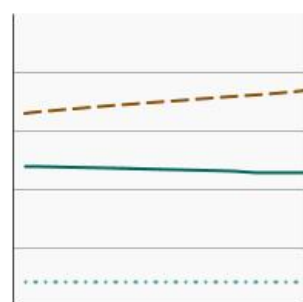
Males Ages 18-24 by Race/Ethnicity

Percentage of males aged 18-24 years who were current smokeless tobacco users by race/ethnicity, 1993-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)



[All Races](#)

6.0

4.7 - 7.7

[Non-Hispanic White](#)

10.1

7.7 - 13.0

[Hispanic](#)

0.6

0.1 - 3.6

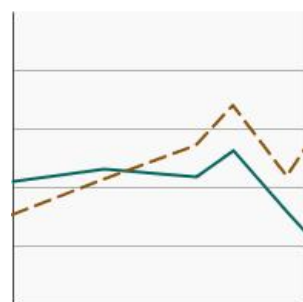
Males Ages 18-24 by Poverty Income Level

Percentage of males aged 18-24 years who were current smokeless tobacco users by poverty income level, 2000-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



<200% of federal poverty level

Percent of adults

95% Confidence Interval

3.7

2.6 - 5.2

>=200% of federal poverty level

7.9

5.8 - 10.8

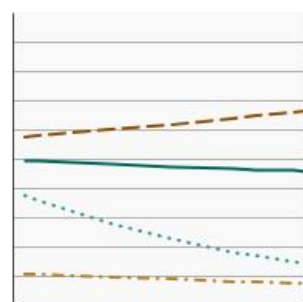
Males Ages 25 and Older by Race/Ethnicity

Percentage of males aged 25 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



All Races

4.5

4.0 - 5.0

Non-Hispanic White

6.5

5.8 - 7.3

Non-Hispanic Black

1.2

0.7 - 1.9

Hispanic

0.4

0.2 - 0.8

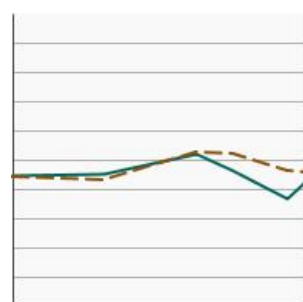
Males Ages 25 and Older by Poverty Income Level

Percentage of males aged 25 years and older who were current smokeless tobacco users by poverty income level, 2000-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



<200% of federal poverty level

4.3

3.5 - 5.2

>=200% of federal poverty level

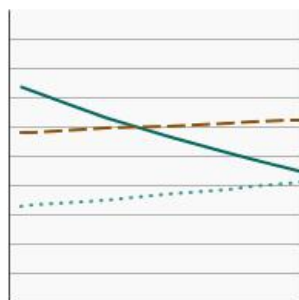
4.6

4.1 - 5.2

Males Ages 25 and Older by Education Level

Percentage of males aged 25 years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2016

[Overview Graph](#)



Detailed Trend Graphs

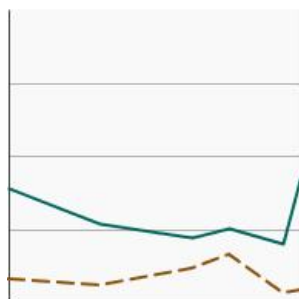
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<u>Less than High School</u>	5.1	3.9 - 6.6
<u>High School</u>	6.0	5.1 - 7.1
<u>Greater than High School</u>	3.7	3.2 - 4.4

Females Ages 25 and Older by Poverty Income Level

Percentage of females aged 25 years and older who were current smokeless tobacco users by poverty income level, 2000-2016

[Overview Graph](#)



Detailed Trend Graphs

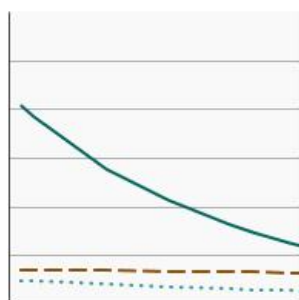
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<u><200% of federal poverty level</u>	0.9	0.5 - 1.6
<u>≥200% of federal poverty level</u>	0.1	0.0 - 0.2

Females Ages 25 and Older by Education Level

Percentage of females aged 25 years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2016)

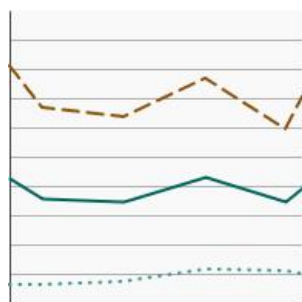
	Percent of adults	95% Confidence Interval
<u>Less than High School</u>	1.3	0.6 - 3.2
<u>High School</u>	0.3	0.1 - 0.6
<u>Greater than High School</u>	0.1	0.1 - 0.3

Cigars

By Sex

Percentage of adults aged 18 years and older who were current cigar smokers by sex, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

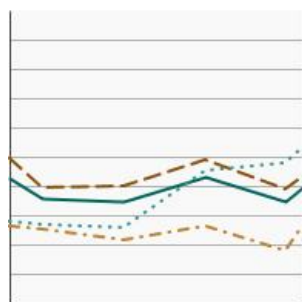
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<u>Both Sexes</u>	4.0	3.6 - 4.3
<u>Male</u>	7.1	6.4 - 7.7
<u>Female</u>	1.0	0.8 - 1.2

By Race/Ethnicity

Percentage of adults aged 18 years and older who were current cigar smokers by race/ethnicity, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

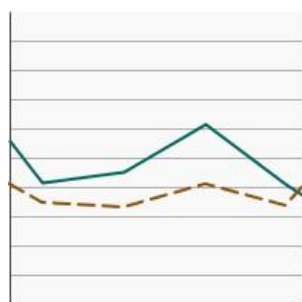
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<u>All Races</u>	4.0	3.6 - 4.3
<u>Non-Hispanic White</u>	4.3	3.9 - 4.8
<u>Non-Hispanic Black</u>	5.3	4.3 - 6.6
<u>Hispanic</u>	2.6	2.1 - 3.4

By Age

Percentage of adults aged 18 years and older who were current cigar smokers by age, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<u>Ages 18-24</u>	3.7	2.9 - 4.7
<u>Ages 25+</u>	4.0	3.6 - 4.4

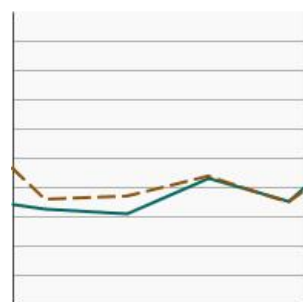
By Poverty Income Level

Percentage of adults aged 18 years and older who were current cigar smokers by poverty income level, 1998-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



<200% of federal poverty level

Percent of adults

95% Confidence Interval

4.1

3.5 - 4.7

>=200% of federal poverty level

3.9

3.5 - 4.3

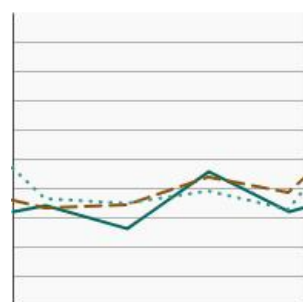
By Education Level

Percentage of adults aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



Less than High School

3.4

2.6 - 4.3

High School

4.4

3.6 - 5.3

Greater than High School

4.0

3.6 - 4.4

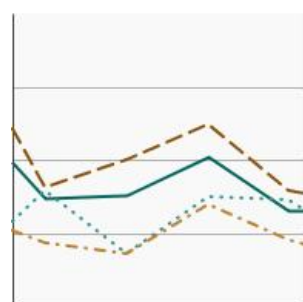
Males Ages 18-24 by Race/Ethnicity

Percentage of males aged 18-24 years who were current cigar smokers by race/ethnicity, 1998-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



All Races

6.5

5.0 - 8.4

Non-Hispanic White

7.7

5.7 - 10.2

Non-Hispanic Black

6.5

2.9 - 13.9

Hispanic

4.2

1.9 - 9.2

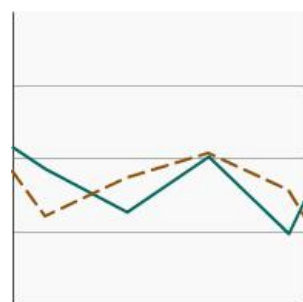
Males Ages 18-24 by Poverty Income Level

Percentage of males aged 18-24 years who were current cigar smokers by poverty income level, 1998-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



<200% of federal poverty level

Percent of adults

95% Confidence Interval

7.3

5.3 - 9.9

>=200% of federal poverty level

5.8

3.9 - 8.6

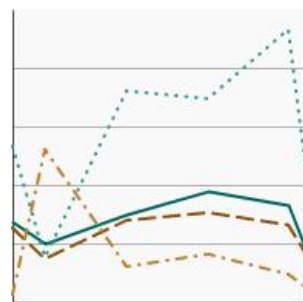
Females Ages 18-24 by Race/Ethnicity

Percentage of females aged 18-24 years who were current cigar smokers by race/ethnicity, 1998-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



All Races

0.9

0.5 - 1.7

Non-Hispanic White

0.8

0.4 - 1.9

Non-Hispanic Black

2.4

0.9 - 6.0

Hispanic

0.3

0.1 - 0.9

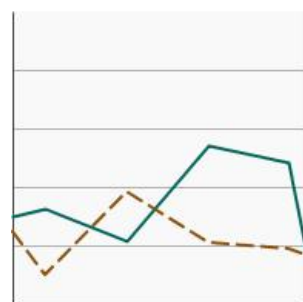
Females Ages 18-24 by Poverty Income Level

Percentage of females aged 18-24 years who were current cigar smokers by poverty income level, 1998-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)



<200% of federal poverty level

1.0

0.5 - 1.8

>=200% of federal poverty level

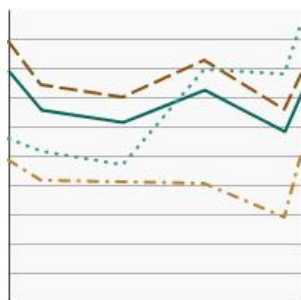
0.8

0.3 - 2.4

Males Ages 25 and Older by Race/Ethnicity

Percentage of males aged 25 years and older who were current cigar smokers by race/ethnicity, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

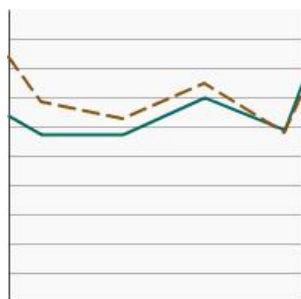
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	7.1	6.5 - 7.9
Non-Hispanic White	7.8	7.0 - 8.7
Non-Hispanic Black	9.5	7.3 - 12.3
Hispanic	5.1	3.8 - 6.7

Males Ages 25 and Older by Poverty Income Level

Percentage of males aged 25 years and older who were current cigar smokers by poverty income level, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

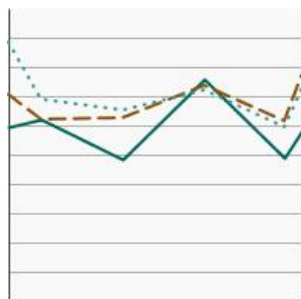
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	7.4	6.2 - 8.9
>=200% of federal poverty level	7.0	6.3 - 7.9

Males Ages 25 and Older by Education Level

Percentage of males aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

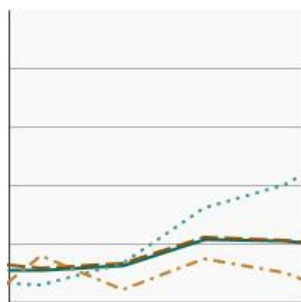
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
Less than High School	5.8	4.4 - 7.5
High School	7.7	6.3 - 9.3
Greater than High School	7.2	6.5 - 8.1

Females Ages 25 and Older by Race/Ethnicity

Percentage of females aged 25 years and older who were current cigar smokers by race/ethnicity, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

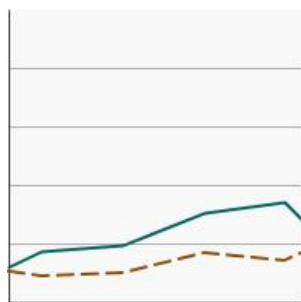
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	1.0	0.8 - 1.3
Non-Hispanic White	1.0	0.8 - 1.4
Non-Hispanic Black	2.2	1.4 - 3.2
Hispanic	0.4	0.2 - 0.9

Females Ages 25 and Older by Poverty Income Level

Percentage of females aged 25 years and older who were current cigar smokers by poverty income level, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

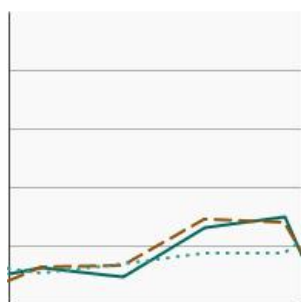
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	1.4	1.1 - 1.9
>=200% of federal poverty level	0.8	0.6 - 1.2

Females Ages 25 and Older by Education Level

Percentage of females aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

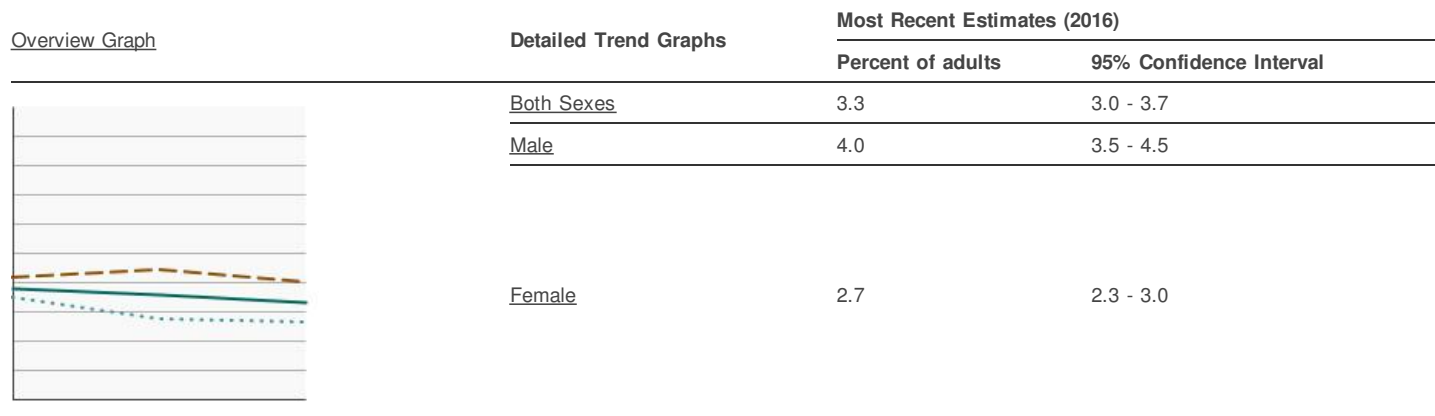
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
Less than High School	0.8	0.5 - 1.5
High School	0.9	0.6 - 1.4
Greater than High School	1.1	0.8 - 1.4

E-Cigarettes

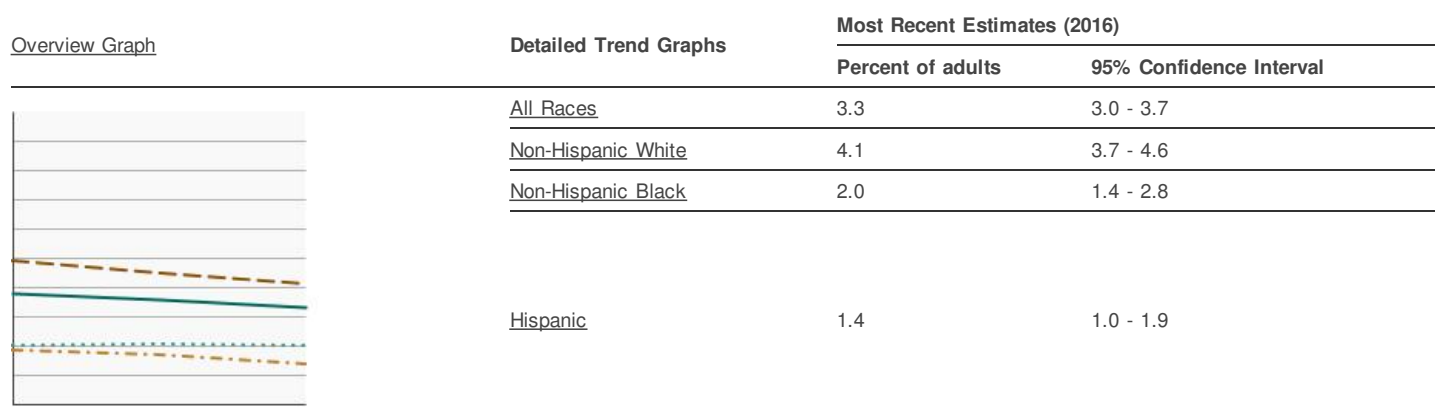
By Sex

Percentage of adults aged 18 years and older who were current e-cigarette users by sex, 2014-2016



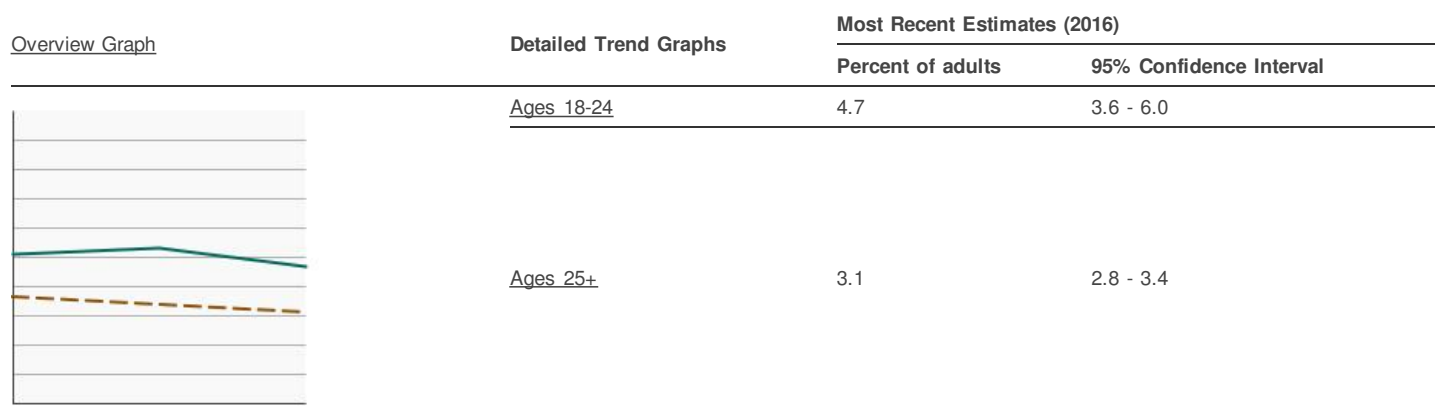
By Race/Ethnicity

Percentage of adults aged 18 years and older who were current e-cigarette users by race/ethnicity, 2014-2016



By Age

Percentage of adults aged 18 years and older who were current e-cigarette users by age, 2014-2016



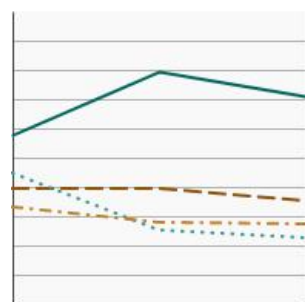
By Sex and Age

Percentage of adults aged 18 years and older who were current e-cigarette users by sex and age, 2014-2016

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2016)



	Percent of adults	95% Confidence Interval
Males, Ages 18-24	7.1	5.2 - 9.6
Males, Ages 25+	3.5	3.1 - 4.1
Females, Ages 18-24	2.3	1.6 - 3.3
Females, Ages 25+	2.7	2.3 - 3.1

□

Cancers Related to Adult Tobacco Use

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Acute Myeloid Leukemia \(AML\)](#)
- [Anus](#)
- [Bladder](#)
- [Cervix Uteri](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Kidney and Renal Pelvis](#)

- [Larynx](#)
- [Liver and Intrahepatic Bile Duct](#)
- [Lung and Bronchus](#)
- [Oral Cavity and Pharynx](#)
- [Pancreas](#)
- [Stomach](#)

Evidence-based Resources

Tobacco control resources are available that support collaboration, identify evidence-based approaches and list [research-tested interventions](#) on the [Cancer Control P.L.A.N.E.T.](#) web portal. To identify high-risk populations and prioritize cancer control efforts, state and county-level tobacco data can be found on [State Cancer Profiles](#).

Additional Information on Adult Tobacco Use For the public

- [Tobacco and Cancer](#). American Cancer Society.
- [Surgeon General's Reports on Smoking and Tobacco Use](#). Centers for Disease Control and Prevention.
- [50 Years of Progress: A Report of the Surgeon General, 2014](#). U.S. Department of Health & Human Services.
- [Tobacco Products](#). U.S. Food and Drug Administration.

Scientific reports

- [Current cigarette smoking among adults – United States 2005–2012](#). Agaku IT, King BA, Dube SR, Centers for Disease Control and Prevention. *MMWR Morb Mortal Wkly Rep.* 2014;63(2):29–34.
- [How far we have come in the last 50 years in smoking attitudes and actions](#). Burns D. *Ann Am Thorac Soc* 2014;11(2):224–6.
- [Tobacco control and the reduction in smoking-related premature deaths in the United States, 1964–2012](#). Holford TR, Mesa R, Warner KE, Meernik C, Jeon J, Moolgavkar SH, Levy DT. *JAMA* 2014;311(2):164–71.
- [Cigarette smoking, desire to quit, and tobacco-related counseling among patients at adult health centers](#). Lebrun-Harris LA, Fiore MC, Tomoyasu N, Ngo-Metzger Q. *Am J Public Health* 2014.
- [Multiple tobacco product use among adults in the United States: cigarettes, cigars, electronic cigarettes, hookah, smokeless tobacco, and snus](#). Lee YO, Hebert CJ, Nonnemaker JM, Kim AE. *Prev Med* 2014;62C:14–19.
- [Quit interest, quit attempt and recent cigarette smoking cessation in the U.S. working population, 2010](#). Yong LC, Luckhaupt SE, Li J, Calvert GM. *Occup Environ Med* 2014.

Statistics

- [Cancer Facts & Figures 2017](#). American Cancer Society.
- [NCI sponsored Tobacco Use Supplement to the Current Population 2010-2011](#). U.S. Dept. of Commerce, Census Bureau 2012-2013.
- [Current Cigarette Smoking Among Adults in the United States](#). Centers for Disease Control and Prevention.
- [Behavioral Risk Factor Surveillance System Prevalence and Trends Data, 2012](#). Centers for Disease Control and Prevention.
- [State Cancer Profiles](#). National Cancer Institute.
- [Reports and Detailed Tables From the 2016 National Survey on Drug Use and Health](#). Substance Abuse and Mental Health Services Administration.

For smokers

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](#). National Cancer Institute.
- [Tobacco](#). National Cancer Institute.
- [North American Quitline Consortium\(<http://www.naquitline.org/>\)](#).

Smoking Cessation

Tobacco use can lead to nicotine dependence and serious health problems. Quitting smoking greatly reduces the risk of developing smoking-related diseases, including cancer.

- [Quitting Smoking](#)
- [Clinicians' Advice to Quit Smoking](#)

Quitting Smoking

Last Updated:

February 2018

Introduction

Quitting smoking has major and immediate health benefits for men and women of all ages. Quitting smoking dramatically reduces the risk of lung and other cancers, coronary heart disease, stroke, and chronic lung disease. For example, 10 years after a person quits smoking, his or her risk of lung cancer is decreased to about one-third to one-half of that of a person who continues to smoke; with continued abstinence from smoking, the risk of lung cancer decreases even further.

Although quitting smoking is beneficial at any age, the earlier in life a person quits, the more likely it is that he or she will avoid the devastating health effects of continued tobacco use. Few smokers can quit successfully on their first attempt; most people will require several attempts before they are able to permanently quit. This emphasizes the need for smokers to begin trying to quit as early in life as possible.

Measure

Attempt to quit: The percentage of adult smokers aged 18 years and older who attempted smoking cessation within the past 12 months. The attempt-to-quit measure includes both current smokers who smoke every day or some days and who, at the time of the survey, had quit smoking for at least 1 day during the past 12 months, as well as recent former smokers, who quit smoking less than 1 year ago.

Successful quitting: The percentage of recent smoking cessation success for adult smokers (aged 18 years and older) includes two conditions that define successful cessation. If a survey participant satisfied both of the following criteria, they were only included once in the calculation.

1. Former smokers who had quit smoking 6-12 months prior to the survey interview.
2. Former smokers who had initiated smoking at least 2 years prior to the survey interview and who quit smoking any time during the past 12 months.

Healthy People 2020 Target

- Increase to 80 percent the proportion of adult current smokers (aged 18 years and older) who stopped smoking for a day or longer because they were trying to quit.
- Increase to 8 percent the proportion of adult smokers (aged 18 years and older) who successfully quit smoking for at least 6 months in the past 12 months.
- Healthy People 2020 is developing two additional targets to promote smoking cessation using evidence-based strategies. These developmental targets include one to increase smoking cessation attempts by adult smokers using evidence-based strategies (TU-4.2) and one to increase recent smoking cessation success by adult smokers using evidence-based strategies (TU-5.2).

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

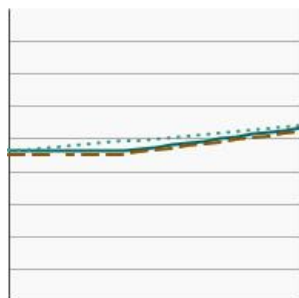
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1998-2016.

Trends and Most Recent Estimates Attempted to Quit Smoking

By Sex

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by sex, 1998-2016

[Overview Graph](#)



Detailed Trend Graphs

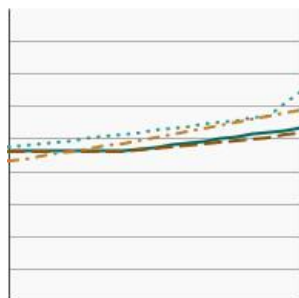
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
Both Sexes	53.4	51.4 - 55.3
Male	51.8	49.0 - 54.6
Female	55.0	52.6 - 57.5

By Race/Ethnicity

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by race/ethnicity, 1998-2016

[Overview Graph](#)



Detailed Trend Graphs

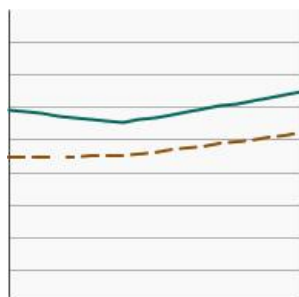
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
All Races	53.4	51.4 - 55.3
Non-Hispanic White	51.1	49.1 - 53.2
Non-Hispanic Black	63.6	58.5 - 68.4
Hispanic	57.4	49.8 - 64.7

By Age

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age, 1998-2016

[Overview Graph](#)



Detailed Trend Graphs

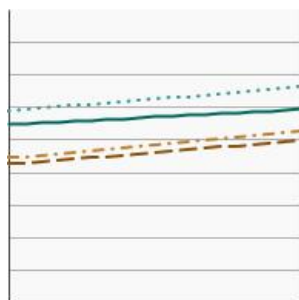
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
Ages 18-24	63.3	56.1 - 69.9
Ages 25 and older	52.1	50.2 - 54.0

By Sex and Age

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age and sex, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

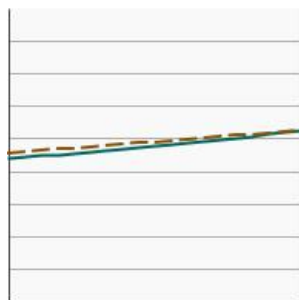
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
Males, Ages 18-24	61.0	50.6 - 70.5
Males, Ages 25+	50.4	47.6 - 53.2
Females, Ages 18-24	66.7	59.1 - 73.6
Females, Ages 25+	53.9	51.2 - 56.5

By Poverty Income Level

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by poverty income level, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

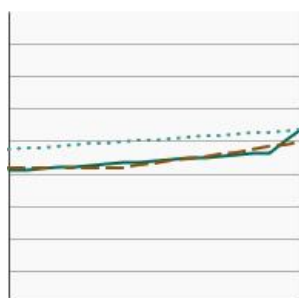
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
<200% of federal poverty level	52.9	49.9 - 55.9
>=200% of federal poverty level	54.0	51.4 - 56.5

By Education Level

Percentage of adult smokers aged 25 years and older who attempted to stop smoking for one day or longer in the past year by highest level of education obtained, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

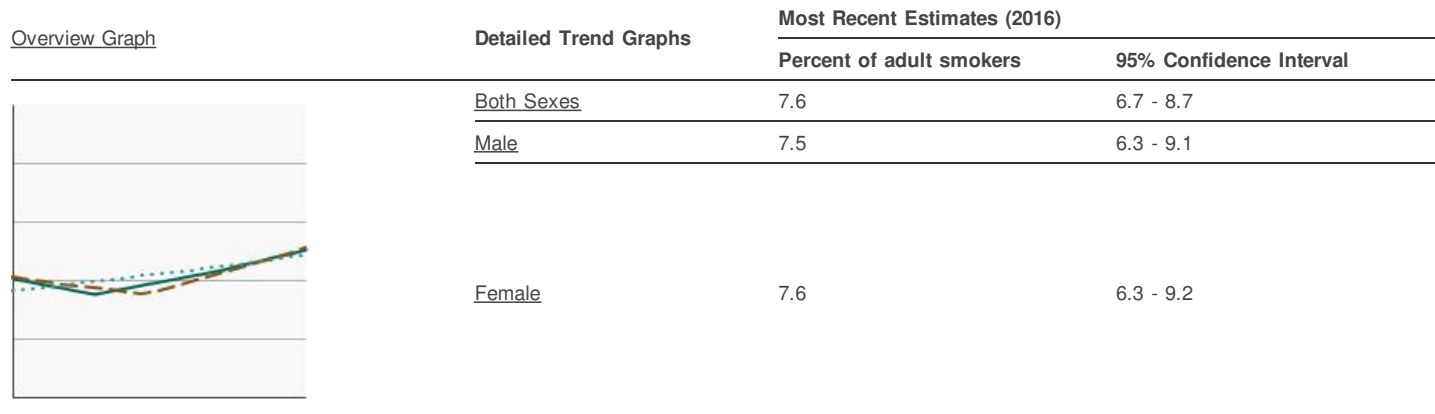
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
Less than High School	54.0	49.3 - 58.5
High School	49.0	45.8 - 52.3
Greater than High School	53.5	51.1 - 55.9

Successfully Quit Smoking

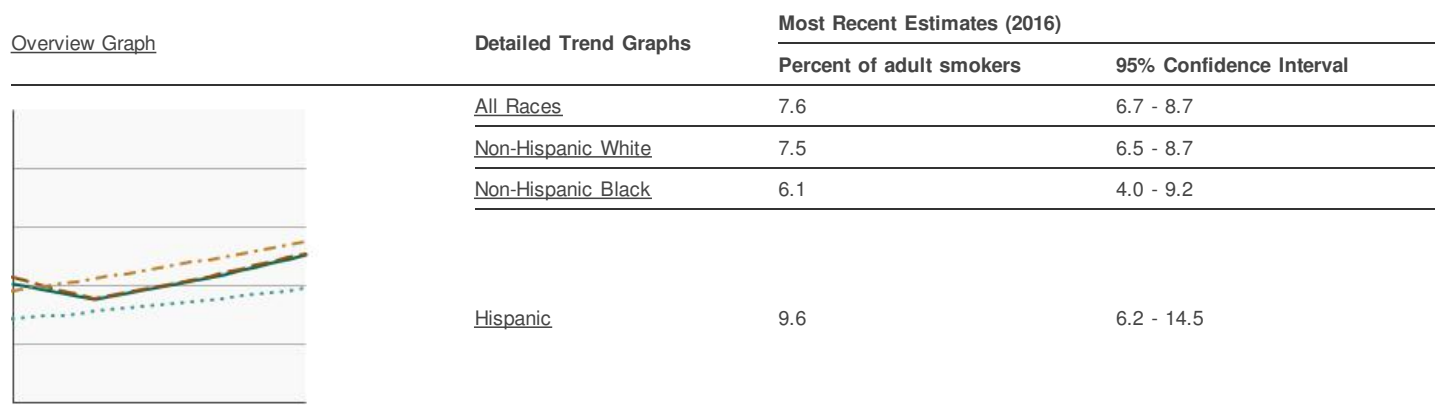
By Sex

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by sex, 1998-2016



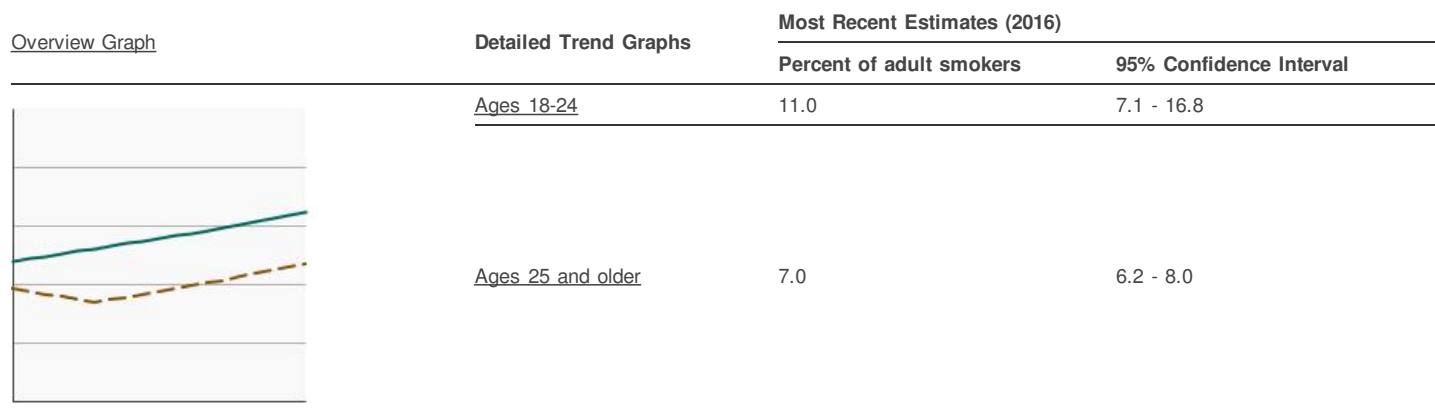
By Race/Ethnicity

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by race/ethnicity, 1998-2016



By Age

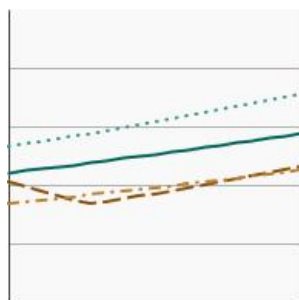
Percentage of recent smoking cessation success among adult smokers aged 18 years and older by age, 1998-2016



By Sex and Age

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by age and sex, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

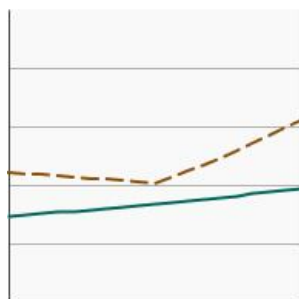
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
<u>Males, Ages 18-24</u>	10.2	6.1 - 16.6
<u>Males, Ages 25+</u>	6.8	5.6 - 8.2
<u>Females, Ages 18-24</u>	11.5	5.7 - 21.7
<u>Females, Ages 25+</u>	7.3	6.1 - 8.8

By Poverty Income Level

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by poverty income level, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

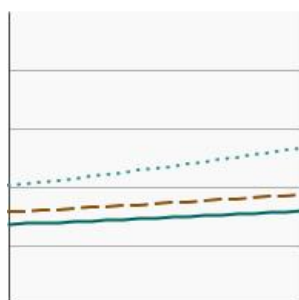
Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
<u><200% of federal poverty level</u>	5.8	4.6 - 7.2
<u>>=200% of federal poverty level</u>	9.2	7.7 - 10.9

By Education Level

Percentage of recent smoking cessation success among adult smokers aged 25 years and older by highest level of education obtained, 1998-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of adult smokers	95% Confidence Interval
<u>Less than High School</u>	5.8	3.3 - 9.8
<u>High School</u>	4.8	3.7 - 6.1
<u>Greater than High School</u>	8.8	7.5 - 10.4

Evidence-based Resources

Evidence-based intervention programs are available on the [Research-tested interventions](#) (RTIPs) website that promote smoking cessation and provide guidance to quit.

Additional Information on Quitting Smoking For the public

- [Tobacco and Cancer](#). American Cancer Society.
- [Surgeon General's Reports on Smoking and Tobacco Use](#). Centers for Disease Control and Prevention.
- [Surgeon General.gov. 50 Years of Progress: A Report of the Surgeon General, 2014](#). U.S. Department of Health and Human Services.
- [Tobacco Products](#). U.S. Food and Drug Administration.

For health professionals

- [Best Practices for Comprehensive Tobacco Control Programs – 2014](#). Centers for Disease Control and Prevention.

Scientific reports

- [Heterogeneity in past year cigarette smoking quit attempts among Latinos](#). Gundersen DA, Echeverria SE, Lewis MJ, Giovino GA, Ohman-Strickland P, Delnevo CD. *J Environ Public Health* 2012;2012:378165.
- [Dispelling myths about gender differences in smoking cessation: population data from the USA, Canada and Britain](#). Jarvis MJ, Cohen JE, Delnevo CD, Giovino GA. *Tob Control* 2013 Sep;22(5):356-60.
- [Quitting smoking among adults – United States, 2001–2010](#). Malarcher A, Dube S, Shaw L, Babb S, Kaufmann R. *MMWR* 2011;60(44):1513–19.
- [Home matters: work and household predictors of smoking and cessation among blue-collar workers](#). Okechukwu CA, Dutra LM, Bacic J, El Ayadi A, Emmons KM. *Prev Med* 2013 Feb;56(2):130-4.
- [Are quit attempts among U.S. female nurses who smoke different from female smokers in the general population? An analysis of the 2006/2007 tobacco use supplement to the current population survey](#). Sarna L, Bialous SA, Nandy K, Yang Q. *BMC Womens Health* 2012;12:4.
- [Efficacy of smoking-cessation interventions for young adults: a meta-analysis](#). Suls JM, Luger TM, Curry SJ, Mermelstein RJ, Sporer AK, An LC. *Am J Prev Med*. 2012;42(6):655–62.
- [Monograph 12: Population Based Smoking Cessation Proceedings of a Conference on What Works to Influence Cessation in the General Population](#). U.S. Public Health Service and the National Cancer Institute.
- [Interventions to increase smoking cessation at the population level: how much progress has been made in the last two decades?\(http://scholar.google.com/citations?view_op=view_citation&hl=en&user=qcTNv8QAAAAJ&cstart=20&citation_for_view=qcTNv8QAAAAJ:D03iK_w7-QYC\)](#) SH Zhu, M Lee, YL Zhuang, A Gamst, T Wolfson. *Tobacco Control* 2012; 21(2):110-118.

Statistics

- [The Tobacco Use Supplement to the Current Population Survey](#). National Cancer Institute.

For smokers

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](#). National Cancer Institute.
- [Tobacco](#). National Cancer Institute.
- [North American Quitline Consortium\(http://www.naquitline.org/\)](#).

Clinicians' Advice to Quit Smoking

Last Updated:

February 2018

Introduction

Clinicians' advice to quit smoking can by itself contribute 5 to 10 percentage points toward quitting among smoking patients and much more if coupled with behavioral therapy and pharmacological treatment of nicotine addiction. In addition, even minimal clinical interventions have been shown to be cost effective in increasing smokers' motivation to quit.

If a patient wants to quit, the national guidelines recommend that the clinician follow the "5 A's" (ask, advise, assess, assist, and arrange). For patients who are not yet ready to quit, the clinician should instead provide a brief intervention designed to promote the motivation to quit. Experts have suggested that a wide variety of clinicians, including dentists, physicians, and other health professionals such as pharmacists, can effectively implement brief strategies to increase future quit attempts. In fact, many individual pharmacies and one national pharmacy chain have decided not to sell tobacco products, recognizing that the sale of tobacco products conflicts with the role of pharmacies as public health facilities.

Measure

The percentage of adult smokers (aged 18 years and older) who have seen a physician or dentist in the past 12 months and report that the physician or dentist advised them to quit smoking.

Healthy People 2020 Target

The Healthy People 2020 (HP2020) targets are developed based on the National Center for Health Statistics survey of physicians and hospitals. In contrast, the data presented in the Cancer Trends Progress Report are based on reports from patients regarding whether they received smoking cessation advice from their physicians or dentists. Therefore, the data presented in this report cannot be directly compared to the HP2020 objectives. Nevertheless, patient self-report data is a valuable measure of how clinicians' advice to quit smoking is changing over time.

HP2020 includes targets for physicians' advice to quit smoking in office-based ambulatory care settings and in hospital ambulatory care settings. The HP2020 objective is for adult smokers to receive tobacco cessation counseling at 21.1 percent of visits to physicians' offices, and at 24.9 percent of hospital visits. HP2020 also includes targets for dentists' advice to quit smoking in dental care settings. The HP2020 objective is for patients who use tobacco products to receive cessation counseling at 39.3 percent of dental care visits.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

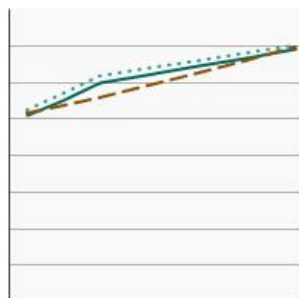
The Tobacco Use Supplement to the Current Population Survey, National Cancer Institute, 1992–2015.

Trends and Most Recent Estimates Physicians' Advice to Quit Smoking

By Sex

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by sex, 1992-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014 to 2015)

Both Sexes

Percent of adults

95% Confidence Interval

70.0

69.0 - 71.0

Male

68.9

67.4 - 70.4

Female

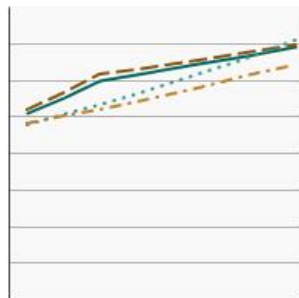
71.0

69.7 - 72.3

By Race/Ethnicity

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by race/ethnicity, 1992-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014 to 2015)

All Races

Percent of adults

95% Confidence Interval

70.0

69.0 - 71.0

Non-Hispanic White

71.0

69.8 - 72.1

Non-Hispanic Black

70.6

67.4 - 73.6

Hispanic

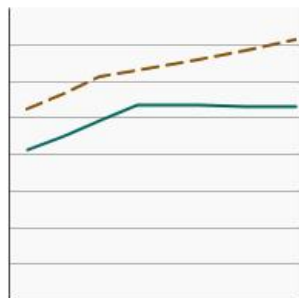
63.2

59.4 - 66.8

By Age

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by age, 1992-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014 to 2015)

Ages 18-24

Percent of adults

95% Confidence Interval

54.7

50.7 - 58.6

Ages 25+

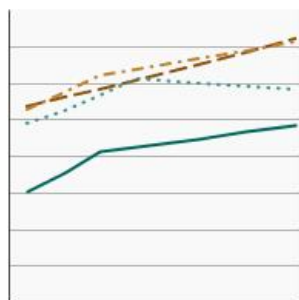
72.0

71.0 - 73.0

By Sex and Age

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by sex and age, 1992-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

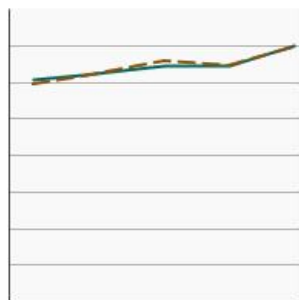
Most Recent Estimates (2014 to 2015)

	Percent of adults	95% Confidence Interval
Males, ages 18-24	51.4	45.4 - 57.5
Males, ages 25+	71.3	69.9 - 72.8
Females, ages 18-24	57.9	52.6 - 63.0
Females, ages 25+	72.6	71.3 - 73.8

By Poverty Income Level

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by poverty income level, 1998-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

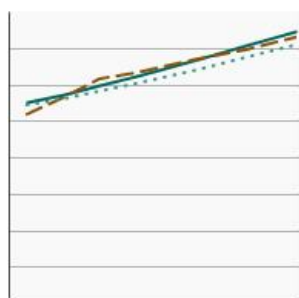
Most Recent Estimates (2014 to 2015)

	Percent of adults	95% Confidence Interval
< 200% of the federal poverty level	70.0	68.3 - 71.5
>= 200% of the federal poverty level	69.5	68.0 - 71.1

By Education Level

Percentage of smokers aged 25 years and older who have seen a physician in the past year and were advised to quit smoking by highest level of education obtained, 1992-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

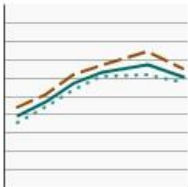
Most Recent Estimates (2014 to 2015)

	Percent of adults	95% Confidence Interval
Less than High School	74.4	72.0 - 76.7
High School	73.5	72.1 - 74.9
Greater than High School	70.2	68.9 - 71.5

Dentists' Advice to Quit Smoking

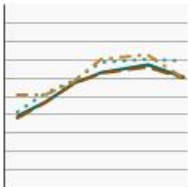
By Sex

Percentage of smokers aged 18 years and older who have seen a dentist in the past year and were advised to quit smoking by sex, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Both Sexes	30.4	29.3 - 31.5
	Male	32.5	30.8 - 34.2
	Female	28.4	27.1 - 29.7

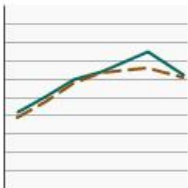
By Race/Ethnicity

Percentage of smokers aged 18 years and older who have seen a dentist in the past year and were advised to quit smoking by race/ethnicity, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	All Races	30.4	29.3 - 31.5
	Non-Hispanic White	29.8	28.6 - 31.0
	Non-Hispanic Black	34.5	30.6 - 38.4
	Hispanic	29.7	25.0 - 34.4

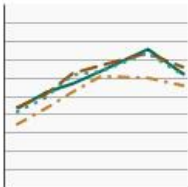
By Age

Percentage of smokers aged 18 years and older who have seen a dentist in the past year and were advised to quit smoking by age, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Ages 18-24	31.1	27.2 - 35.1
	Ages 25+	30.2	29.0 - 31.4

By Sex and Age

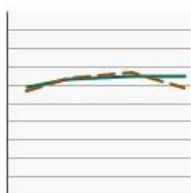
Percentage of smokers aged 18 years and older who have seen a dentist in the past year and were advised to quit smoking by sex and age, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Males Ages 18-24	31.3	25.6 - 36.9
	Males Ages 25+	32.6	30.9 - 34.4
	Females Ages 18-24	30.9	26.1 - 35.6
	Females Ages 25+	27.9	26.5 - 29.3

By Poverty Income Level

Percentage of smokers aged 18 years and older who have seen a dentist in the past year and were advised to quit smoking by poverty income level, 1998-2011

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2010 to 2011)

Percent of adults **95% Confidence Interval**

<200% of federal poverty level

32.4

30.5 - 34.3

>=200% of federal poverty level

29.0

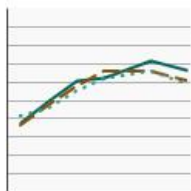
27.5 - 30.5

□

By Education Level

Percentage of smokers aged 25 years and older who have seen a dentist in the past year and were advised to quit smoking by highest level of education obtained, 1992-2011

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2010 to 2011)

Percent of adults **95% Confidence Interval**

Less than High School

33.3

29.3 - 37.3

High School

30.3

28.4 - 32.2

Greater than High School

29.6

28.0 - 31.1

□

Evidence-based Resources

Evidence-based intervention programs are available on the [Research-tested interventions](#) (RTIPs) website that promote smoking cessation and provide guidance to quit.

Additional Information on Clinicians' Advice to Quit Smoking For the public

- [Tobacco and Cancer](#). American Cancer Society.
- [Surgeon General's Reports on Smoking and Tobacco Use](#). Centers for Disease Control and Prevention.
- [50 Years of Progress: A Report of the Surgeon General, 2014](#). U.S. Department of Health and Human Services.
- [Tobacco Products](#). U.S. Food and Drug Administration.

For health professionals

- [Tobacco-Free Pharmacy Laws and Trends in Tobacco Retailer Density in California and Massachusetts](#)(<http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2015.303040>). American Public Health Association (04/01/2016) Vol. 106, No. 4, P. 679 Jin, Yue; Lu, Bo; Klein, Elizabeth G.; et al.
- [Best Practices for Comprehensive Tobacco Control Programs – 2014](#). Centers for Disease Control and Prevention.
- [Cigarette Smoking: Health Risks and How to Quit \(PDQ®\)](#). National Cancer Institute.

Scientific reports

- [A comparison of cessation counseling received by current smokers at US dentist and physician offices during 2010-2011](#). Agaku IT, Ayo-Yusuf OA, Vardavas CI. Am J Public Health 2014 Aug;104(8):e67-75.
- [Quitting smoking among adults --- United States, 2001—2010](#). Malarcher A, Dube S, Shaw L, Babb S, Kaufmann R. MMWR 2011;60(44):1513–19.
- [Efficacy of smoking-cessation interventions for young adults: a meta-analysis](#). Suls JM, Luger TM, Curry SJ, Mermelstein RJ, Sporer AK, An LC. Am J Prev Med. 2012;42(6):655–62.
- [Monograph 12: Population Based Smoking Cessation Proceedings of a Conference on What Works to Influence Cessation in the General Population](#). U.S. Public Health Service and the National Cancer Institute.

For smokers

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](#). National Cancer Institute.
- [Tobacco](#). National Cancer Institute.
- [North American Quitline Consortium](#)(<http://www.naquitline.org/>).

Diet, Physical Activity, and Weight

Considerable evidence indicates that maintaining a healthy lifestyle has the potential to reduce cancer-related morbidity. Up to one-third of cancer cases in the United States are related to poor nutrition, physical inactivity, and/or excess body weight or obesity, and thus could be prevented.

- [Fruit and Vegetable Consumption](#)
- [Red Meat Consumption](#)
- [Fat Consumption](#)

- [Alcohol Consumption](#)
- [Physical Activity](#)
- [Weight](#)

Fruit and Vegetable Consumption

Last Updated:

February 2018

Introduction

People whose diets are rich in plant foods such as fruits and vegetables have a lower risk of getting cancers of the mouth, pharynx, larynx, esophagus, stomach, and lung, and some evidence suggests that maintaining a diet rich in plant foods also lowers the risk of cancers of the colon, pancreas, and prostate. This diet also reduces the risk of diabetes, heart disease, and hypertension, helps to reduce calorie intake, and may help to control weight. To help prevent the aforementioned cancers and other chronic diseases, experts recommend the daily consumption of 2 to 6.5 cups of fruits and vegetables, depending on one's energy needs. This includes 1 to 2.5 cups of fruits and 1 to 4 cups of vegetables, with special emphasis on dark green and orange vegetables and legumes. There is no evidence that the popular white potato protects against cancer.

Measure

Average daily cup equivalents per 1,000 calories of fruits and vegetables for people aged 2 years and older. This measure includes fruits and vegetables from all sources.

Healthy People 2020 Target

- 0.9 daily cup equivalents of fruit per 1,000 calories. 1.14 daily cup equivalents of vegetables per 1,000 calories, with at least 0.55 cup equivalents of dark green or orange vegetables or legumes per 1,000 calories.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

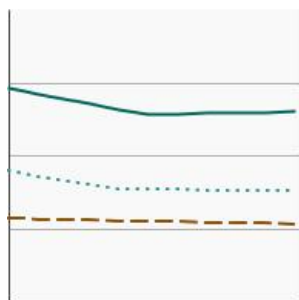
U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD). Continuing Survey of Food Intakes by Individuals 1994-96, 1998.

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1994-2014.

Trends and Most Recent Estimates Overall Comparison

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older, 1994-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

[Fruit and Vegetables](#)

[Fruit](#)

[Vegetables](#)

Most Recent Estimates (2013 to 2014)

Average cups per 1,000 calories	95% Confidence Interval
1.3	1.2 - 1.3
0.5	0.5 - 0.5
0.7	0.7 - 0.8

1.3

1.2 - 1.3

0.5

0.5 - 0.5

0.7

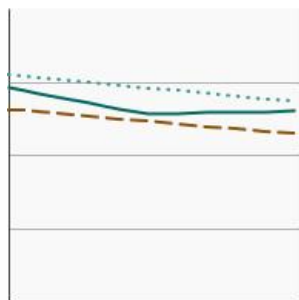
0.7 - 0.8

Fruit and Vegetables Combined

By Sex

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

[Both Sexes](#)

[Male](#)

[Female](#)

Most Recent Estimates (2013 to 2014)

Average cups per 1,000 calories	95% Confidence Interval
1.3	1.2 - 1.3
1.1	1.1 - 1.2
1.4	1.3 - 1.4

1.3

1.2 - 1.3

1.1

1.1 - 1.2

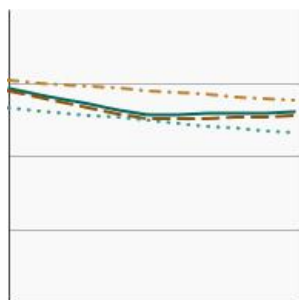
1.4

1.3 - 1.4

By Race/Ethnicity

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

[All Races](#)

[Non-Hispanic White](#)

[Non-Hispanic Black](#)

[Hispanic](#)

Most Recent Estimates (2013 to 2014)

Average cups per 1,000 calories	95% Confidence Interval
1.3	1.2 - 1.3
1.2	1.2 - 1.3
1.1	1.1 - 1.2
1.4	1.3 - 1.4

1.3

1.2 - 1.3

1.2

1.2 - 1.3

1.1

1.1 - 1.2

1.4

1.3 - 1.4

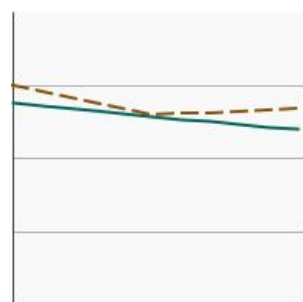
By Poverty Income Level

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2014

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2013 to 2014)



<200% of federal poverty level

Average cups per 1,000 calories

1.2

95% Confidence Interval

1.1 - 1.2

>=200% of federal poverty level

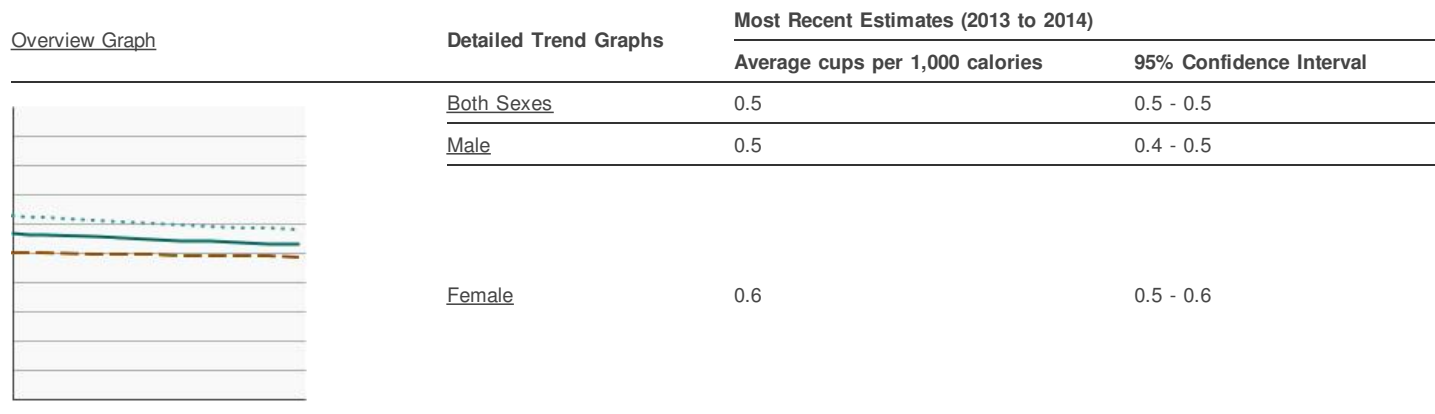
1.3

1.3 - 1.4

Fruit

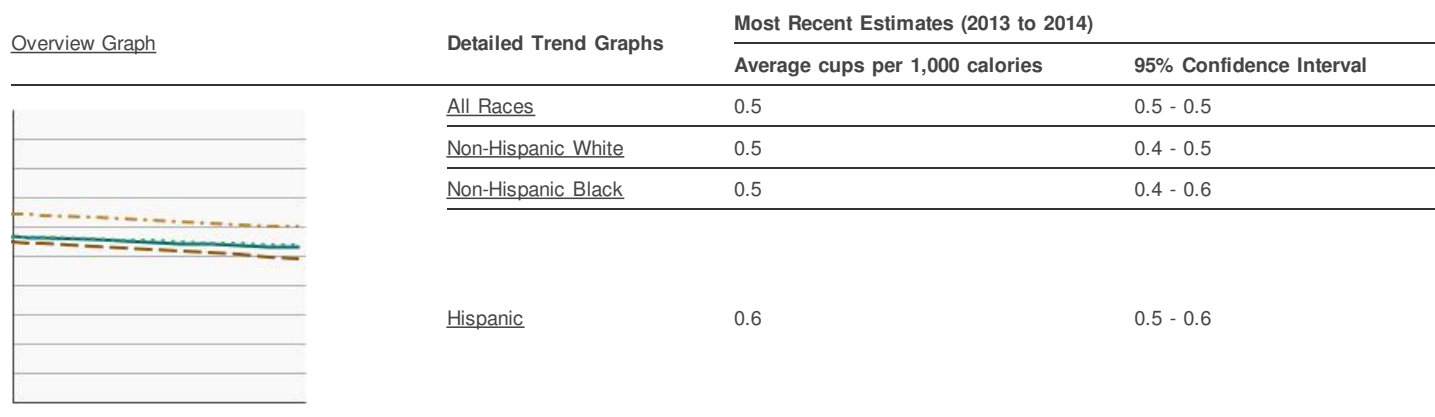
By Sex

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2014



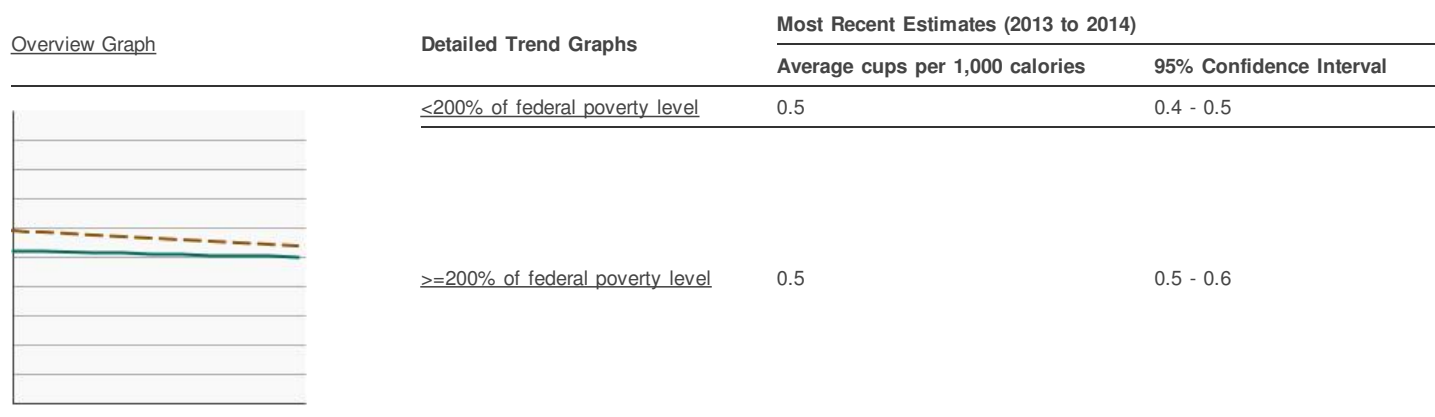
By Race/Ethnicity

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2014



By Poverty Income Level

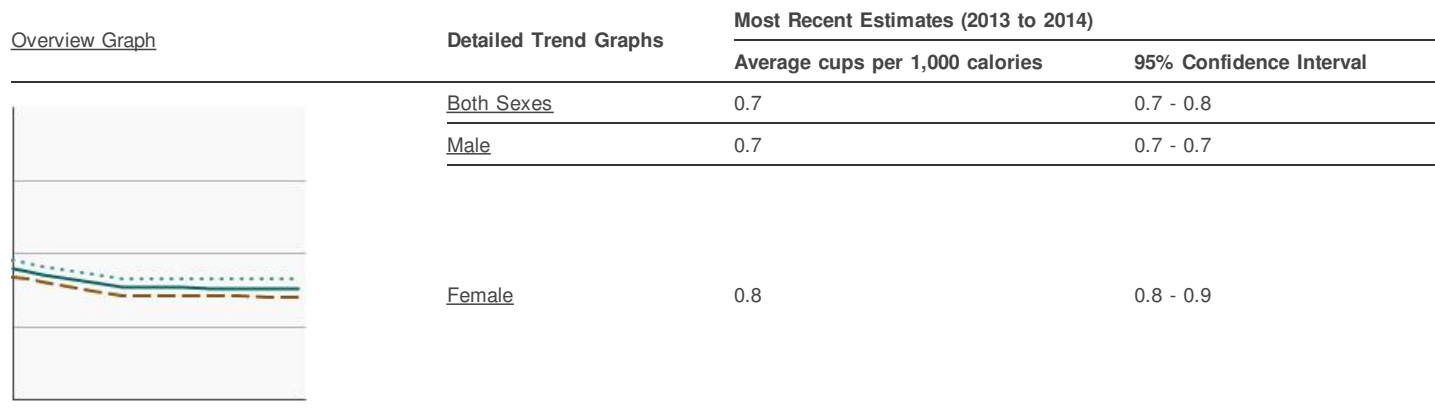
Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2014



Vegetables

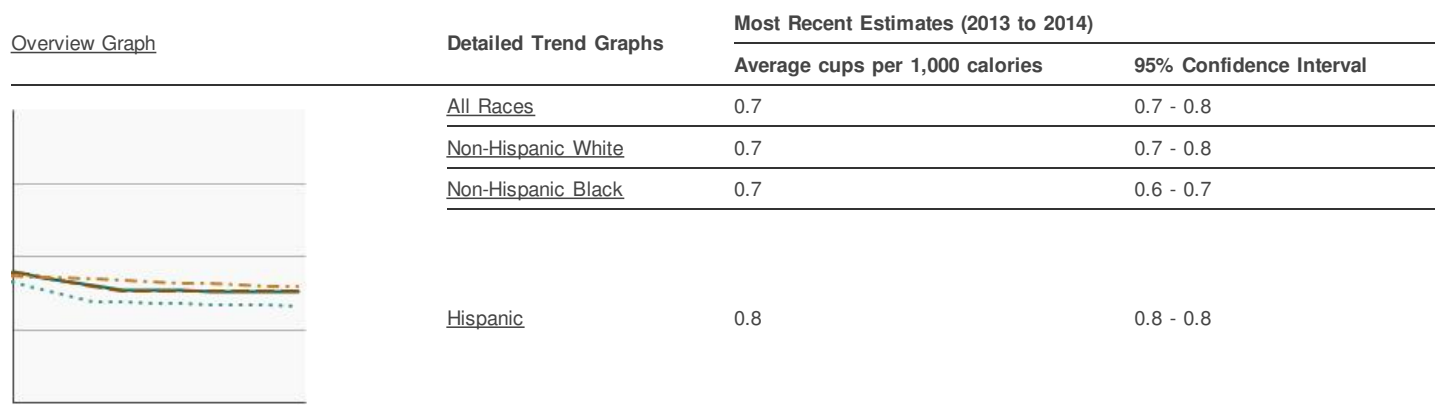
By Sex

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2014



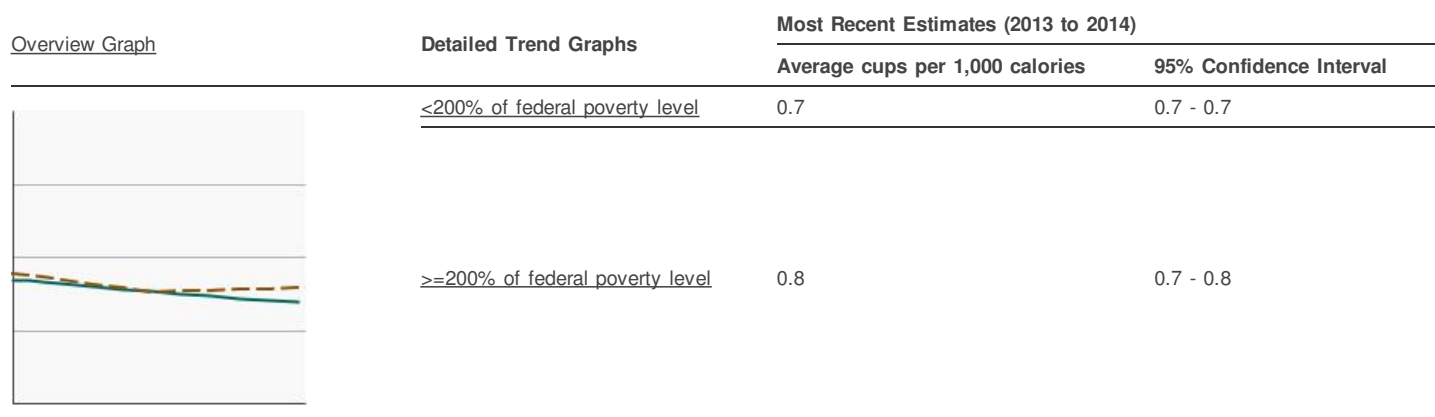
By Race/Ethnicity

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2014



By Poverty Income Level

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2014



Cancers Related to Fruit and Vegetable Consumption

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Colon and Rectum](#)
- [Esophagus](#)
- [Larynx](#)
- [Lung and Bronchus](#)

- [Oral Cavity and Pharynx](#)
- [Pancreas](#)
- [Prostate](#)
- [Stomach](#)

Evidence-based Resources

Resources are available on [diet and nutrition on the Cancer Control P.L.A.N.E.T. web portal](#). Identify population-based [evidence-based approaches](#) on healthy eating and locate multiple evidence-based interventions designed to [increase fruit and vegetables](#) consumption on the [Research-tested interventions \(RTIPs\) website](#).

Additional Information on Fruit and Vegetable Consumption For the public

- [ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention](#). American Cancer Society.
- [Diet and Physical Activity: What's the Cancer Connection](#). American Cancer Society.
- [Cancer Prevention and Control](#). Centers for Disease Control and Prevention.

For health professionals

- [Nutrition, Physical Activity, and Obesity](#). Centers for Disease Control and Prevention. State, Tribal, Local, and Territorial Public Health Professionals Gateway.

Scientific reports

- [American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity](#). Kushi LH, Doyle C, McCullough M, et al. *CA Cancer J Clin*. 2012;62(1):30–67.
- [2015-2020 Dietary Guidelines for Americans](#). U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- [Continuous Update Project](#)(<http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup>). World Cancer Research Fund International.
- [Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective](#)(<http://www.wcrf.org/sites/default/files/Second-Expert-Report.pdf>). World Cancer Research Fund, and the American Institute for Cancer Research.

Statistics

- [Usual Dietary Intakes: Food Intakes, U.S. Population, 2007–10](#). National Cancer Institute.
- [What We Eat in America](#). U.S. Department of Agriculture.

Red Meat Consumption

Last Updated:

February 2018

Introduction

Red meat and processed meat are associated with an increased risk of colorectal cancer, and evidence also suggests their association with some other cancers, such as prostate cancer. Red meat refers to beef, pork, and lamb, although some studies include all processed meats (such as bacon, sausage, hot dogs, and cold cuts) in their definition, regardless of animal origin. Some research suggests that processed meat, but not fresh meat, may increase risk. More research is needed to understand how these meats influence cancer risk. The increased risk may be explained by the iron and fat content in red meat, and/or the salt and nitrates/nitrites in processed meat. Additionally, when meat is cooked at high temperatures, substances are formed that may cause cancer.

Measure

Average daily ounce equivalents of red meat for people aged 2 years and older. Red meat includes beef, lamb, and pork from all sources and does not include processed poultry.

Healthy People 2020 Target

- There is no Healthy People 2020 target for red meat consumption.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD). Continuing Survey of Food Intakes by Individuals 1994-96, 1998
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2014.

Trends and Most Recent Estimates

By Sex

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Average ounces per 1,000 calories	95% Confidence Interval
	Both Sexes	1.1	1.0 - 1.1
	Male	1.2	1.1 - 1.3
	Female	0.9	0.9 - 1.0

By Race/Ethnicity

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Average ounces per 1,000 calories	95% Confidence Interval
	All Races	1.1	1.0 - 1.1
	Non-Hispanic White	1.1	1.0 - 1.1
	Non-Hispanic Black	1.0	1.0 - 1.1
	Hispanic	1.0	0.9 - 1.1

By Poverty Income Level

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Average ounces per 1,000 calories	95% Confidence Interval
	<200% of federal poverty level	1.0	1.0 - 1.1
	>=200% of federal poverty level	1.1	1.0 - 1.1

Cancers Related to Red Meat Consumption

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Colon and Rectum](#)
- [Prostate](#)

Evidence-based Resources

Resources are available on diet and nutrition on the Cancer Control P.L.A.N.E.T. web portal. Identify population-based [evidence-based approaches](#) on healthy eating and locate multiple evidence-based interventions.

Additional Information on Red Meat Consumption For the public

- [ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention](#). American Cancer Society.
- [Diet and Physical Activity: What's the Cancer Connection](#). American Cancer Society.

- [Cancer Prevention and Control](#). Centers for Disease Control and Prevention.
- [Q&A on the Carcinogenicity of the Consumption of Red Meat and Processed Meat](http://www.iarc.fr/en/media-centre/iarcnews/pdf/Monographs-Q&A_Vol114.pdf). (http://www.iarc.fr/en/media-centre/iarcnews/pdf/Monographs-Q&A_Vol114.pdf) International Agency for Research on Cancer (IARC).
- [Chemicals in Meat Cooked at High Temperatures and Cancer Risk](#). National Cancer Institute.

For health professionals

- [Carcinogenicity of Consumption of Red and Processed Meat](http://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045%2815%2900444-1.pdf)(http://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045%2815%2900444-1.pdf). The Lancet Oncology.

Scientific reports

- [A large prospective study of meat consumption and colorectal cancer risk: an investigation of potential mechanisms underlying this association](http://cancerres.aacrjournals.org/content/70/6/2406.short).(http://cancerres.aacrjournals.org/content/70/6/2406.short) Cross AJ, Ferrucci LM, Risch A. Cancer Res 2010;70:2406.
- [American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity](#). Kushi LH, Doyle C, McCullough M, et al. CA Cancer J Clin. 2012;62(1):30–67.
- [2015-2020 Dietary Guidelines for Americans](#). U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- [Continuous Update Project](http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup)(http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup). World Cancer Research Fund International.
- [Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective](http://www.wcrf.org/sites/default/files/Second-Expert-Report.pdf)(http://www.wcrf.org/sites/default/files/Second-Expert-Report.pdf). World Cancer Research Fund, and the American Institute for Cancer Research.
- [Diet, nutrition and the prevention of chronic diseases](http://www.who.int/dietphysicalactivity/publications/trs916/download/en/).(http://www.who.int/dietphysicalactivity/publications/trs916/download/en/) World Health Organization. 2003.

Statistics

- [Usual Dietary Intakes: Food Intakes, U.S. Population, 2007–10](#). National Cancer Institute.
- [What We Eat in America](#). U.S. Department of Agriculture.

Fat Consumption

Last Updated:

February 2018

Introduction

Some studies suggest that high-fat diets or high intakes of different types of fat in the diet may be linked to several cancers, including colon, lung, and postmenopausal breast cancer, as well as heart disease and other chronic diseases.

More research is needed to better understand which types of fat should be avoided and how much of each type alters cancer risk. Although monounsaturated and polyunsaturated fatty acids have been studied for a number of years, their effects are still unclear. More recent research on the effects of trans fatty acids also has yet to reach definitive conclusions.

The 2015-2020 Dietary Guidelines for Americans, issued by the U.S. Department of Agriculture and the U.S. Department of Health and Human Services, recommend getting less than 10 percent of calories from saturated fatty acids and keeping trans fatty acid consumption as low as possible for general health and the prevention of chronic disease, including cancer and heart disease. The guidelines also recommend keeping total fat intake between 20 and 35 percent of calories for adults, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.

Measure

Intakes of total fat, and of the major fatty acids - saturated, monounsaturated, and polyunsaturated - as a percentage of total calories.

Healthy People 2020 Target

- Reduce to 14.2 percent the mean percentage of total daily calorie intake from solid fats for the population aged 2 years and older.
- Reduce to 9.9 percent the mean percentage of total daily calorie intake from saturated fat for the population aged 2 years and older.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

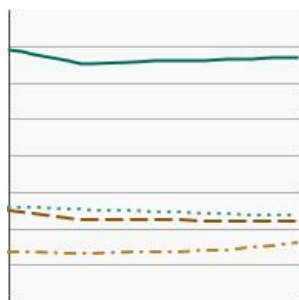
U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD). Continuing Survey of Food Intakes by Individuals 1989-1991, 1994-96, 1998

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999-2014.

Trends and Most Recent Estimates Fat Intake Comparison

Fat intake as a percentage of total calories, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013 to 2014)

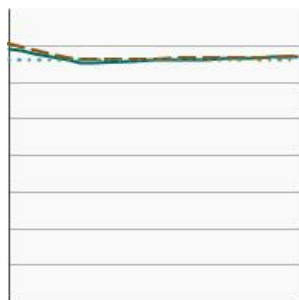
	Percent of total calories	95% Confidence Interval
<u>Total</u>	33.9	(33.5 - 34.2)
<u>Saturated fat</u>	11.1	(11.0 - 11.3)
<u>Monounsaturated fat</u>	11.6	(11.5 - 11.7)
<u>Polyunsaturated fat</u>	7.9	(7.8 - 8.0)

Total Fat Intake

By Sex

Total fat intake as a percentage of total calories by sex, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

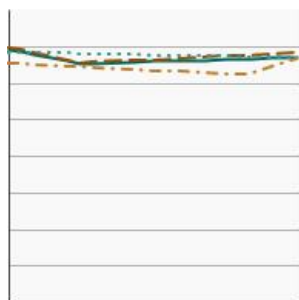
Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
<u>Both Sexes</u>	33.9	(33.5 - 34.2)
<u>Male</u>	33.7	(33.4 - 34.0)
<u>Female</u>	34.0	(33.5 - 34.5)

By Race/Ethnicity

Total fat intake as a percentage of total calories by race/ethnicity, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
<u>All Races</u>	33.9	(33.5 - 34.2)
<u>Non-Hispanic White</u>	34.2	(33.7 - 34.7)
<u>Non-Hispanic Black</u>	33.8	(32.8 - 34.9)
<u>Hispanic</u>	33.3	(32.7 - 33.8)

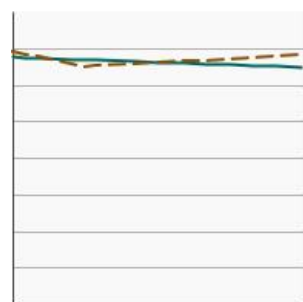
By Poverty Income Level

Total fat intake as a percentage of total calories by poverty income level, 1989-2014

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2013.5)



Percent of total calories

95% Confidence Interval

<=200% of federal poverty level

33.5

(33.0 - 33.9)

>=200% of federal poverty level

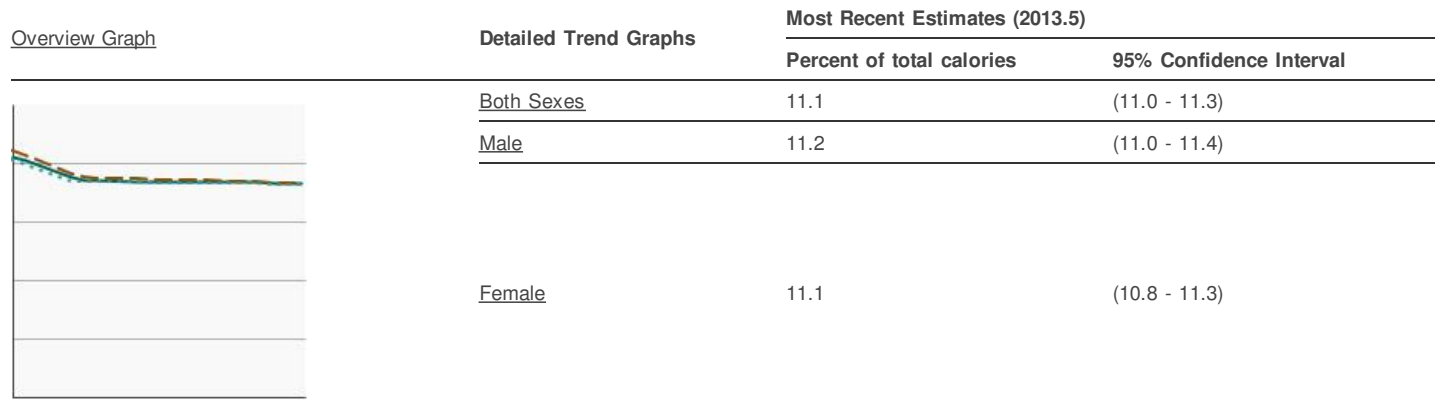
34.0

(33.6 - 34.5)

Saturated Fat Intake

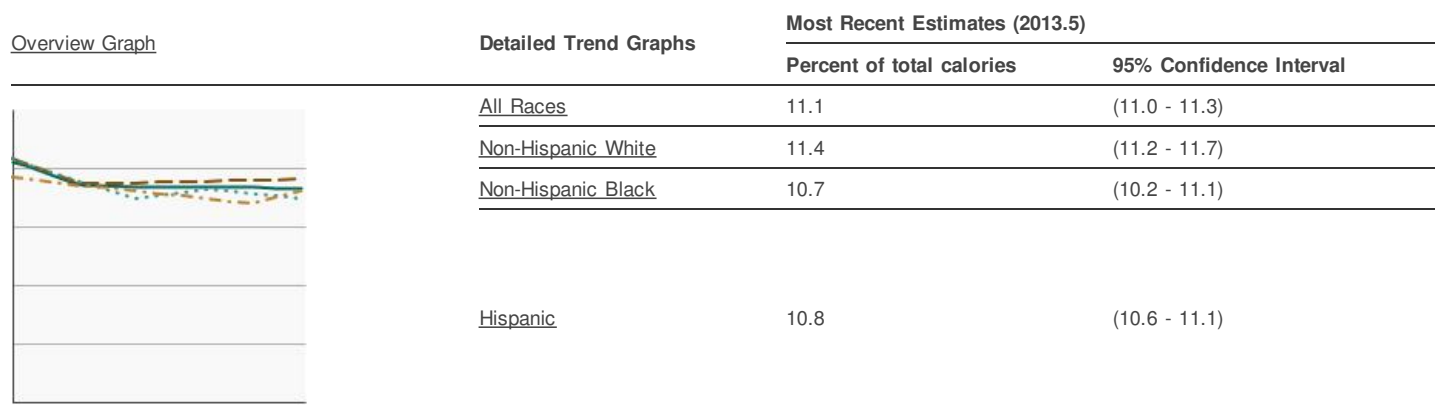
By Sex

Saturated fat intake as a percentage of total calories by sex, 1989-2014



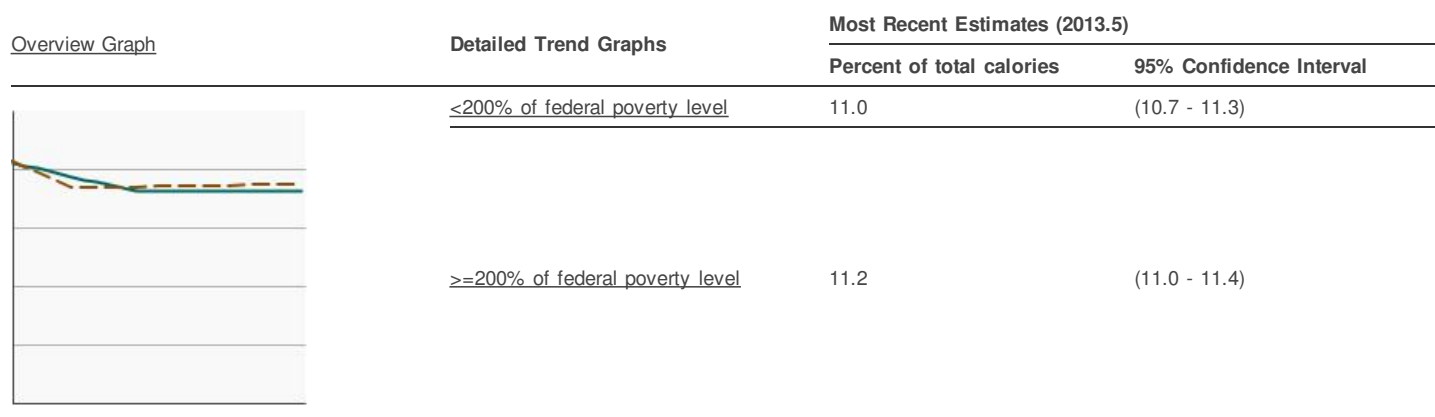
By Race/Ethnicity

Saturated fat intake as a percentage of total calories by race/ethnicity, 1989-2014



By Poverty Income Level

Saturated fat intake as a percentage of total calories by poverty income level, 1989-2014

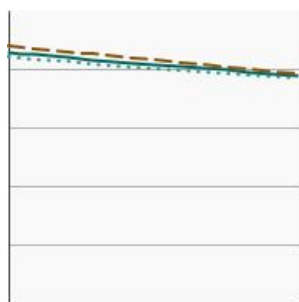


Monosaturated Fat Intake

By Sex

Monosaturated fat intake as a percentage of total calories by sex, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

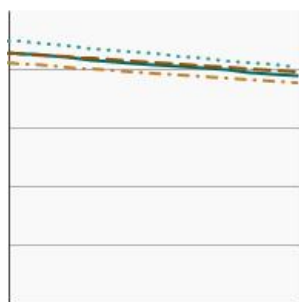
Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
Both Sexes	11.6	(11.5 - 11.7)
Male	11.6	(11.5 - 11.8)
Female	11.6	(11.4 - 11.7)

By Race/Ethnicity

Monosaturated fat intake as a percentage of total calories by race/ethnicity, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

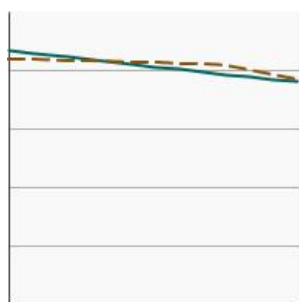
Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
All Races	11.6	(11.5 - 11.7)
Non-Hispanic White	11.6	(11.5 - 11.8)
Non-Hispanic Black	11.8	(11.4 - 12.2)
Hispanic	11.3	(11.1 - 11.6)

By Poverty Income Level

Monosaturated fat intake as a percentage of total calories by poverty income level, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013.5)

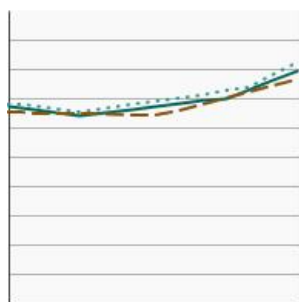
	Percent of total calories	95% Confidence Interval
<200% of federal poverty level	11.4	(11.3 - 11.6)
>=200% of federal poverty level	11.6	(11.5 - 11.8)

Polyunsaturated Fat Intake

By Sex

Polyunsaturated fat intake as a percentage of total calories by sex, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

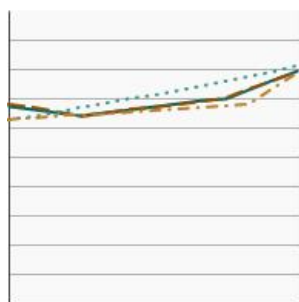
Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
Both Sexes	7.9	(7.8 - 8.0)
Male	7.6	(7.5 - 7.8)
Female	8.1	(8.0 - 8.3)

By Race/Ethnicity

Polyunsaturated fat intake as a percentage of total calories by race/ethnicity, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

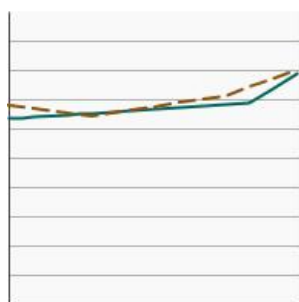
Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
All Races	7.9	(7.8 - 8.0)
Non-Hispanic White	7.9	(7.7 - 8.0)
Non-Hispanic Black	8.1	(7.8 - 8.4)
Hispanic	7.8	(7.5 - 8.0)

By Poverty Income Level

Polyunsaturated fat intake as a percentage of total calories by poverty income level, 1989-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013.5)

	Percent of total calories	95% Confidence Interval
<200% of federal poverty level	7.8	(7.5 - 8.0)
>=200% of federal poverty level	7.9	(7.8 - 8.1)

Cancers Related to Fat Consumption

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Breast](#)
- [Colon and Rectum](#)
- [Lung and Bronchus](#)

Evidence-based Resources

Resources are available on [diet and nutrition on the Cancer Control P.L.A.N.E.T.](#) web portal. Identify population-based [evidence-based approaches](#) on healthy eating and locate multiple evidence-based interventions.

Additional Information on Fat Consumption For the public

- [Chartbook on Healthy Living](#). Agency for Healthcare Research and Quality.
- [ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention](#). American Cancer Society.
- [Diet and Physical Activity: What's the Cancer Connection](#). American Cancer Society.
- [Cancer Prevention and Control](#). Centers for Disease Control and Prevention.
- [Nutrition, Physical Activity, and Obesity](#). Centers for Disease Control and Prevention.
- [What We Eat in America, NHANES](#). U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD) and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (Hyattsville, MD).

For health professionals

- [Nutrition, Physical Activity, and Obesity](#). Centers for Disease Control and Prevention. State, Tribal, Local, and Territorial Public Health Professionals Gateway.

Scientific reports

- [American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity](#). Kushi LH, Doyle C, McCullough M, et al. *CA Cancer J Clin*. 2012;62(1):30–67.
- [2015-2020 Dietary Guidelines for Americans](#). U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- [Continuous Update Project](#)(<http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup>). World Cancer Research Fund International.
- [Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective](#)(<http://www.wcrf.org/sites/default/files/Second-Expert-Report.pdf>). World Cancer Research Fund, and the American Institute for Cancer Research.
- [Diet, nutrition and the prevention of chronic diseases](#).(<http://www.who.int/dietphysicalactivity/publications/trs916/download/en/>) World Health Organization. 2003.

Statistics

- [Usual Dietary Intakes: Food Intakes, U.S. Population, 2007–10](#). National Cancer Institute.
- [What We Eat in America](#). U.S. Department of Agriculture.

Alcohol Consumption

Last Updated:

February 2018

Introduction

Drinking alcohol increases the risk of cancers of the mouth, esophagus, pharynx, larynx, and liver in men and women and of breast cancer in women. In general, these risks increase after about one daily drink for women and two daily drinks for men. (A drink is defined as 12 ounces of regular beer, 5 ounces of wine, or 1.5 ounces of 80-proof liquor.)

The chances of getting liver cancer increase markedly with five or more drinks per day. Heavy alcohol use may also increase the risk of colorectal cancer and leads to greater increases in risk for most of the alcohol-related cancers. The sooner long-term, heavy alcohol use begins, the greater the cancer risk. Also, using alcohol with tobacco is riskier than using either one alone because it further increases the chances of getting cancers of the mouth, throat, and esophagus.

Measure

Per capita alcohol consumption: The estimated number of gallons of pure alcohol consumed per person (aged 14 years and older), per year. This measure accounts for the varying alcohol content of wine, beer, and liquor. People as young as 14 are included because a large number of adolescents begin drinking at an early age.

Healthy People 2020 Target

- Reduce average annual alcohol consumption by individuals aged 14 years and older to 2.1 gallons.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

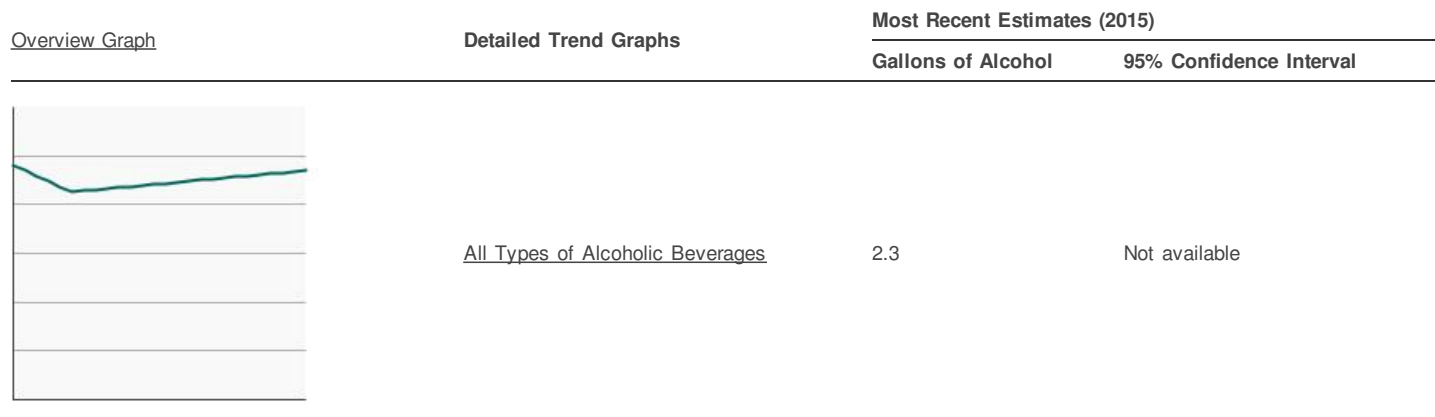
Data Source

National Institute on Alcohol Abuse and Alcoholism. Surveillance report #108 – Apparent per capita alcohol consumption: national, state, and regional trends, 1977–2015. April 2017.

Trends and Most Recent Estimates

Alcohol Consumption

Annual per capita alcohol consumption in gallons by individuals aged 14 years and older, 1990-2015



Cancers Related to Alcohol Consumption

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Breast](http://seer.cancer.gov/statfacts/html/breast.html)
- [Colon and Rectum](http://seer.cancer.gov/statfacts/html/colorect.html)
- [Esophagus](http://seer.cancer.gov/statfacts/html/esoph.html)
- [Larynx](http://seer.cancer.gov/statfacts/html/laryn.html)
- [Liver and Intrahepatic Bile Duct](http://seer.cancer.gov/statfacts/html/livibd.html)
- [Oral Cavity and Pharynx](http://seer.cancer.gov/statfacts/html/oralcav.html)

Additional Information on Alcohol Consumption For the public

- [Alcohol Use and Cancer](#). American Cancer Society.
- [Alcohol and Cancer Risk](#). National Cancer Institute.
- [Publications – NIAAA resources on alcohol consumption and alcohol-related problems](http://www.niaaa.nih.gov/publications). National Institute on Alcohol Abuse and Alcoholism.

For health professionals

- [Screening and Behavioral Counseling Interventions in Primary Care to Reduce Alcohol Misuse](http://www.uspreventiveservicestaskforce.org/Page/Topic/recommendation-summary/alcohol-misuse-screening-and-behavioral-counseling-interventions-in-primary-care). United States Preventive Services Task Force.

Scientific reports

- [Alcohol abuse in cancer patients: a shadow side in the oncological field and research](#). Glasdam S, Oye C. Med Health Care Philos. 2013.
- [American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity](#). Kushi LH, Doyle C, McCullough M, et al. CA Cancer J Clin. 2012;62(1):30–67.
- [2015-2020 Dietary Guidelines for Americans](#). U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- [Continuous Update Project](http://www.wcrf.org/int/research-we-fund/continuous-update-project-cup). World Cancer Research Fund International.
- [Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective](http://www.wcrf.org/sites/default/files/Second-Expert-Report.pdf). World Cancer Research Fund, and the American Institute for Cancer Research.

Statistics

- [Food Intakes, U.S. Population, 2001–04: Usual Intake of Alcohol](#). National Cancer Institute.

Physical Activity

Last Updated:

February 2018

Introduction

Maintaining a healthy lifestyle has the potential to reduce both cancer- and non-cancer-related morbidity. In particular, physical activity may reduce the risk of several types of cancer, including breast, colon, endometrium (lining of the uterus), and it may also lower a person's risk of other health problems such as heart disease, high blood pressure, diabetes, and osteoporosis (bone thinning). Being active may also help to prevent weight gain and obesity, which can reduce the risk of developing cancers that have been linked to excess body weight.

Physical activity also improves the quality of life among cancer patients and survivors. Studies are beginning to explore the potential for physical activity, including aerobic, strength, and flexibility training, to improve cancer survival rates.

Several national groups offer recommendations for engaging in regular physical activity. The U.S. Department of Health and Human Services recommends at least 1 hour of physical activity every day for children and adolescents, and 2.5 hours of moderate-intensity aerobic activity, or 1 hour and 15 minutes of vigorous-intensity aerobic activity, for adults each week. Adults should also do muscle-strengthening activities on 2 or more days a week.

Measure

Percentage of adults aged 18 years and older who reported no leisure-time physical activity during the past month and percentage of adults who meet both the aerobic and muscle-strengthening guidelines.

Healthy People 2020 Target

- Reduce the percentage of adults who engage in no leisure-time physical activity to 32.6 percent.
- Increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity to 20.1 percent.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

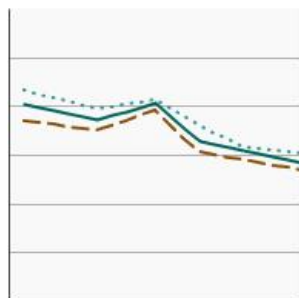
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1992–2016.

Trends and Most Recent Estimates No Leisure Time Physical Activity

By Sex

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

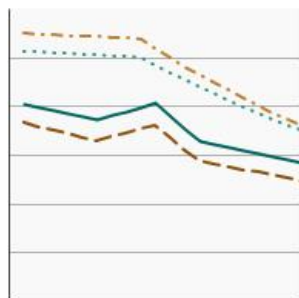
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
Both Sexes	26.9	25.7 - 28.1
Male	25.2	23.9 - 26.6
Female	28.4	27.0 - 29.8

By Race/Ethnicity

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by race/ethnicity, 1997-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

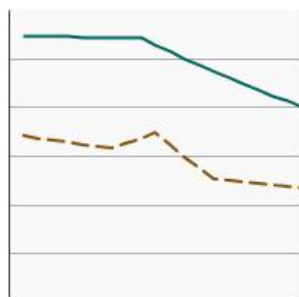
Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
All Races	26.9	25.7 - 28.1
Non-Hispanic White	22.7	21.5 - 23.9
Non-Hispanic Black	36.3	33.8 - 38.8
Hispanic	36.7	33.6 - 39.8

By Poverty Income Level

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by poverty income level, 1997-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	40.1	38.4 - 41.9
>=200% of federal poverty level	21.5	20.4 - 22.8

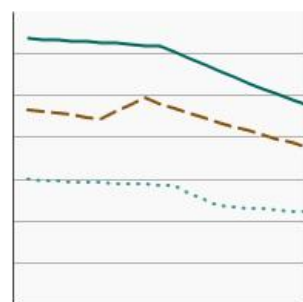
By Education Level

Percentage of adults aged 25 years and older reporting no physical activity in their leisure time by highest level of education obtained, 1997-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2016)

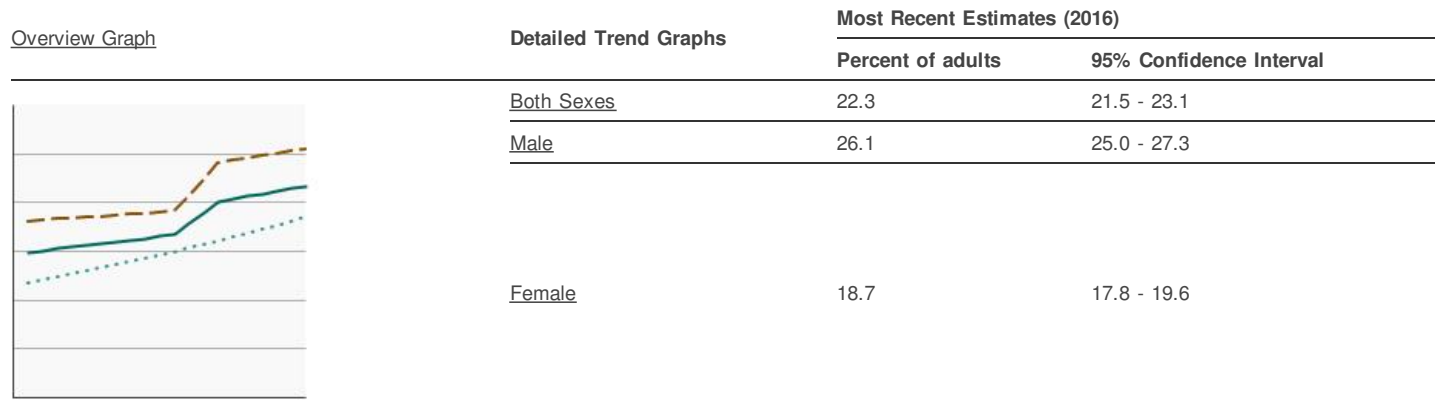


	Percent of adults	95% Confidence Interval
<u>Less than High School</u>	47.2	44.1 - 50.3
<u>High School</u>	38.2	36.3 - 40.1
<u>Greater than High School</u>	20.1	19.0 - 21.3

Meet Federal Guidelines

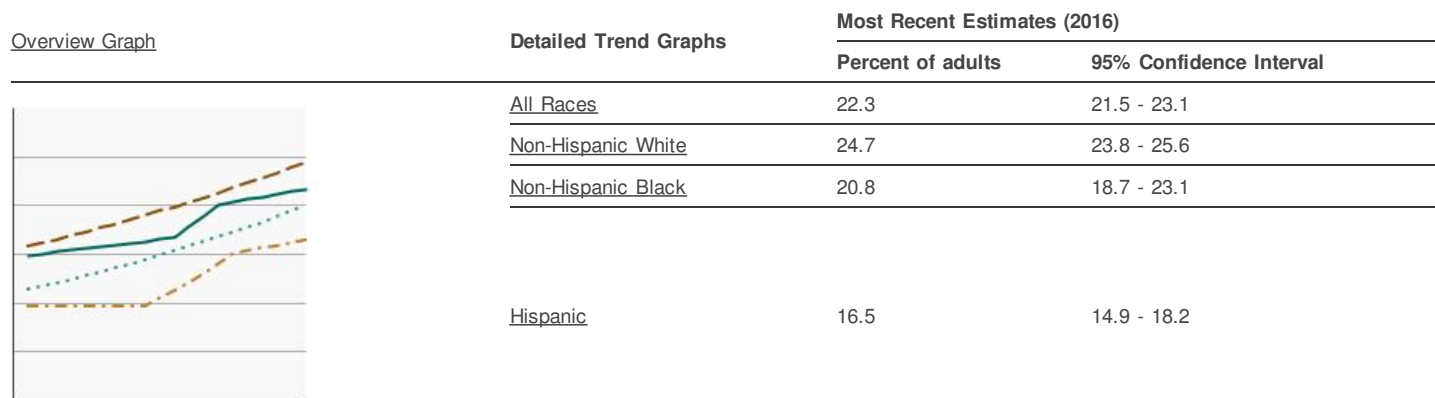
By Sex

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by sex, 1997-2016



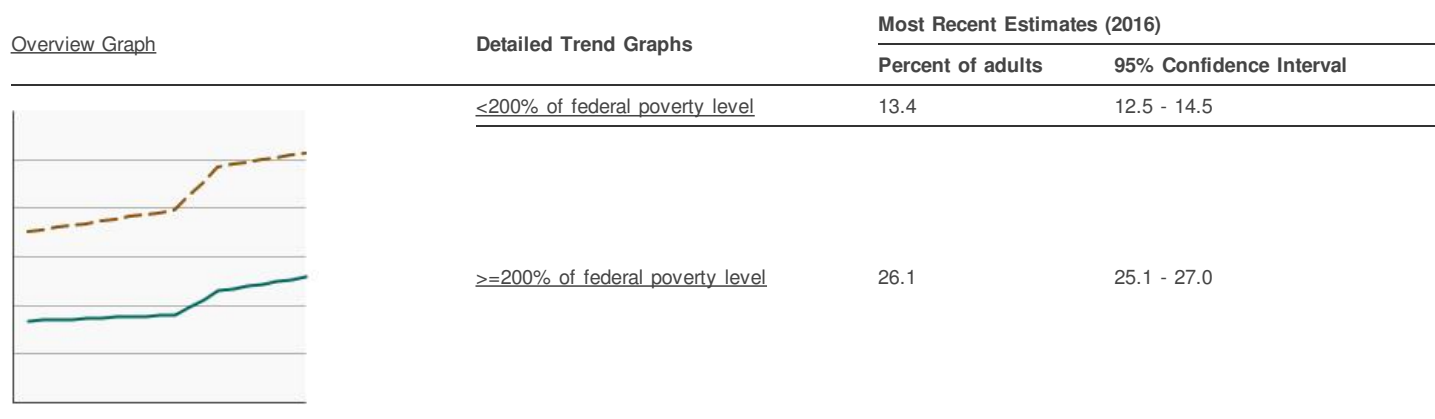
By Race/Ethnicity

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by race/ethnicity, 1997-2016



By Poverty Income Level

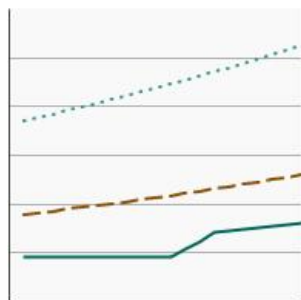
Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by poverty income level, 1997-2016



By Education Level

Percentage of adults aged 25 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by highest level of education obtained, 1997-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of adults	95% Confidence Interval
Less than High School	8.8	7.4 - 10.5
High School	13.1	11.9 - 14.3
Greater than High School	26.4	25.4 - 27.4

□

Cancers Related to Physical Activity

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Breast](#)
- [Colon and Rectum](#)
- [Uterus](#)

Evidence-based Resources

Resources are available on [physical activity on the Cancer Control P.L.A.N.E.T.](#) web portal. Learn about evidence-based practices, federal guidelines, intervention strategies and [evidence-based interventions](#).

Additional Information on Physical Activity For the public

- [ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention](#). American Cancer Society.
- [Cancer Prevention and Control](#). Centers for Disease Control and Prevention.
- [Nutrition, Physical Activity, and Obesity](#). Centers for Disease Control and Prevention.
- [Physical Activity](#). Centers for Disease Control and Prevention.
- [Physical Activity for a Healthy Weight](#). Centers for Disease Control and Prevention.
- [Physical Activity and Cancer](#). National Cancer Institute.
- [Physical Activity Guidelines for Americans](#). U.S. Department of Health & Human Services.

Scientific reports

- [Effects of physical activity on breast cancer prevention: a systemic review](#). Goncalves AK, Florencio G LD, Maisonette de Atayde Silva MJ, et al. J Phys Act Health 2014;11(2):445–54.
- [American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity](#). Kushi LH, Doyle C, McCullough M, et al. CA Cancer J Clin. 2012;62(1):30–67.
- [The role of physical activity in cancer prevention, treatment, recovery, and survivorship](#). Lemanne D, Cassileth B, Gubili J. Oncology 2013;27(6):580–5.
- [Physical activity and breast cancer prevention](#). Lynch BM, Neilson HK, and Friedenreich CM. Recent Results Cancer Res 2011;186:13–42.
- [Nutrition and physical activity cancer prevention guidelines, cancer risk, and mortality in the women's health initiative](#). Thomson CA, McCullough ML, Wertheim BC, et al. Cancer Prev Res (Phila) 2014;1:42–53.
- [Food, nutrition, physical activity, and the prevention of cancer: a global perspective](#). Wiseman M. The second World Cancer Research Fund/American Institute for Cancer Research expert report. Proc Nutr Soc. 2008;67(3):253–6.
- [Physical activity and colon cancer prevention: a meta-analysis](#). Wolin KY, Yan Y, Colditz GA, Lee IM. Br J Cancer 2009;100(4):611–6.

Statistics

- [FastStats – Exercise or Physical Activity](#). Centers for Disease Control and Prevention.

Weight

Last Updated:

February 2018

Introduction

Consistent evidence indicates that preventing excess body weight and obesity reduces the risk of several types of cancer, including colorectal, breast (among women who have gone through menopause), uterine, esophageal, renal cell (kidney), liver, and pancreatic cancers. Research has also identified an association between obesity and worse [prognosis](http://www.cancer.gov/dictionary?Cdrid=45849) and [outcomes](http://www.cancer.gov/dictionary?Cdrid=467853) among some cancer patients, particularly those with breast, prostate, liver, and colon cancer. Excess body weight is thought to contribute to as many as one in five cancer-related deaths in the United States. While there is still much to be learned about the link between excess weight and cancer, people who are overweight or obese are encouraged to lose weight and maintain a healthy lifestyle. Doing so has the potential to reduce both cancer- and non-cancer-related morbidity.

Measure

The percentage of adults aged 20 years and older who are at a healthy weight, overweight, or obese. These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI within the range of 18.5 to 24.9 to be healthy, a BMI between 25 and 29.9 to be overweight, and a BMI of 30 and over to be obese.

Healthy People 2020 Target

- Increase to 33.9 percent the proportion of adults who are at a healthy weight.
- Reduce to 30.5 percent the proportion of adults who are obese.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

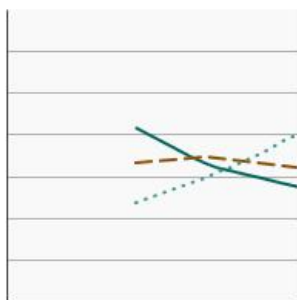
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1971–2016.

Trends and Most Recent Estimates Body Weight Comparison

Percent of adults aged 20 years and older who were at a healthy weight, overweight, or obese, 1971-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2015 to 2016)

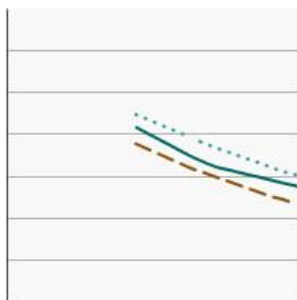
	Percent of adults	95% Confidence Interval
Healthy Weight	27.2	24.4 - 30.1
Overweight	31.8	30.6 - 33.1
Obese	39.5	36.3 - 42.7

Healthy Weight

By Sex

Percent of adults aged 20 years and older who were at a healthy weight by sex, 1971-2016

[Overview Graph](#)



Detailed Trend Graphs

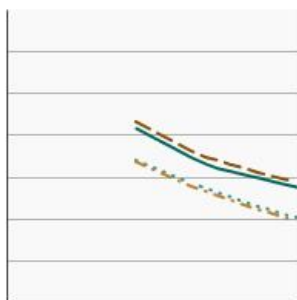
Most Recent Estimates (2015 to 2016)

	Percent of adults	95% Confidence Interval
Both Sexes	27.2	24.4 - 30.1
Male	23.8	21.1 - 26.5
Female	30.4	26.6 - 34.2

By Race/Ethnicity

Percent of adults aged 20 years and older who were at a healthy weight by race/ethnicity, 1971-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2015 to 2016)

	Percent of adults	95% Confidence Interval
All Races	27.2	24.4 - 30.1
Non-Hispanic White	28.5	25.7 - 31.2
Non-Hispanic Black	22.8	19.6 - 26.0
Hispanic	17.3	15.0 - 19.7

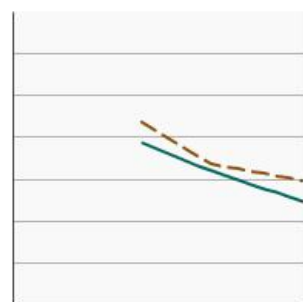
By Poverty Income Level

Percent of adults aged 20 years and older who were at a healthy weight by poverty status, 1971-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2015 to 2016)



< 200% of the federal poverty level

Percent of adults

95% Confidence Interval

25.5

22.1 - 29.0

>= 200% of the federal poverty level

28.5

24.9 - 32.2

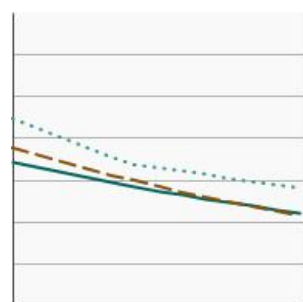
By Education Level

Percent of adults aged 25 years and older who were at a healthy weight by highest level of education obtained, 1991-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2015 to 2016)



Less than High School

24.6

19.8 - 29.3

High School

20.2

16.9 - 23.5

Greater than High School

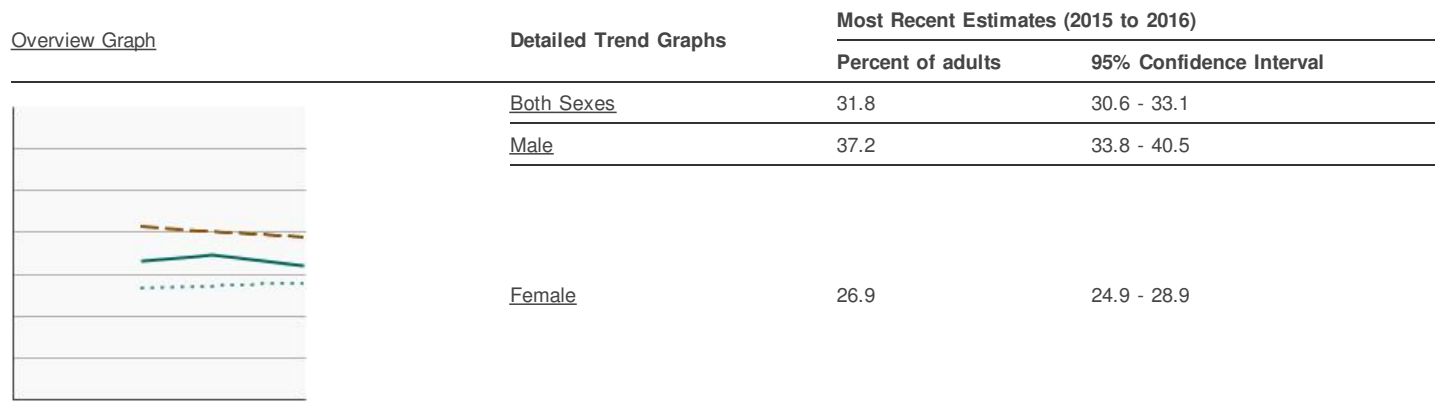
28.2

25.3 - 31.1

Overweight

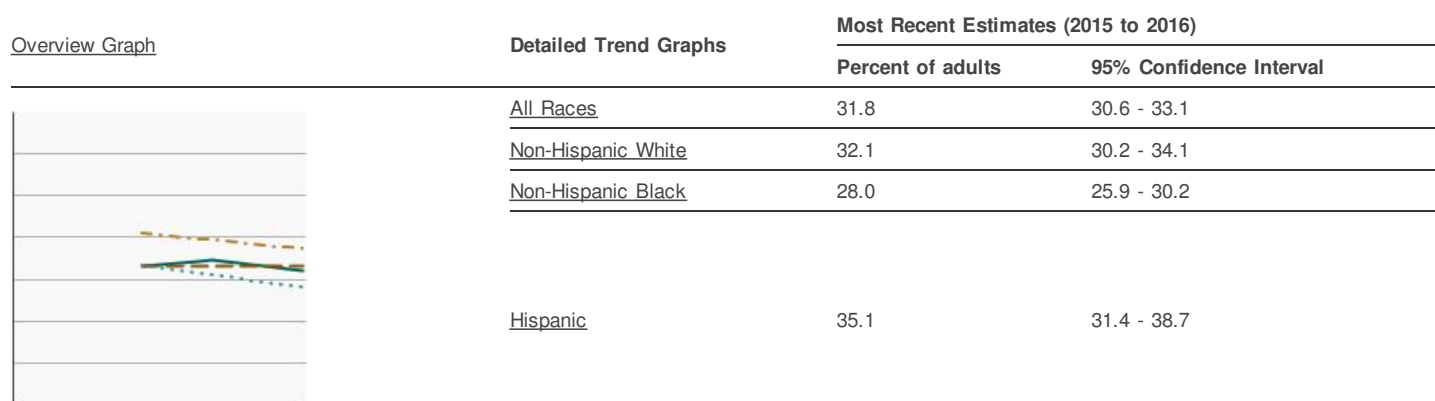
By Sex

Percent of adults aged 20 years and older who were overweight by sex, 1971-2016



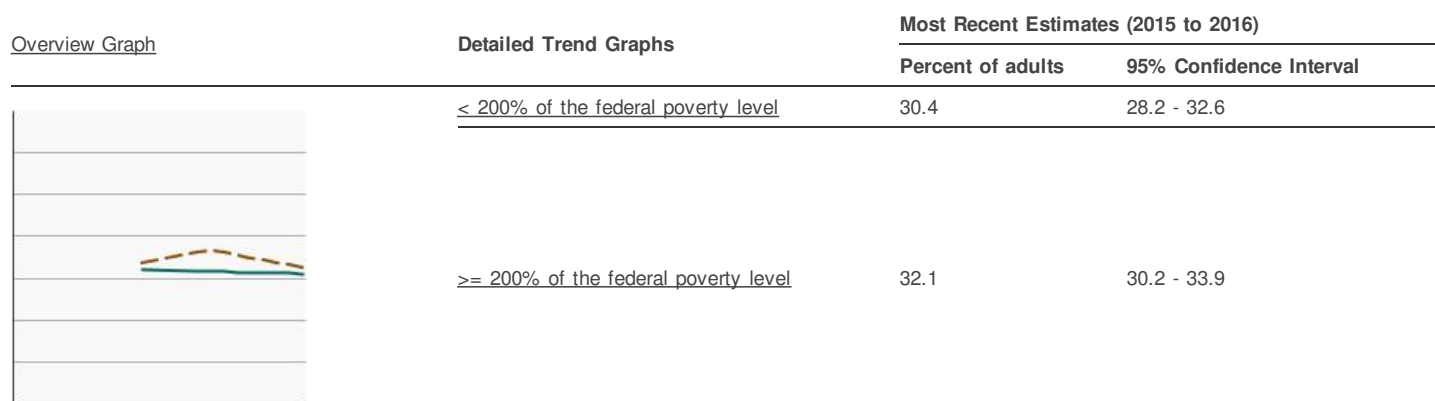
By Race/Ethnicity

Percent of adults aged 20 years and older who were overweight by race/ethnicity, 1971-2016



By Poverty Income Level

Percent of adults aged 20 years and older who were overweight by poverty status, 1971-2016



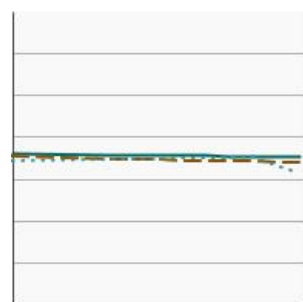
By Education Level

Percent of adults aged 25 years and older who were overweight by highest level of education obtained, 1991-2016

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2015 to 2016)



[Less than High School](#)

Percent of adults

95% Confidence Interval

34.6

30.8 - 38.4

[High School](#)

35.1

30.6 - 39.5

[Greater than High School](#)

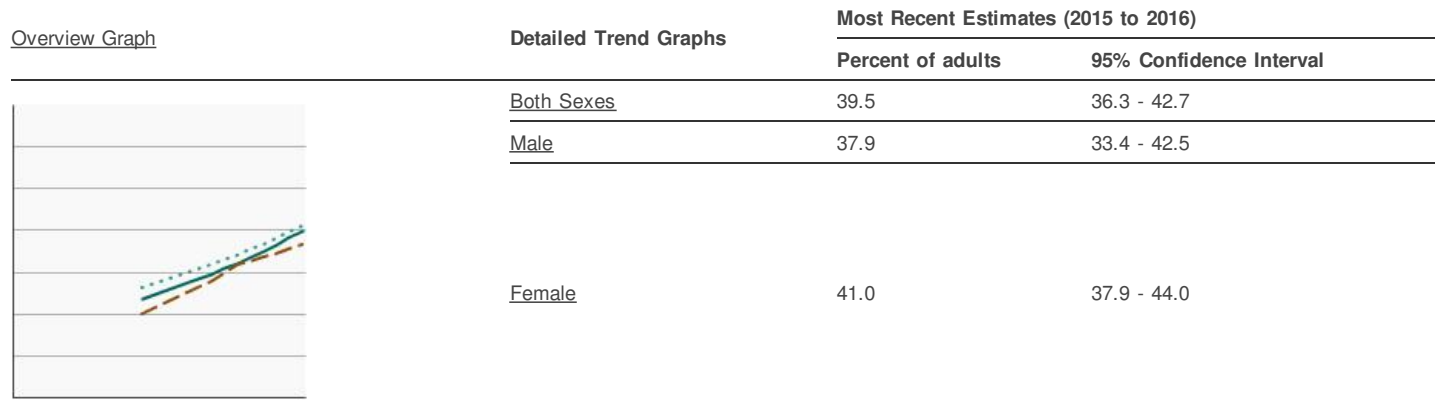
31.2

29.3 - 33.1

Obese

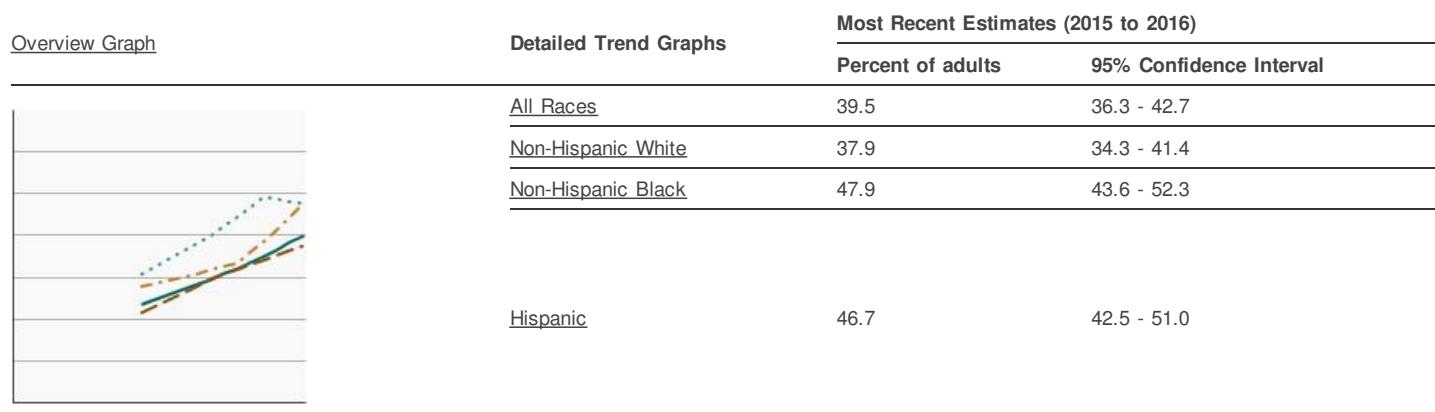
By Sex

Percent of adults aged 20 years and older who were obese by sex, 1971-2016



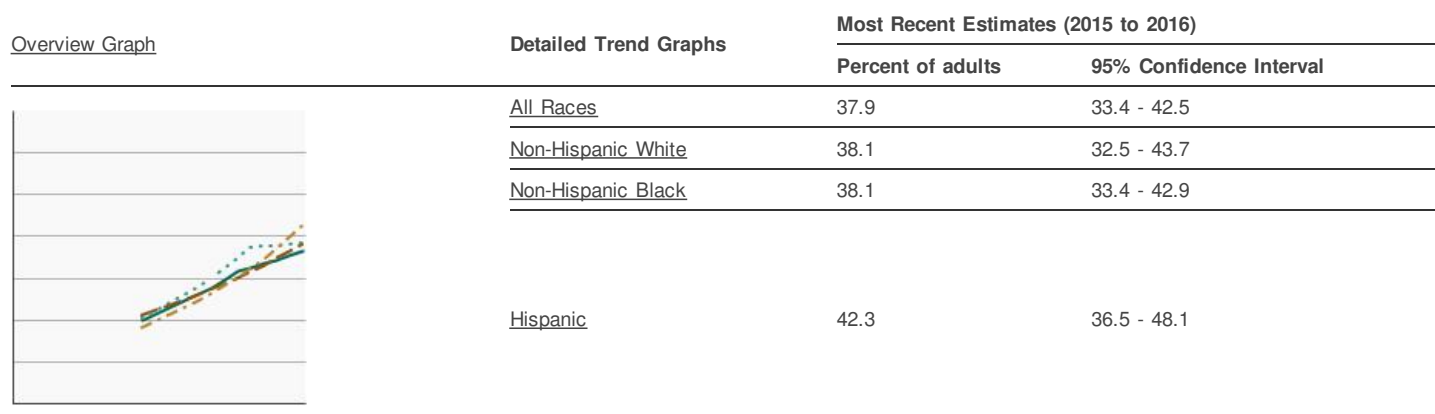
By Race/Ethnicity

Percent of adults aged 20 years and older who were obese by race/ethnicity, 1971-2016



Males by Race/Ethnicity

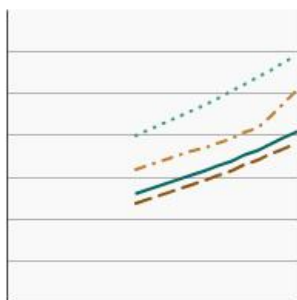
Percent of males aged 20 years and older who were obese by race/ethnicity, 1971-2016



Females by Race/Ethnicity

Percent of females aged 20 years and older who were obese by race/ethnicity, 1971-2016

[Overview Graph](#)



Detailed Trend Graphs

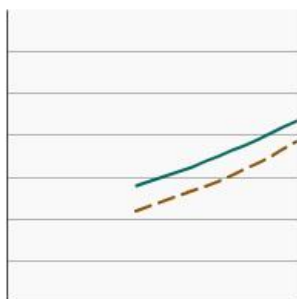
Most Recent Estimates (2015 to 2016)

	Percent of adults	95% Confidence Interval
All Races	41.0	37.9 - 44.0
Non-Hispanic White	37.7	34.1 - 41.3
Non-Hispanic Black	55.7	51.3 - 60.0
Hispanic	50.5	46.6 - 54.4

By Poverty Income Level

Percent of adults aged 20 years and older who were obese by poverty status, 1971-2016

[Overview Graph](#)



Detailed Trend Graphs

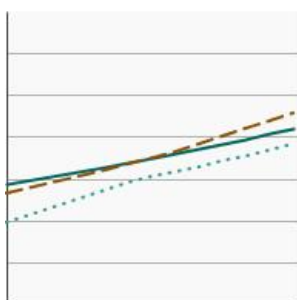
Most Recent Estimates (2015 to 2016)

	Percent of adults	95% Confidence Interval
< 200% of the federal poverty level	42.6	38.7 - 46.4
>= 200% of the federal poverty level	38.0	34.5 - 41.5

By Education Level

Percent of adults aged 25 years and older who were obese by highest level of education obtained, 1991-2016

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2015 to 2016)

	Percent of adults	95% Confidence Interval
Less than High School	39.9	35.1 - 44.7
High School	44.4	39.3 - 49.6
Greater than High School	39.3	35.5 - 43.1

Cancers Related to Weight

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Brain and Other Nervous System](#)
- [Breast](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Kidney and Renal Pelvis](#)
- [Liver and Intrahepatic Bile Duct](#)

- [Myeloma](#)
- [Ovary](#)
- [Pancreas](#)
- [Stomach](#)
- [Uterus](#)

Evidence-based Resources

Find multiple diet/nutrition evidence-based interventions on the [Research-tested intervention Programs](#) (RTIPs) website. Obesity data, enhanced collaboration around evidence-based practices, evidence approaches for obesity prevention and control and state plans for comprehensive cancer control are found on [Cancer Control P.L.A.N.E.T.](#)

Additional Information on Weight For the public

- [Chartbook on Healthy Living](#). Agency for Healthcare Research and Quality.
- [ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention](#). American Cancer Society.
- [Take Control of Your Weight](#). American Cancer Society.
- [Cancer and Obesity](#). Centers for Disease Control and Prevention.
- [Cancer Prevention and Control](#). Centers for Disease Control and Prevention.
- [Nutrition, Physical Activity, and Obesity](#). Centers for Disease Control and Prevention.
- [Overweight and Obesity](#). Centers for Disease Control and Prevention.
- [Physical Activity for a Healthy Weight](#). Centers for Disease Control and Prevention.
- [Obesity and Cancer](#). National Cancer Institute.
- [Body Mass Index Table](#). National Heart, Lung, and Blood Institute.

For health professionals

- [Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults](#). National Heart, Lung, and Blood Institute.
- [Obesity in Children and Adolescents: Screening \(June 2017\)](#). U.S. Preventive Services Task Force.
- [Screening for and Management of Obesity in Adults \(June 2012\)](#)(<http://www.uspreventiveservicestaskforce.org/uspstf/uspsobes.htm>). U.S. Preventive Services Task Force.

Scientific reports

- [Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010](#). Flegal KM, Carroll MD, Kit BK, and Ogden CL. *JAMA* 2012;307(5):491–7.
- [American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity](#). Kushi LH, Doyle C, McCullough M, et al. *CA Cancer J Clin*. 2012;62(1):30–67.
- [Body Fatness and Cancer — Viewpoint of the IARC Working Group](#)(<http://www.nejm.org/doi/full/10.1056/NEJMs1606602>). Lauby-Secretan B, Scoccianti C, Loomis D, Grosse Y, Bianchini F, and Straif K for the International Agency for Research on Cancer Handbook Working Group. *N Engl J Med*. 2016; 375:794-798.
- [Trends in obesity prevalence among children and adolescents in the United States, 1988-1994 through 2013-2014](#). Ogden CL, Carroll MD, Lawman HG, et al. *JAMA*. 2016;315(21):2292-2299.
- [Nutrition and physical activity cancer prevention guidelines, cancer risk, and mortality in the women's health initiative](#). Thomson CA, McCullough ML, Wertheim BC, et al. *Cancer Prev Res (Phila)* 2014;1:42–53.
- [Food, nutrition, physical activity, and the prevention of cancer: a global perspective](#). Wiseman M. The second World Cancer Research Fund/American Institute for Cancer Research expert report. *Proc Nutr Soc*. 2008;67(3):253–6.

Statistics

- [FastStats – Obesity and Overweight](#). Centers for Disease Control and Prevention.

UV Exposure and Sun Protective Practices

Reducing unprotected exposure to the sun and avoiding artificial ultraviolet (UV) light from indoor tanning beds, tanning booths, and sun lamps can lower the risk of skin cancer.

- [Sun Protective Practices](#)
- [Indoor Tanning](#)
- [Sunburn](#)

Sun-Protective Behavior

Last Updated:

January 2017

Introduction

Avoiding sunburns and intermittent high-intensity sun exposure (especially in children, teens, and young adults) reduces the chances of getting melanoma skin cancer. Engaging in sun protective behaviors when outside can reduce one's exposure to UV radiation and sunburn. For example, broad spectrum sunscreen (protects against UVA and UVB) should be used and applied appropriately (e.g., proper amount applied, sunscreens should be applied prior to exposure, and sunscreen should be reapplied for prolonged UV exposure). In recent years, the Food and Drug Administration has improved standards for sunscreen content and labeling. Seeking shade can also reduce the risk of sunburn and one of the goals of the Surgeon General's [Call To Action to Prevent Skin Cancer](http://www.surgeongeneral.gov/library/calls/prevent-skin-cancer/) is to increase the availability of shade in outdoor recreation, education, and workplace environments.

Addition behaviors such as wearing sunglasses and sun protective clothing (e.g., long sleeve shirt, long pants, and wide brim hat) can help prevent excessive exposure to UV. Sun protective behaviors are most needed when UV intensity is greatest, which occurs during the summer time and between 10 am and 4 pm. However, for some regions of the US, such as the southeast and southwest, UV intensity is high year round. To help maximize one's protection, multiple sun protective behaviors should be practiced.

Measure

The percentage of adults aged 18 years and older who reported that they usually or always practice at least one of three sun-protective behaviors - using sunscreen, wearing protective clothing (a long-sleeve shirt, and/or wide brimmed hat shading the face, ears, and neck, and/or long pants/long skirt), or seeking shade when going outside on a sunny day for more than an hour.

Beginning in 2005, the question on hat use (as part of protective clothing) was modified to more accurately distinguish baseball caps (which do not fully protect the face, neck, and ears) from other types of fully protective hats. Graphic illustrations of different hats were used, and respondents were asked a separate question about baseball cap and sun visor use. Also, long pants/long skirt was an item added in 2005.

The data series for this measure page have differing years of availability with 'protective clothing' available for 2005+, 'sunscreen use (SPF 15+)' available for 2000+ and 'likely to seek shade' available for 1992+. For the graphs that compare the different methods or present a total of all three protection types, trends were calculated for 2005+. For graphs that show the series individually, the full range of available data is shown.

Healthy People 2020 Target

- Increase to 11.2 percent the proportion of adolescents in grades 9 through 12 who follow protective measures that may reduce the risk of skin cancer.
- Increase to 73.7 percent the proportion of adults aged 18 years and older who follow protective measures that may reduce the risk of skin cancer.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

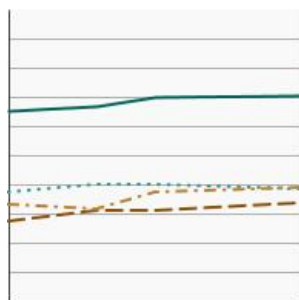
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey NCI and CDC co-sponsored Cancer Control Supplement, 1992-2010, 2005-2015.

Trends and Most Recent Estimates Sun Protection Methods

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by type of protective measure, 2005-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2015)

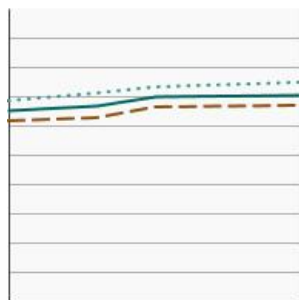
	Percent of adults	95% Confidence Interval
<u>Total</u>	70.8	69.9 - 71.6
<u>Sunscreen (SPF 15+)</u>	33.7	32.8 - 34.5
<u>Protective clothing</u>	38.4	37.6 - 39.2
<u>Seek Shade</u>	39.1	38.3 - 40.0

Use Some Type of Protection

By Sex

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by sex, 2005-2015

[Overview Graph](#)



Detailed Trend Graphs

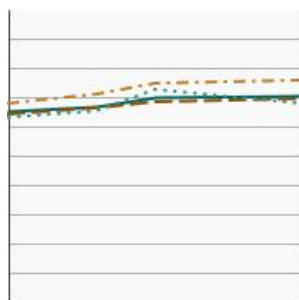
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<u>Both Sexes</u>	70.8	69.9 - 71.6
<u>Male</u>	66.7	65.6 - 67.8
<u>Female</u>	74.8	73.8 - 75.7

By Race/Ethnicity

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by race/ethnicity, 2005-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<u>All Races</u>	70.8	69.9 - 71.6
<u>Non-Hispanic White</u>	69.6	68.6 - 70.7
<u>Non-Hispanic Black</u>	67.7	65.5 - 69.9
<u>Hispanic</u>	75.7	74.0 - 77.3

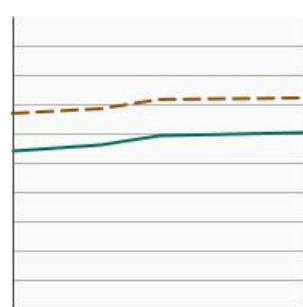
By Age

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by age, 2005-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2015)



[Ages 18-24](#)

Percent of adults

95% Confidence Interval

60.6

57.8 - 63.5

[Ages 25+](#)

72.3

71.4 - 73.1

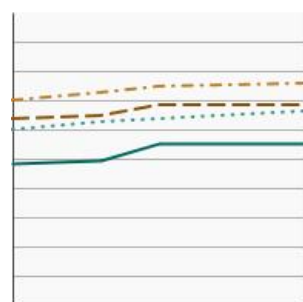
By Sex and Age

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by sex and age, 2005-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2015)



[Males, Ages 18-24](#)

55.4

51.5 - 59.2

[Males, Ages 25+](#)

68.3

67.2 - 69.5

[Females, Ages 18-24](#)

66.2

62.5 - 69.6

[Females, Ages 25+](#)

76.0

75.0 - 77.0

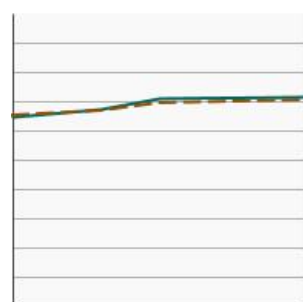
By Poverty Income Level

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by poverty income level, 2005-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2015)



[<200% of federal poverty level](#)

Percent of adults

95% Confidence Interval

71.5

70.3 - 72.7

[>=200% of federal poverty level](#)

70.5

69.4 - 71.5

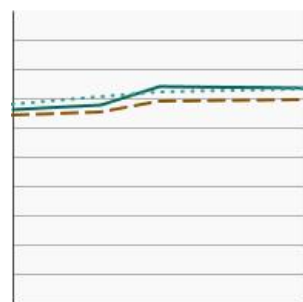
By Education Level

Percentage of adults aged 25 years and older who always or most of the time protect themselves from the sun by highest level of education obtained, 2005-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2015)



[Less than High School](#)

Percent of adults

95% Confidence Interval

73.6

71.5 - 75.5

[High School](#)

69.3

67.8 - 70.9

[Greater than High School](#)

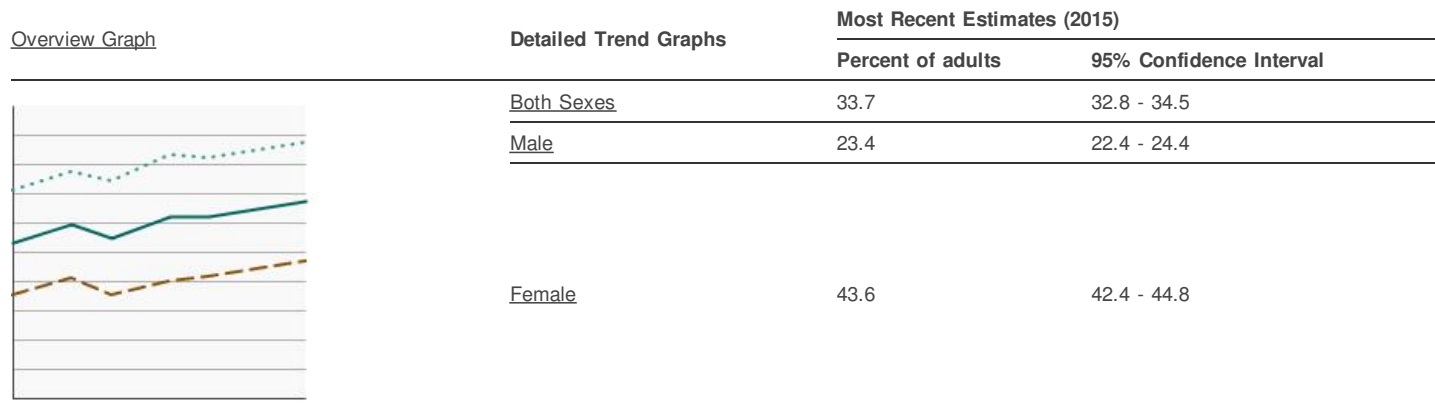
72.9

71.9 - 73.9

Use Sunscreen

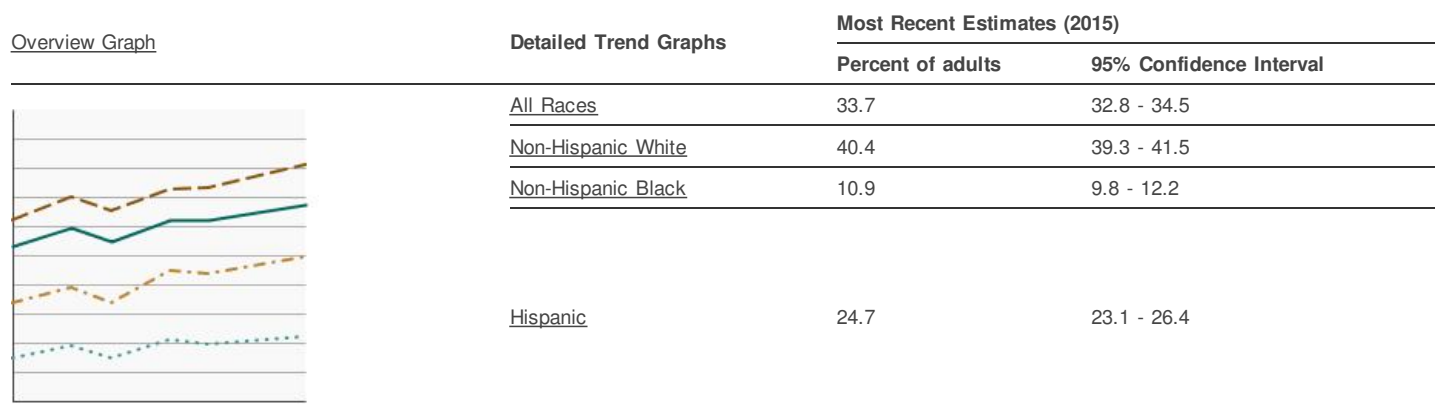
By Sex

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen by sex, 2000-2015



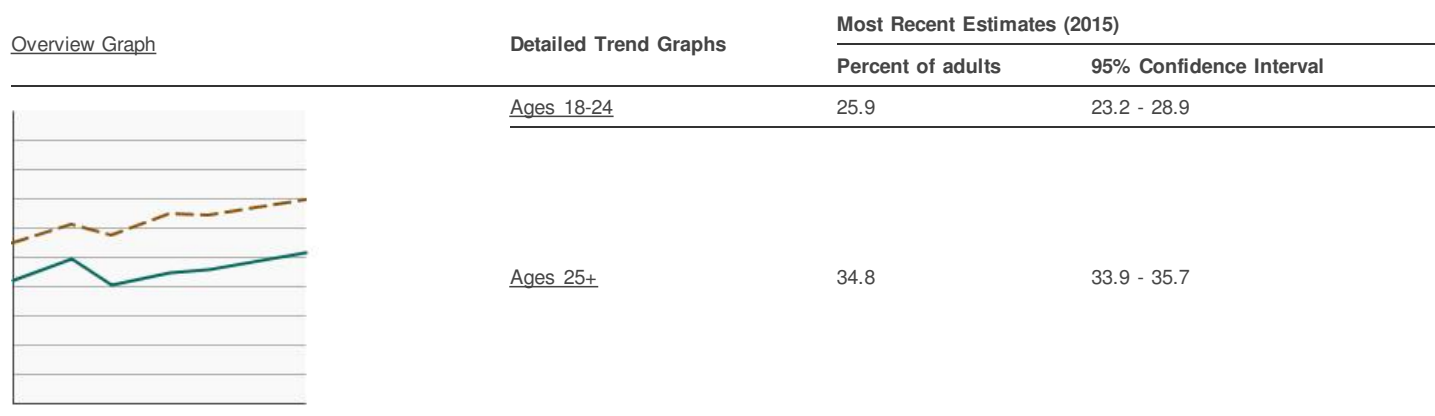
By Race/Ethnicity

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen by race/ethnicity, 2000-2015



By Age

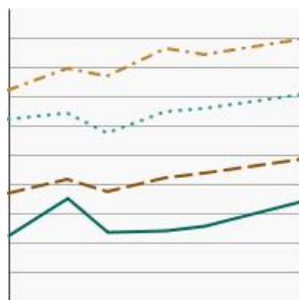
Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen by age, 2000-2015



By Sex and Age

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen by sex and age, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

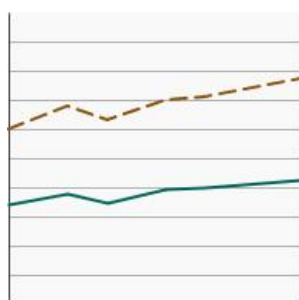
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Males, Ages 18-24	17.0	14.1 - 20.4
Males, Ages 25+	24.3	23.2 - 25.5
Females, Ages 18-24	35.3	31.4 - 39.3
Females, Ages 25+	44.8	43.6 - 46.0

By Poverty Income Level

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen by poverty income level, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

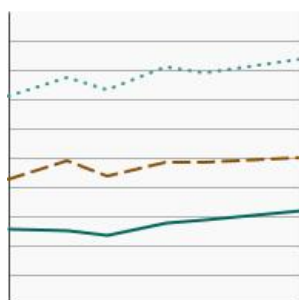
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	21.4	20.3 - 22.6
>=200% of federal poverty level	38.7	37.6 - 39.7

By Education Level

Percentage of adults aged 25 years and older who always or most of the time protect themselves from the sun by highest level of education obtained, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	16.0	14.2 - 18.0
High School	24.9	23.4 - 26.5
Greater than High School	41.8	40.7 - 43.0

Wear Protective Clothing

By Sex

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by wearing protective clothing by sex, 2005-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	95% Confidence Interval
	Both Sexes	38.4	37.6 - 39.2
	Male	43.6	42.4 - 44.8
	Female	33.4	32.4 - 34.4

By Race/Ethnicity

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by wearing protective clothing by race/ethnicity, 2005-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	95% Confidence Interval
	All Races	38.4	37.6 - 39.2
	Non-Hispanic White	34.7	33.6 - 35.7
	Non-Hispanic Black	39.6	37.4 - 41.7
	Hispanic	49.0	47.2 - 50.9

By Age

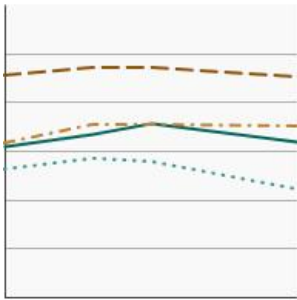
Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by wearing protective clothing by age, 2005-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	95% Confidence Interval
	Ages 18-24	27.1	24.6 - 29.7
	Ages 25+	40.1	39.2 - 41.0

By Sex and Age

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by wearing protective clothing by sex and age, 2005-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

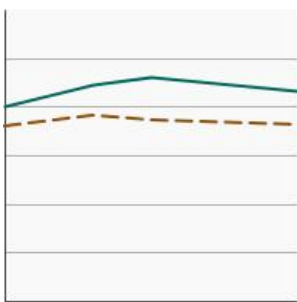
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Males, Ages 18-24	31.8	28.1 - 35.7
Males, Ages 25+	45.3	44.0 - 46.6
Females, Ages 18-24	22.1	19.1 - 25.5
Females, Ages 25+	35.0	34.0 - 36.2

By Poverty Income Level

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by wearing protective clothing by poverty income level, 2005-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

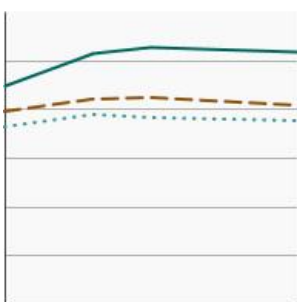
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	43.4	42.0 - 44.8
>=200% of federal poverty level	36.2	35.2 - 37.2

By Education Level

Percentage of adults aged 25 years and older who always or most of the time protect themselves from the sun by highest level of education obtained, 2005-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

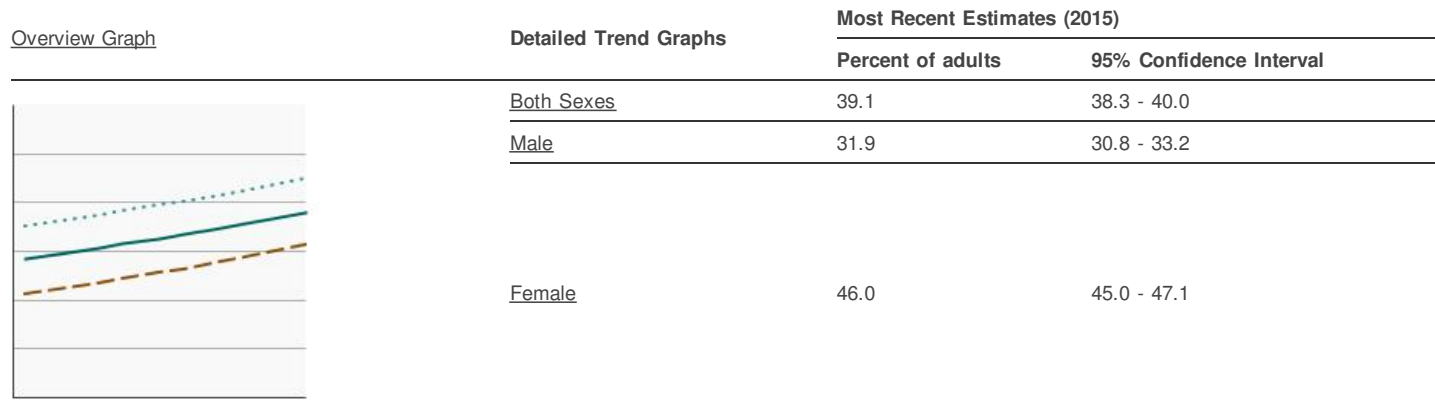
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	51.7	49.3 - 54.1
High School	40.8	39.1 - 42.6
Greater than High School	37.7	36.6 - 38.8

Seek Shade

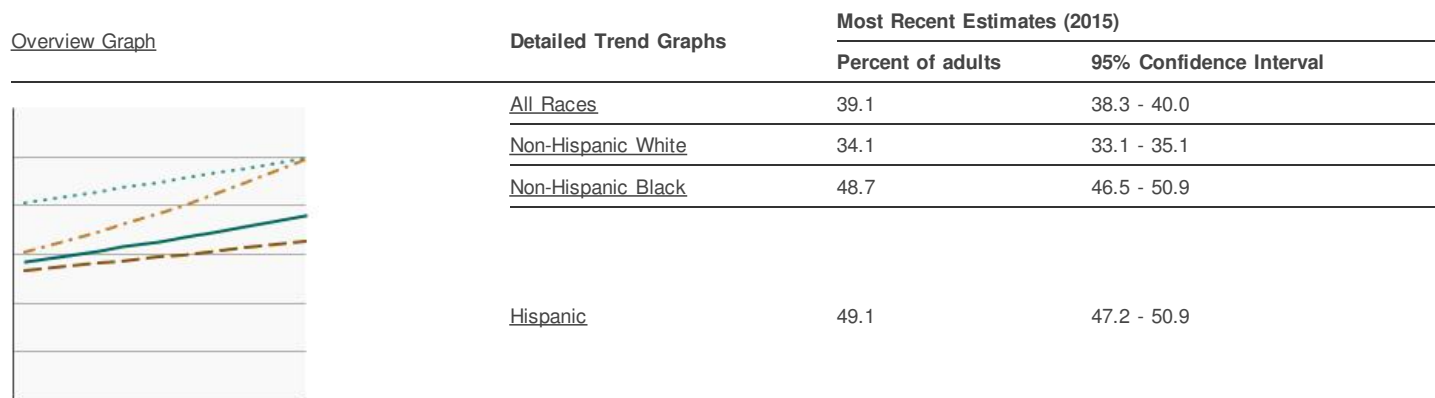
By Sex

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by seeking shade by sex, 1992-2015



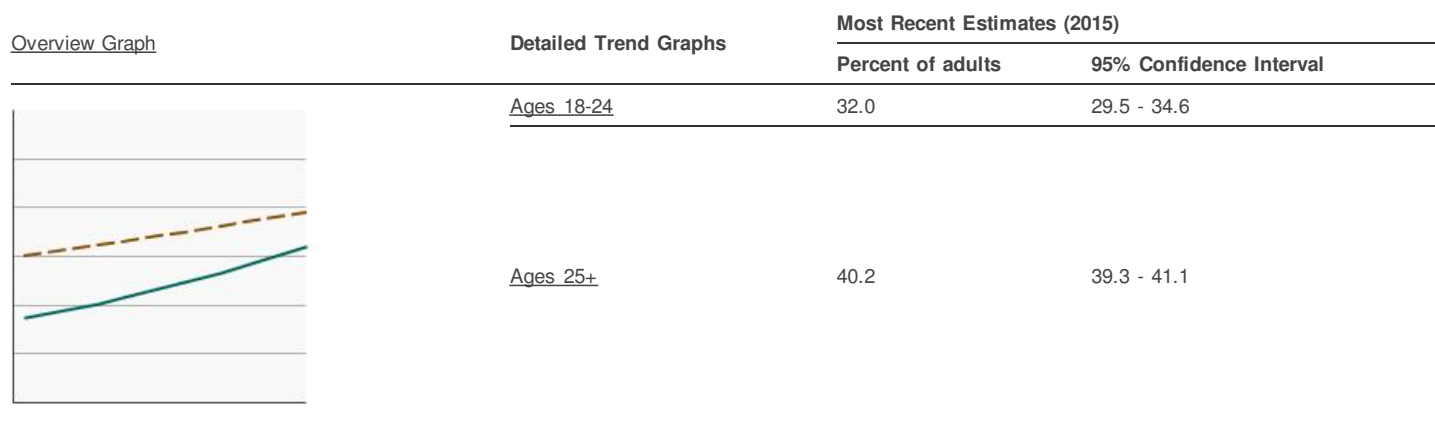
By Race/Ethnicity

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by seeking shade by race/ethnicity, 1992-2015



By Age

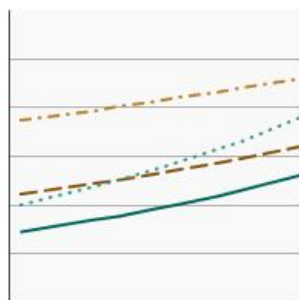
Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by seeking shade by age, 1992-2015



By Sex and Age

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by seeking shade by sex and age, 1992-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

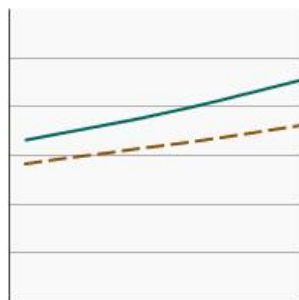
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Males, Ages 18-24	25.5	22.4 - 28.9
Males, Ages 25+	32.9	31.6 - 34.2
Females, Ages 18-24	38.8	35.3 - 42.4
Females, Ages 25+	47.1	46.1 - 48.1

By Poverty Income Level

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by seeking shade by poverty income level, 1998-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

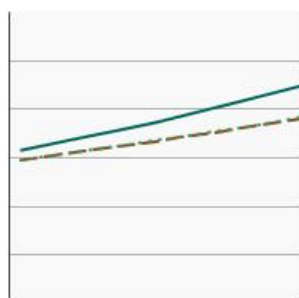
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	45.6	44.3 - 47.0
>=200% of federal poverty level	36.3	35.3 - 37.4

By Education Level

Percentage of adults aged 25 years and older who always or most of the time protect themselves from the sun by highest level of education obtained, 1992-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	46.0	43.6 - 48.4
High School	39.9	38.0 - 41.7
Greater than High School	39.0	37.9 - 40.1

Cancers Related to Sun-Protective Behavior

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Melanoma of the Skin](#)

Evidence-based Resources

Resources are available on sun-protective behaviors that are effective at lowering risk of skin cancer. Visit the [sun safety on Cancer Control P.L.A.N.E.T.](#) web portal. [Multicomponent community-wide interventions](#) are recommended to prevent skin cancer as well as [education and policy approaches](#).

Additional Information on UV Exposure and Sun Protective Practices For the public

- [Skin Cancer](#). American Cancer Society.
- [Skin Cancer](#). National Cancer Institute.
- [Indoor Tanning Restrictions for Minors – A State-by-State Comparison \(May 2017\)](#)(<http://www.ncsl.org/research/health/indoor-tanning-restrictions.aspx>). National Conference of State Legislatures.
- [National Council on Skin Cancer Prevention](#)(<http://www.skincancerprevention.org/>).
- [Sunscreen drug products for over-the-counter human use, 2011](#). U.S. Food and Drug Administration.
- [Sunburn protection factor \(SPF\)](#). U.S. Food and Drug Administration.

For health professionals

- [Vitamin D and Calcium: A Systematic Review of Health Outcomes \(Update\)](#). AHRQ Publication No. 14-E004-EF September 2014. Evidence Report/Technology Assessment Number 217.
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- [Indoor Tanning Association settles FTC charge that it deceived customers about skin cancer risks from tanning](#). Federal Trade Commission.
- [Melanoma Treatment \(PDQ®\)](#). National Cancer Institute.
- [Skin Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [Stratosphere: UV index](#)(http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/). National Weather Service: Climate Prediction Center.
- [Sun Safety](#). U.S. Environmental Protection Agency.
- [Sunlamp products and ultraviolet lamps intended for use in sunlamp products](#). U.S. Food and Drug Administration. Title 21. Food and drugs. CFR 1040.20. Fed Regist. 2017.
- [Sunlamps and Sunlamp Products \(Tanning Beds/Booths\)](#). U.S. Food and Drug Administration.
- [General and plastic surgery devices: reclassification of ultraviolet lamps for tanning, henceforth to be known as sunlamp products and ultraviolet lamps intended for use in sunlamp products](#). U.S. Food and Drug Administration. Rule. Fed Regist. 2014;79:31205-31214.
- [Skin Cancer: Counseling](#). U.S. Preventive Services Task Force.

Scientific reports

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- [Sunburn and sun protective behaviors among adults aged 18–29 Years – United States, 2000–2010](#). Centers for Disease Control and Prevention. MMWR 2012;61(18):317–322.
- [Use of indoor tanning devices by adults – United States, 2010](#). Centers for Disease Control and Prevention. MMWR 2012;61(18):323–326.
- [Reduced melanoma after regular sunscreen use: randomized trial follow-up](#). Green A, Williams GM, Logan V, and Strutton GM. J Clin Oncol. 2011;29(3):257–263.
- [State indoor tanning laws and adolescent indoor tanning](#). Guy GP, Berkowitz Z, Jones SE, et al. Am J Public Health. 2014;104(4):e69-e74.
- [The association between demographic and behavioral characteristics and sunburn among U.S. Adults – National Health Interview Survey, 2010](#). Holman DM, Berkowitz Z, Guy GP, Hartman AM, Perna FM. Prev Med. 2014;63:6-12.
- [Correlates of intentional tanning among adolescents in the United States: a systematic review of the literature](#). Holman DM, Watson M. J Adolesc Health. 2013;52(5 suppl):S52-S59.
- [History and culture of tanning in the United States](#). Hunt Y, Auguston E, Rutten L, Moser R. In: Heckman CJ, Manne EL, eds. Shedding Light on Indoor Tanning. New York, NY: Springer; 2012:5-30.
- [Solar and ultraviolet radiation](#)(<http://monographs.iarc.fr/ENG/Monographs/vol100D/mono100D-6.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100D:36–102.
- [Indoor tanning and risk of melanoma: a case-control study in a highly exposed population](#). Lazovich D, Vogel R, Berwick M, et al. Cancer Epidemiol Biomarkers Prev 2010;19(6):1557–68.
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- [Behavioral counseling to prevent skin cancer: U.S. Preventive Services Task Force recommendation statement](#). Moyer VA, U.S. Preventive Services Task Force. Ann Intern Med. 2012;157(1):59-65.
- [Reducing environmental cancer risk: what we can do now](#). National Cancer Institute. 2008–2009 Annual Report of the President's Cancer Panel.
- [Subsequent primary malignancies in patients with nonmelanoma skin cancer in England: a national record-linkage study](#). Ong EL, Goldacre R, Hoang U, Sinclair R, Goldacre M. Cancer Epidemiol Biomarkers Prev. 2014;23(3):490-498.
- [Increasing incidence of melanoma among young adults: an epidemiological study in Olmsted County, Minnesota](#). Reed KB, Brewer JD, Lohse CM, et al. Mayo Clin Proc. 2012;87(4):328–334.

- Implications of lessons learned from tobacco control for tanning bed reform. Sinclair C, Makin JK. Prev Chronic Dis. 2013;10:e28.

Statistics

- SEER Cancer Statistics Review, National Cancer Institute.

Indoor Tanning

Last Updated:

January 2017

Introduction

Exposure to artificial ultraviolet (UV) light from indoor tanning beds and sun lamps increases the risk of skin cancer. In July 2014, a Surgeon General's [Call To Action to Prevent Skin Cancer Report](http://www.surgeongeneral.gov/library/calls/prevent-skin-cancer/) was released. One of the goals of this report was to reduce the harms from indoor tanning. In the same year, the Food and Drug Administration (FDA) increased the stringency of regulations related to indoor tanning equipment and facilities that provide indoor tanning services, and changed the classification of such devices to a Class II from a Class I. Several states have adopted youth access restrictions for tanning beds, and FDA has proposed a nationwide restriction for minors' (under 18) access to tanning beds.

Measure

The percentage of high school students (grades 9-12) who reported use of an indoor tanning device such as a sunlamp, sunbed, or tanning booth (not counting getting a spray-on tan) one or more times during the 12 months before the survey.

The percentage of adults aged 18 years and older who have used an indoor tanning device one or more times during the past 12 months. Although NHIS-CCS also collected this data for adults in 2005 and 2008, the methodology used then likely resulted in overestimates and so that data was not included here.

Healthy People 2020 Target

- Reduce to 14 percent the proportion of adolescents in grades 9 through 12 who report using artificial sources of ultraviolet light for tanning.
- Reduce to 3.6 percent the proportion of adults aged 18 years and older who report using artificial sources of ultraviolet light for tanning.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Adolescents: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Youth Risk Behavior Surveillance System (YRBSS), 2009–2015.

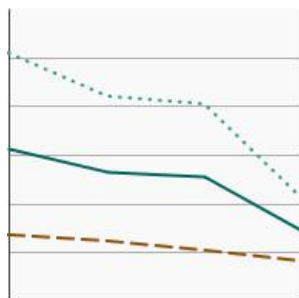
Adults: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey NCI and CDC co-sponsored Cancer Control Supplement, 2010-2015.

Trends and Most Recent Estimates Adolescents

By Sex

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by sex, 2009-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

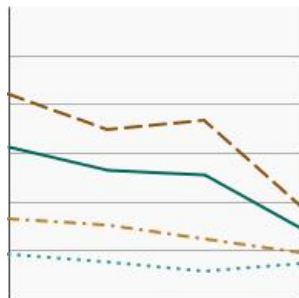
Most Recent Estimates (2015)

	Percent of adolescents	95% Confidence Interval
<u>Both Sexes</u>	7.3	(5.9 - 8.7)
<u>Male</u>	4.0	(3.4 - 4.6)
<u>Female</u>	10.6	(8.2 - 13.1)

By Race/Ethnicity

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by race/ethnicity, 2009-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

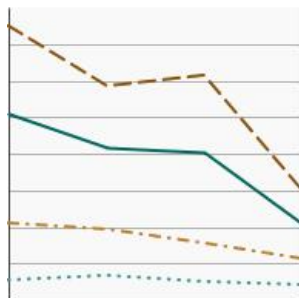
Most Recent Estimates (2015)

	Percent of adolescents	95% Confidence Interval
<u>All Races</u>	7.3	(5.9 - 8.7)
<u>Non-Hispanic White</u>	9.4	(7.4 - 11.4)
<u>Non-Hispanic Black</u>	3.7	(2.3 - 5.1)
<u>Hispanic</u>	4.7	(3.3 - 6.1)

Females by Race/Ethnicity

Percentage of female adolescents in grades 9 through 12 who used an indoor tanning device in the past year by race/ethnicity, 2009-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

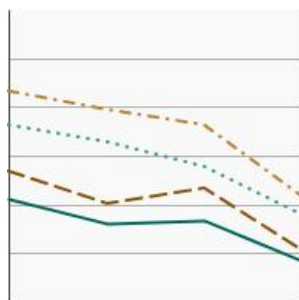
Most Recent Estimates (2015)

	Percent of female adolescents	95% Confidence Interval
<u>All Races</u>	10.6	(8.2 - 13.1)
<u>Non-Hispanic White</u>	15.2	(11.5 - 19.0)
<u>Non-Hispanic Black</u>	2.1	(0.9 - 3.3)
<u>Hispanic</u>	5.8	(3.6 - 8.0)

By High School Grade

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

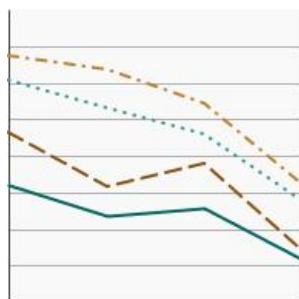
Most Recent Estimates (2015)

	Percent of adolescents	95% Confidence Interval
Grade 9	4.2	(3.2 - 5.3)
Grade 10	5.3	(3.5 - 7.2)
Grade 11	9.0	(6.3 - 11.6)
Grade 12	10.8	(8.5 - 13.2)

Females by High School Grade

Percentage of female adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

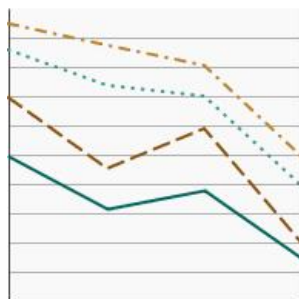
Most Recent Estimates (2015)

	Percent of female adolescents	95% Confidence Interval
Grade 9	6.0	(4.4 - 7.6)
Grade 10	7.1	(3.9 - 10.4)
Grade 11	14.0	(9.4 - 18.5)
Grade 12	16.2	(12.1 - 20.2)

Non-Hispanic White Female by High School Grade

Percentage of Non-Hispanic White female adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

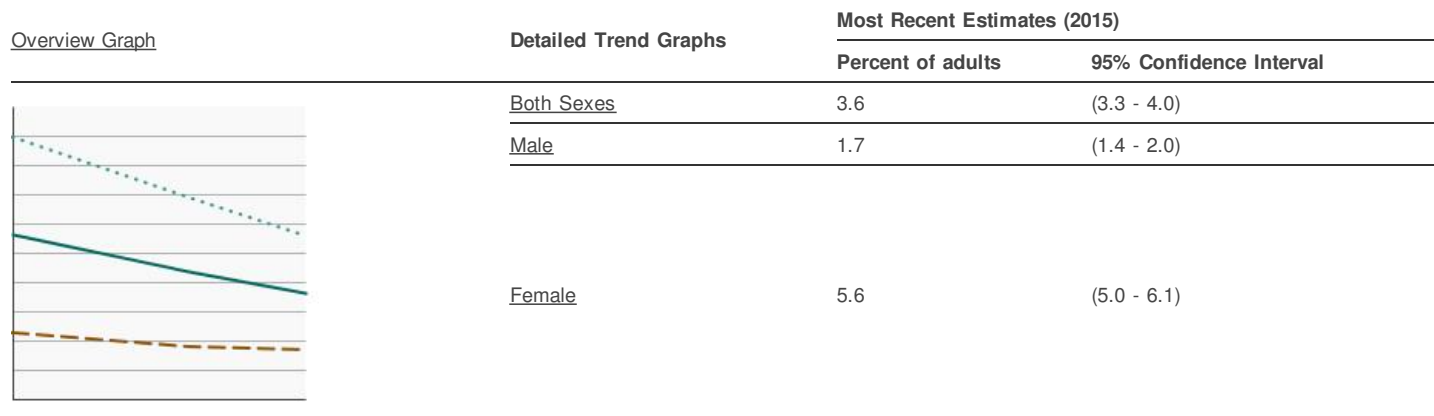
Most Recent Estimates (2015)

	Percent of female Non-Hispanic White adolescents	95% Confidence Interval
Grade 9	7.4	(4.7 - 10.1)
Grade 10	9.9	(4.5 - 15.2)
Grade 11	19.7	(12.8 - 26.6)
Grade 12	24.8	(19.4 - 30.2)

Adults

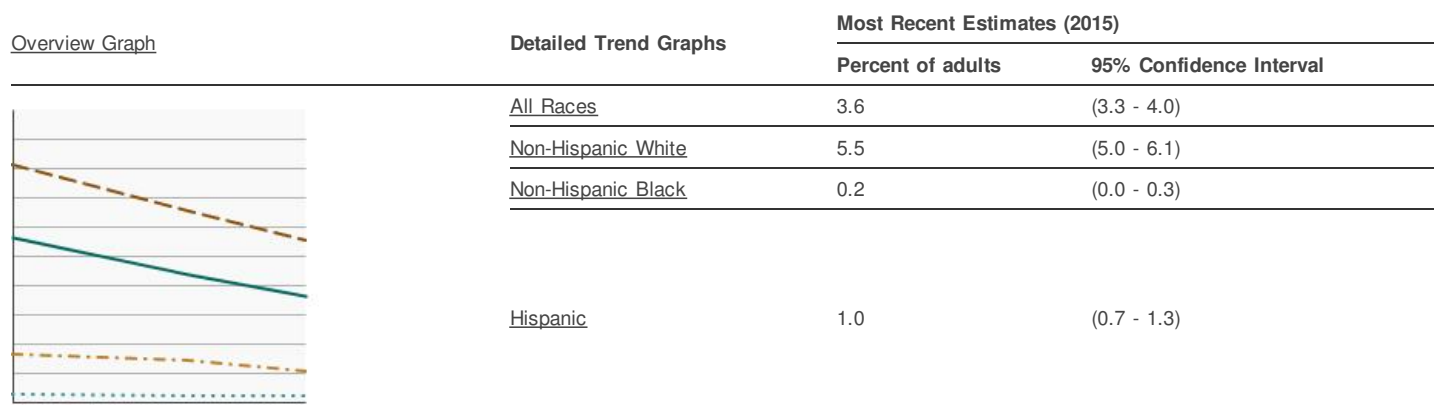
By Sex

Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by sex, 2010-2015



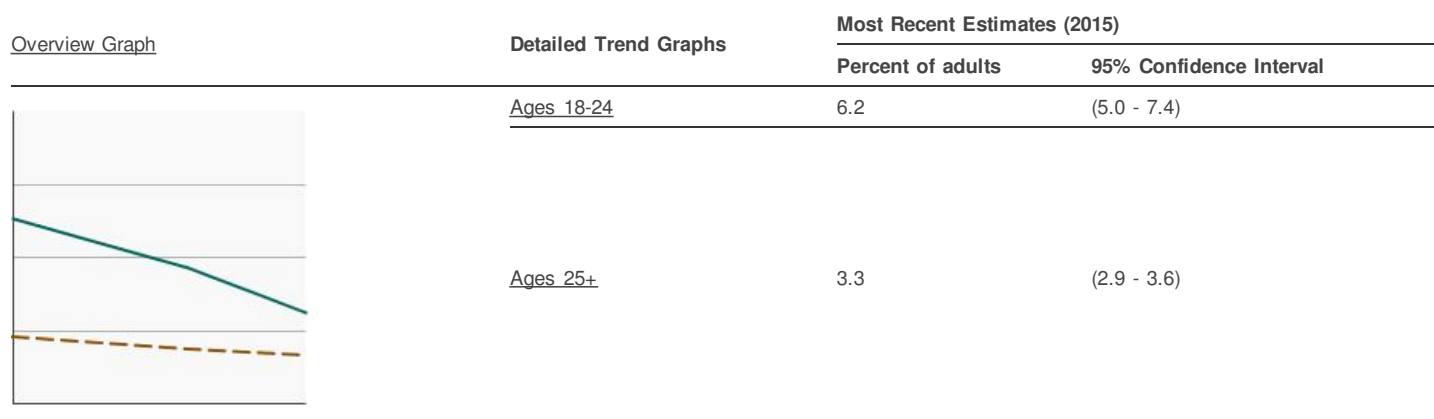
By Race/Ethnicity

Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by race/ethnicity, 2010-2015



By Age

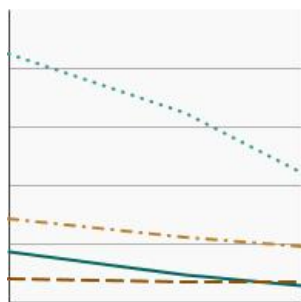
Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by age, 2010-2015



By Sex and Age

Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by sex and age, 2010-2015

[Overview Graph](#)



Detailed Trend Graphs

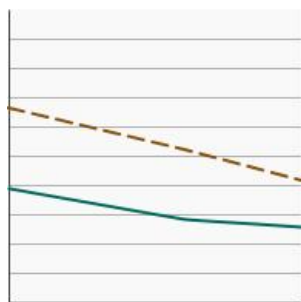
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Males, Ages 18-24	1.5	(0.7 - 2.3)
Males, Ages 25+	1.7	(1.3 - 2.0)
Females, Ages 18-24	11.0	(8.8 - 13.2)
Females, Ages 25+	4.8	(4.3 - 5.3)

By Poverty Income Level

Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by poverty income level, 2010-2015

[Overview Graph](#)



Detailed Trend Graphs

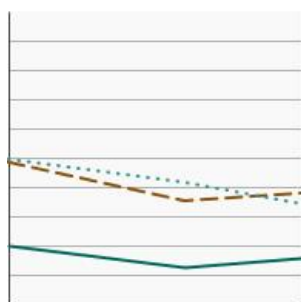
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	2.6	(2.2 - 3.0)
>=200% of federal poverty level	4.2	(3.7 - 4.6)

By Education Level

Percentage of adults aged 25 years and older who used an indoor tanning device in the past year by highest level of education obtained, 2010-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	1.6	(1.0 - 2.1)
High School	3.8	(3.1 - 4.5)
Greater than High School	3.4	(3.0 - 3.8)

Cancers Related to Indoor Tanning

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Melanoma of the Skin](#)

Evidence-based Resources

Resources are available on sun-protective behaviors that are effective at lowering risk of skin cancer. Visit the [sun safety on Cancer Control P.L.A.N.E.T.](#) web portal

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- [Implications of lessons learned from tobacco control for tanning bed reform.](#) Sinclair C, Makin JK. *Prev Chronic Dis.* 2013;10:e28.

Statistics

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Sunburn

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January 2017

Introduction

Sunburn, also known as erythema, is caused by excessive exposure to ultraviolet radiation (UVB), which results in an acute cutaneous inflammatory response. Sunburn can result from exposure to outdoor sunlight or UV radiation from indoor tanning beds. Sunburn symptoms include redness, warmth, tenderness, and edema. Previous sun burning is a strong predictor of future skin cancer, especially sunburns that occur at younger ages. This report will continue to include this relatively new measure and any changes over time.

Measure

The percentage of high school students (grades 9-12) who reported having been sunburned in the past 12 months.

The percentage of adults aged 18 years and older who reported having been sunburned in the past 12 months.

Healthy People 2020 Target

- (Developmental) Reduce the proportion of adolescents in grades 9 through 12 who report sunburn.
- Reduce to 33.8 percent the proportion of adults aged 18 years and older who report at least one sunburn in the past 12 months.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Adolescents: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Youth Risk Behavior Surveillance System (YRBSS), 2015.

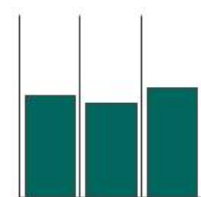
Adults: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey NCI and CDC co-sponsored Cancer Control Supplement, 2000-2010, 2010-2015.

Trends and Most Recent Estimates Adolescents

By Sex

Percentage of high school students (grades 9-12) who were sunburned in the past year by sex, 2015

[Overview graph](#)

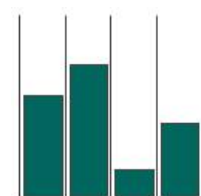


Sex	Had a sunburn in past year	
	Percent of adolescents	95% Confidence Interval
Both Sexes	55.8	(51.2 - 60.3)
Male	52.0	(48.0 - 56.0)
Female	59.8	(54.1 - 65.2)

By Race/Ethnicity

Percentage of high school students (grades 9-12) who were sunburned in the past year by race/ethnicity, 2015

[Overview graph](#)

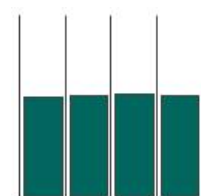


Race	Had a sunburn in past year	
	Percent of adolescents	95% Confidence Interval
All Races	55.8	(51.2 - 60.3)
Non-Hispanic White	72.5	(68.3 - 76.4)
Non-Hispanic Black	15.0	(12.1 - 18.4)
Hispanic	40.8	(37.4 - 44.4)

By High School Grade

Percentage of high school students (grades 9-12) who were sunburned in the past year by grade level, 2015

[Overview graph](#)

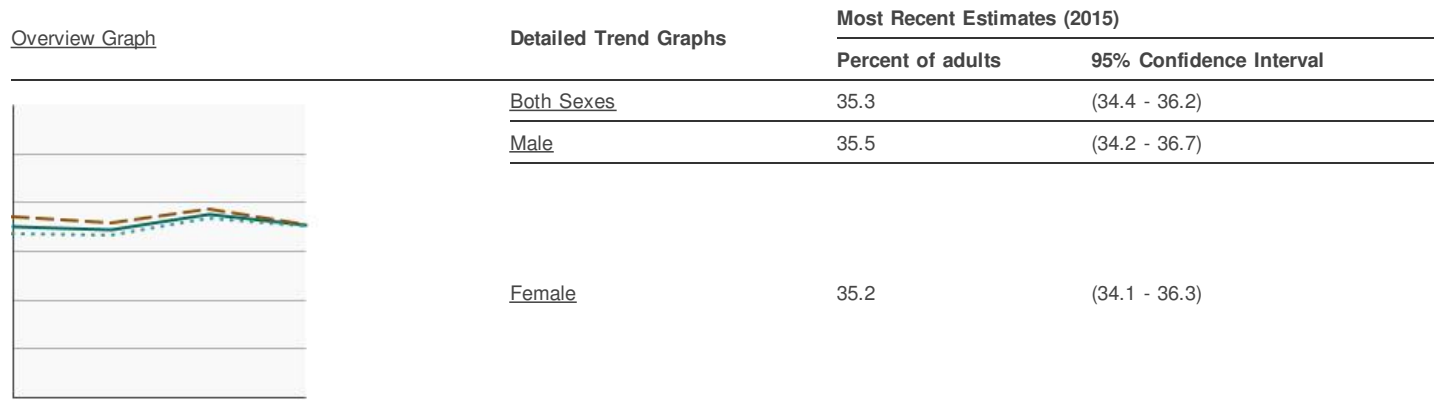


Grade	Had a sunburn in past year	
	Percent of adolescents	95% Confidence Interval
Grade 9	55.0	(49.8 - 60.0)
Grade 10	55.9	(50.0 - 61.7)
Grade 11	56.4	(52.1 - 60.6)
Grade 12	55.8	(50.5 - 61.0)

Adults

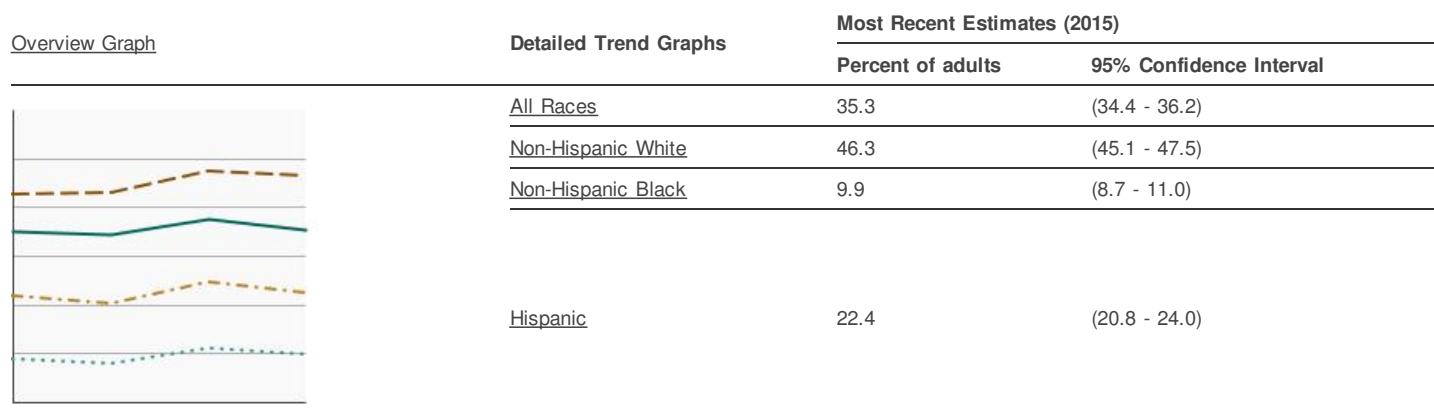
By Sex

Percentage of adults aged 18 years and older who were sunburned in the past year by sex, 2000-2015



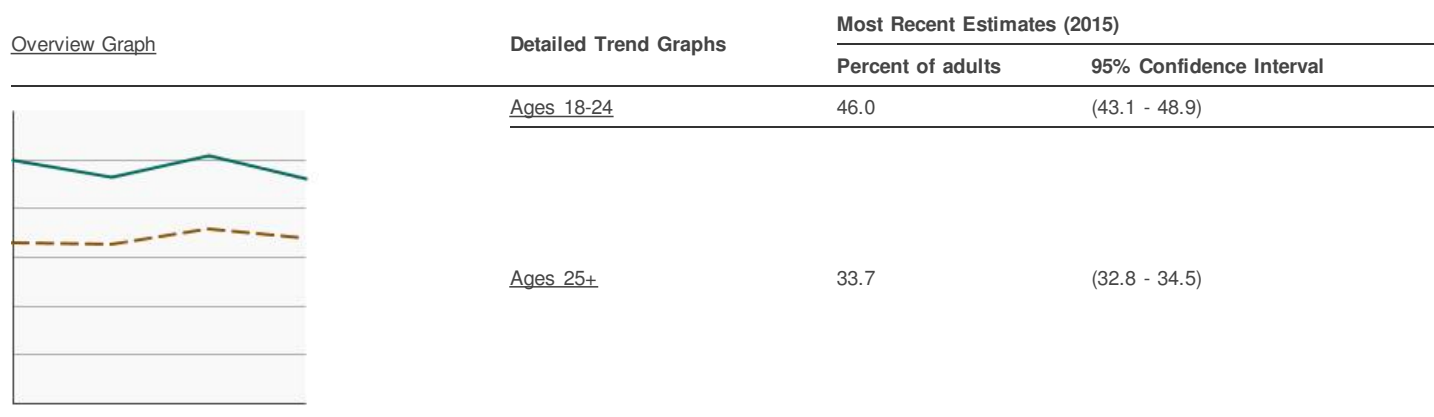
By Race/Ethnicity

Percentage of adults aged 18 years and older who were sunburned in the past year by race/ethnicity, 2000-2015



By Age

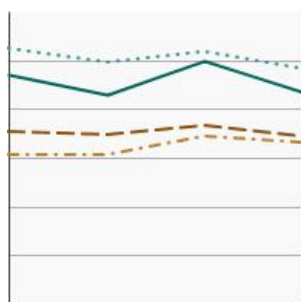
Percentage of adults aged 18 years and older who were sunburned in the past year by age, 2000-2015



By Sex and Age

Percentage of adults aged 18 years and older who were sunburned in the past year by sex and age, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

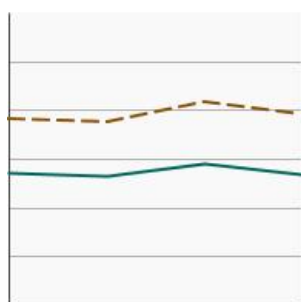
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Males, Ages 18-24	43.6	(39.7 - 47.4)
Males, Ages 25+	34.3	(33.0 - 35.5)
Females, Ages 18-24	48.4	(44.2 - 52.7)
Females, Ages 25+	33.2	(32.1 - 34.2)

By Poverty Income Level

Percentage of adults aged 18 years and older who were sunburned in the past year by poverty income level, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

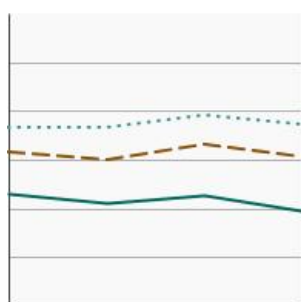
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	26.7	(25.4 - 28.1)
>=200% of federal poverty level	39.2	(38.2 - 40.3)

By Education Level

Percentage of adults aged 25 years and older who were sunburned in the past year by highest level of education obtained, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	19.7	(18.0 - 21.5)
High School	30.8	(29.1 - 32.4)
Greater than High School	37.2	(36.3 - 38.2)

Cancers Related to Sunburn

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Melanoma of the Skin](#)

Evidence-based Resources

Resources are available on sun-protective behaviors that are effective at lowering risk of skin cancer. Visit the [sun safety on Cancer Control P.L.A.N.E.T.](#) web portal. [Multicomponent community-wide interventions](#) are recommended to prevent skin cancer as well as [education and policy approaches](#).

Additional Information on Sunburn For the public

- [Skin Cancer](#). American Cancer Society.
- [Skin Cancer](#). National Cancer Institute.
- [Indoor Tanning Restrictions for Minors – A State-by-State Comparison \(May 2017\)](#)(<http://www.ncsl.org/research/health/indoor-tanning-restrictions.aspx>). National Conference of State Legislatures.
- [National Council on Skin Cancer Prevention](#)(<http://www.skincancerprevention.org/>).
- [Sunscreen drug products for over-the-counter human use, 2011](#). U.S. Food and Drug Administration.
- [Sunburn protection factor \(SPF\)](#). U.S. Food and Drug Administration.

For health professionals

- [Vitamin D and Calcium: A Systematic Review of Health Outcomes \(Update\)](#). AHRQ Publication No. 14-E004-EF September 2014. Evidence Report/Technology Assessment Number 217.
- [Preventing skin cancer: multicomponent community-wide interventions \(abbreviated\)](#)(<http://www.thecommunityguide.org/cancer/skin/community-wide/multicomponent.html>). Community Preventive Services Task Force.
- [Indoor Tanning Association settles FTC charge that it deceived customers about skin cancer risks from tanning](#). Federal Trade Commission.
- [Dietary Reference Intakes for Calcium and Vitamin D \(2010\)](#)(<http://nationalacademies.org/hmd/reports/2010/dietary-reference-intakes-for-calcium-and-vitamin-d.aspx>). Institute of Medicine.
- [Melanoma Treatment \(PDQ®\)](#). National Cancer Institute.
- [Skin Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [Stratosphere: UV index](#)(http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/). National Weather Service: Climate Prediction Center.
- [Sun Safety](#). U.S. Environmental Protection Agency.
- [Sunscreen: How to Help Protect Your Skin From the Sun](#)(<http://www.fda.gov/drugs/resourcesforyou/consumers/buyingusingmedicinesafely/understandingover-the-countermedicines/ucm239463.htm>). U.S. Food and Drug Administration.
- [Sunlamp products and ultraviolet lamps intended for use in sunlamp products](#). U.S. Food and Drug Administration. Title 21. Food and drugs. CFR 1040.20. Fed Regist. 2013.
- [Sunlamps and Sunlamp Products \(Tanning Beds/Booths\)](#). U.S. Food and Drug Administration.
- [General and plastic surgery devices: reclassification of ultraviolet lamps for tanning, henceforth to be known as sunlamp products and ultraviolet lamps intended for use in sunlamp products](#). U.S. Food and Drug Administration. Rule. Fed Regist. 2014;79:31205-31214.
- [Skin Cancer: Counseling](#). U.S. Preventive Services Task Force.

Scientific reports

- [Surgeon General Call to Action to Prevent Skin Cancer, 2014](#).
- [FDA Indoor tanning: The risks of ultraviolet rays](#).
- [Buying indoor tanning with university debit cards](#). Boyers L, Karimkhani C, Crane LA, Asdigian N, Hollonds A, Dellavalle RP. J Am Acad Dermatol. 2014;71(1):199-201.
- [VITamin D and Omega-3 Trial \(VITAL Study\)](#)(<http://www.vitalstudy.org/index.html>). Brigham and Women's Hospital.
- [Prevalence of sunburn, sun protection, and indoor tanning behaviors among Americans: review from national surveys and case studies of 3 states](#). Buller DB, Cokkinides V, Hall HI, et al. J Am Acad Dermatol. 2011;65(5):S114-S123.
- [User-centered development of a smart phone mobile application delivering personalized real-time advice on sun protection](#). Buller DB, Berwick M, Shane J, Kane I, Lantz K, Buller MK. Transl Behav Med. 2013;3(3):326-334.
- [Sunburn and sun protective behaviors among adults aged 18–29 Years – United States, 2000–2010](#). Centers for Disease Control and Prevention. MMWR 2012;61(18):317–322.
- [Use of indoor tanning devices by adults – United States, 2010](#). Centers for Disease Control and Prevention. MMWR 2012;61(18):323–326.
- [Reduced melanoma after regular sunscreen use: randomized trial follow-up](#). Green A, Williams GM, Logan V, and Stratton GM. J Clin Oncol. 2011;29(3):257–263.
- [State indoor tanning laws and adolescent indoor tanning](#). Guy GP, Berkowitz Z, Jones SE, et al. Am J Public Health. 2014;104(4):e69-e74.
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- [Correlates of intentional tanning among adolescents in the United States: a systematic review of the literature](#). Holman DM, Watson M. J Adolesc Health. 2013;52(5 suppl):S52-S59.
- [History and culture of tanning in the United States](#). Hunt Y, Auguston E, Rutten L, Moser R. In: Heckman CJ, Manne EL, eds. Shedding Light on Indoor Tanning. New York, NY: Springer; 2012:5-30.
- [Solar and ultraviolet radiation](#)(<http://monographs.iarc.fr/ENG/Monographs/vol100D/mono100D-6.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100D:36–102.
- [Indoor tanning and risk of melanoma: a case-control study in a highly exposed population](#). Lazovich D, Vogel R, Berwick M, et al. Cancer Epidemiol Biomarkers Prev 2010;19(6):1557–68.
- [Adverse effects of ultraviolet radiation from the use of indoor tanning equipment: time to ban the tan](#). Lim HW, James WD, Rigel DS, et al. J Am Acad Dermatol. 2011;64(4):e51–60.
- [Behavioral counseling to prevent skin cancer: a systematic review for the U.S. Preventive Service Task Force](#). Lin JS, Eder M, Weinmann S. Ann Intern Med. 2011;154:190–201.
- [Adolescents' use of indoor tanning: a large-scale evaluation of psychosocial, environmental, and policy-level correlates](#). Mayer JA, Woodruff SI, Slymen DJ, et al. Am J Public Health. 2011;101(5):930-938.
- [Behavioral counseling to prevent skin cancer: U.S. Preventive Services Task Force recommendation statement](#). Moyer VA, U.S. Preventive Services Task Force. Ann Intern Med. 2012;157(1):59-65.

- [Reducing environmental cancer risk: what we can do now](#). National Cancer Institute. 2008–2009 Annual Report of the President’s Cancer Panel.
- [Subsequent primary malignancies in patients with nonmelanoma skin cancer in England: a national record-linkage study](#). Ong EL, Goldacre R, Hoang U, Sinclair R, Goldacre M. *Cancer Epidemiol Biomarkers Prev*. 2014;23(3):490-498.
- [Increasing incidence of melanoma among young adults: an epidemiological study in Olmsted County, Minnesota](#). Reed KB, Brewer JD, Lohse CM, et al. *Mayo Clin Proc*. 2012;87(4):328–334.
- [Implications of lessons learned from tobacco control for tanning bed reform](#). Sinclair C, Makin JK. *Prev Chronic Dis*. 2013;10:e28.

Statistics

- [SEER Cancer Statistics Review](#). National Cancer Institute.

Tobacco Policy/Regulatory Factors

Effective policy and regulation are necessary to reduce the burden of cancer on the country. Federal law restricts the time, manner, and place of tobacco advertising and promotions because they are known to increase Americans' tobacco use. Federal law also requires state Medicaid programs to make tobacco cessation services available to pregnant women, but an expansion of coverage is needed to make these services available to more people.

- [Tobacco Company Marketing Expenditures](#)
- [Medicaid Coverage of Tobacco Dependence Treatments](#)

Tobacco Company Marketing Expenditures

Last Updated:

February 2018

Introduction

Tobacco advertising and promotion are causally related to increased tobacco use. Cigarettes are one of the most heavily marketed products in the United States. The U.S. Federal Trade Commission has reported cigarette sales and marketing expenditures annually since 1967 and smokeless tobacco sales and marketing expenditures periodically since 1987. These reports highlight spending on advertising and promotion by the largest cigarette companies and major smokeless tobacco product manufacturers in the US. The sales and marketing expenditures reported include categories such as direct mail, Internet, point of sale, price discounts, coupons, sampling distribution, and sponsorships.

The Family Smoking Prevention and Tobacco Control Act, signed into law on June 22, 2009, provides the U.S. Food and Drug Administration with broad authority to regulate tobacco product marketing. This legislation removes most federal preemption constraints on the ability of states and communities to restrict the time, manner, and place of tobacco advertising and promotions.

Measure

Combined cigarette annual advertising and promotional expenditures by the five largest U.S. cigarette manufacturers, adjusted, as reported by manufacturers to the U.S. Federal Trade Commission.

Combined smokeless tobacco annual advertising and promotional expenditures by the five parent companies of the major manufacturers of smokeless tobacco products in the U.S., adjusted, as reported by manufacturers to the U.S. Federal Trade Commission.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for reducing tobacco company marketing expenditures.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source


Federal Trade Commission Cigarette Report for 2014.

Federal Trade Commission Smokeless Tobacco Report for 2014.

Trends and Most Recent Estimates

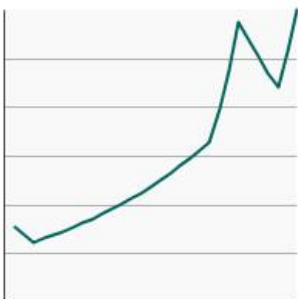
Cigarettes

Domestic cigarette advertising and promotional expenditures by U.S. tobacco companies adjusted to 2014 dollars, 1970-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Dollars spent (in billions)	95% Confidence Interval
	Total Marketing Expenditures	8.5	Not available

Smokeless Tobacco

Domestic smokeless tobacco advertising and promotional expenditures by U.S. tobacco companies adjusted to 2014 dollars, 1985-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Dollars spent (in millions)	95% Confidence Interval
	Total Marketing Expenditures	600.8	Not available

Additional Information on Tobacco Company Marketing Expenditures For the public

- [Smoking in Movies and TV](http://www.tobaccofree.org/films.htm) (<http://www.tobaccofree.org/films.htm>). TobaccoFree.org.
- [Smoke Free Movies](#). UCSF Center for Tobacco Control Research and Education.
- [Overview of the Family Smoking Prevention and Tobacco Control Act: Consumer Fact Sheet](#). U.S. Food and Drug Administration.
- [Litigation Against Tobacco Companies](#). U.S. Department of Justice, Consumer Protection Branch.

Scientific reports

- [2014 Surgeon General's Report: The Health Consequences of Smoking—50 Years of Progress](#). Centers for Disease Control and Prevention.
- [2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults](#). Centers for Disease Control and Prevention.
- [The effectiveness of tobacco marketing regulations on reducing smokers' exposure to advertising and promotion: findings from the international tobacco control four country survey](#). Kasza KA, Hyland AJ, Brown A. Int J Environ Res Public Health 2011;8(2):321–340.
- [Smoking in the movies: a new Centers for Disease Control and Prevention core surveillance indicator](#). McAfee T, Tynan M.
- [Implementation and research priorities for FCTC Articles 13 and 16: tobacco advertising, promotion, and sponsorship and sales to and by minors](#). Nagler RH, Viswanath K. Nicotine Tob Res 2013;15(4):832–846.
- [Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use](#). National Cancer Institute. Smoking and Tobacco Control Monographs.
- [Smoking in top-grossing US movies 2016](http://escholarship.org/uc/item/3wm5r5gx#page-1) (<http://escholarship.org/uc/item/3wm5r5gx#page-1>). Polansky JR, Titus K, Atayeva R, Glantz, SA. University of California, San Francisco, Center for Tobacco Control Research and Education, 2016.
- [Tobacco Control: Advertising and Marketing](http://www.publichealthlawcenter.org/topics/tobacco-control/advertising-and-marketing) (<http://www.publichealthlawcenter.org/topics/tobacco-control/advertising-and-marketing>). Public Health Law Center.
- [Exposure to Advertisements and Electronic Cigarette Use among US Middle and High School Students](#). Singh et al. (2016).
- [Tobacco company efforts to influence the Food and Drug Administration-commissioned Institute of Medicine report Clearing the Smoke: an analysis of documents released through litigation](#). Tan CE, Kyriss T, and Glantz SA. PLoS Med 2013;10(5):e1001450.
- [Tobacco Use in Top-Grossing Movies – United States, 2010-2016](#). Tynan MA, Polansky JR, Titus K, Atayeva R, Glantz SA. MMWR 2017;66(26):681-686.

Statistics

- [Smoking in the Movies](#). Centers for Disease Control and Prevention.

For tobacco users

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](http://smokefree.gov). National Cancer Institute.

- Tobacco. National Cancer Institute.
- North American Quitline Consortium(<http://www.naquitline.org/>).

Medicaid Coverage of Tobacco Dependency Treatments

Last Updated:

February 2018

Introduction

Medicaid enrollees have a higher smoking prevalence than the general population. Smoking-related diseases are a major contributor to Medicaid costs. Providing tobacco users access to evidence-based tobacco dependence treatments can reduce morbidity and mortality from cancers and other tobacco-related diseases and reduce Medicaid costs (Source: https://www.cdc.gov/coordinatedchronic/pdf/tobacco_cessation_factsheet_508_compliant.pdf). All state Medicaid programs must provide tobacco cessation services (both counseling and pharmacotherapy) for pregnant women under section 4107 of the 2010 Patient Protection and Affordable Care Act (ACA). Additionally, effective January 2014, section 2502 of the ACA barred state Medicaid programs from excluding coverage for cessation medications approved by the U.S. Food and Drug Administration. However, coverage still varies widely by state. As of June 2015, only nine states cover nine evidence-based cessation treatments (seven medications, individual, and group counseling) for all Medicaid enrollees. As of September 2017, only 11 states provided comprehensive coverage of all nine evidence-based cessation treatments (medications, individual and group counseling) for all Medicaid enrollees. Expansion of treatment coverage and eligibility while reducing barriers to treatment access (e.g. copays, duration limits on treatment) are still needed.

Measure

The number of states that provide coverage under Medicaid for any evidence-based tobacco dependence treatment (pharmacotherapy or counseling), either to their entire Medicaid population or to only pregnant women.

The number of states that provide coverage under Medicaid for individual or group tobacco cessation counseling.

The number of states that provide coverage under Medicaid for tobacco cessation medications.

Healthy People 2020 Target

- Increase comprehensive Medicaid insurance coverage of evidence-based treatment for nicotine dependency in States and the District of Columbia.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Centers for Disease Control and Prevention. [State Medicaid coverage for tobacco-cessation treatments and barriers to coverage](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6442a3.htm)(<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6442a3.htm>) – United States, 2014-2015. *MMWR* 2015;64(42):1194-9.

Trends and Most Recent Estimates


Medicaid Coverage of Cessation Aids

Medicaid Coverage of at least one tobacco-dependence treatment for at least some enrollees in the 50 states and DC, 1990-2017

[Overview Graph](#)

[Detailed Trend Graphs](#)

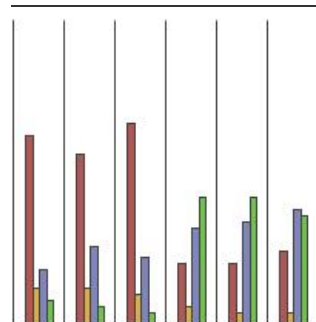
Most Recent Estimates (2017)

	Number of states	95% Confidence Interval
	51.0	Not available

Medicaid Coverage of Cessation Counseling

Breakdown of state Medicaid coverage for tobacco cessation counseling, 2014-2016

[Overview graph](#)

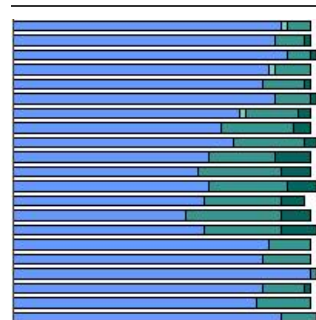


Counseling Type	Number of States (2016)			
	Yes	Pregnant women only	Varies by plan	No
Individual	33	5	11	2
Group	12	3	19	18

Medicaid Coverage of Smoking Cessation Medications

Breakdown of state Medicaid coverage for tobacco cessation medications, 2014-2016

[Overview graph](#)



Medication	Number of States (2016)			
	Yes	Pregnant women only	Varies by plan	No
Nicotine Patch	46	0	4	1
Nicotine Gum	44	0	6	1
Nicotine Lozenge	37	0	12	2
Nicotine Nasal Spray	33	0	13	5
Nicotine Inhaler	32	0	13	6
Bupropion	50	0	1	0
Varenicline	45	0	6	0

Additional Information on Medicaid Coverage of Tobacco Dependency Treatments For the public

- [Tobacco Cessation](#). Medicaid.gov.
- [Tobacco and Cancer](#). American Cancer Society.
- [Surgeon General's Reports on Smoking and Tobacco Use](#). Centers for Disease Control and Prevention.
- [Tobacco Products](#). U.S. Food and Drug Administration.

For health professionals

- [Treating Tobacco Use and Dependence: 2008 Update](#). Agency for Healthcare Research and Quality.

Scientific reports

- [State-level Medicaid expenditures attributable to smoking](#). Armour BS, Finkelstein EA, Fiebelkorn IC. *Prev Chronic Dis* 2009;6:A84.
- [State Medicaid coverage for tobacco-cessation treatments and barriers to coverage – United States, 2008–2014](#). Centers for Disease Control and Prevention. *MMWR* 2014;63(12):264–269.
- [State Medicaid coverage for tobacco-dependence treatments – United States, 2009](#). Centers for Disease Control and Prevention. *MMWR* 2010;59(41):1340–1343.
- [The impact of tobacco dependence treatment coverage and copayments in Medicaid](#). Greene J, Sacks RM, McMenamin SB. *Am J Prev Med* 2014;46:331–6.
- [How Medicaid and other public policies affect use of tobacco cessation therapy, United States, 2010–2014](#). Ku L, Brantley E, Bysse T, Steinmetz E, Bruen BK. *Prev Chronic Dis* 2016;13:E150.
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- [Cigarette smoking, desire to quit, and tobacco-related counseling among patients at adult health centers](#). Lebrun-Harris LA, Fiore MC, Tomoyasu N, Ngo-Metzger Q. *Am J Public Health* 2014.
- [Helping smokers quit—opportunities created by the Affordable Care Act](#). McAfee T, Babb S, McNabb S, Fiore MC. *N Engl J Med* 2015;372:5–7.
- [Annual healthcare spending attributable to cigarette smoking: an update](#). Xu X, Bishop EE, Kennedy SM, Simpson SA, Pechacek TF. *Am J Prev Med* 2015;48:326–33.
- [Quit interest, quit attempt and recent cigarette smoking cessation in the U.S. working population, 2010](#). Yong LC, Luckhaupt SE, Li J, Calvert GM. *Occup Environ Med* 2014.

Statistics

- [Adult Cigarette Smoking in the United States: Current Estimates](#). Centers for Disease Control and Prevention.
- [Adult Tobacco Use Information](#). Centers for Disease Control and Prevention. National Health Interview Survey.
- [Healthy People 2020, 2020 Topics & Objectives – Tobacco Use](#).
- [Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings](#). Substance Abuse and Mental Health Services Administration.

For tobacco users

- [How to Quit Smoking or Smokeless Tobacco](#). American Cancer Society.
- [Smokefree.gov](#). National Cancer Institute.
- [Tobacco](#). National Cancer Institute.
- [North American Quitline Consortium](http://www.naquitline.org/)(<http://www.naquitline.org/>).

HPV Immunization

Last Updated:

February 2018

Introduction

Human papillomavirus (HPV) is a common virus that is spread through sexual contact. Some types of HPVs can cause genital warts, and other types, called high-risk or oncogenic HPVs, can cause cancer. High-risk HPVs cause virtually all cervical cancers, most anal cancers, and some vaginal, vulvar, penile, and oropharyngeal cancers. Many HPV infections go away on their own within 1 to 2 years. However, infections that last for many years increase a person's risk of developing cancer.

HPV vaccines work like other immunizations (a technique used to cause an immune response that results in resistance to a specific disease) that guard against viral infections. HPV vaccines prevent the most common types of HPV that cause cancer and genital warts. The U.S. Food and Drug Administration has approved the use of Gardasil 9® to prevent cancers related to HPV. According to the Centers for Disease Control and Prevention (CDC), both males and females ages 9 through 26 years should get vaccinated.

Because the vaccines do not protect against all HPV infections that cause cervical cancer, it is important for vaccinated women to continue cervical cancer screening.

Measure

The percentage of adolescents who received 1+ dose, 2+ doses or 3+ doses of a HPV vaccine.

The National Immunization Survey Teen (NIS-Teen) vaccination coverage estimates are based on provider-reported vaccination histories from adolescents with adequate provider data (APD). NIS-Teen implemented a revised APD definition in 2014, thus estimates in 2014 and after are not directly comparable to those from prior years. However, the change in APD definition does not impact overall vaccination coverage trends; vaccines routinely recommended during adolescence, such as HPV, were less affected than vaccines routinely recommended in childhood. Additional information on implementation of the revised APD definition and assessment of impact on vaccine coverage estimates are available at <http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/apd-report.html>(<http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/apd-report.html>)

Healthy People 2020 Target

- Increase to 80 percent the proportion of females aged 13–15 years who have received at least three doses of HPV vaccine.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

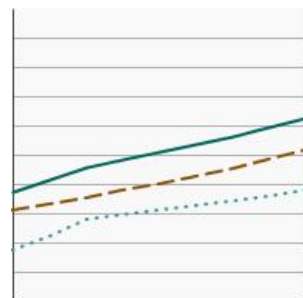
Centers for Disease Control and Prevention, The National Immunization Surveys (NIS), 2008-2016.

Trends and Most Recent Estimates Females

Ages 13-15

Percent of females aged 13-15 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2008-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

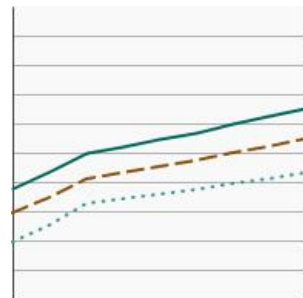
Most Recent Estimates (2016)

	Percent	95% Confidence Interval
1+ doses	62.1	59.8 - 64.4
2+ doses	50.4	47.9 - 52.9
3+ doses	37.2	34.8 - 39.6

Ages 13-17

Percent of females aged 13-17 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2008-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

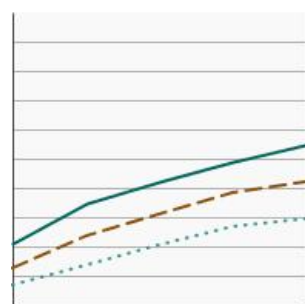
	Percent	95% Confidence Interval
1+ doses	65.1	63.4 - 66.8
2+ doses	55.0	53.1 - 56.9
3+ doses	43.0	41.1 - 44.9

Males

Ages 13-15

Percent of males aged 13-15 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2012-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

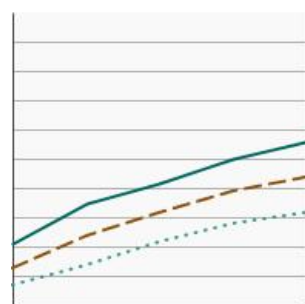
	Percent	95% Confidence Interval
1+ doses	54.7	52.5 - 56.9
2+ doses	42.0	39.8 - 44.2
3+ doses	29.5	27.4 - 31.6

□

Ages 13-17

Percent of males aged 13-17 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2012-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent	95% Confidence Interval
1+ doses	56.0	54.3 - 57.7
2+ doses	43.6	41.9 - 45.3
3+ doses	31.5	29.9 - 33.1

□

Cancers Related to HPV Immunization

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Anus](#)
- [Cervix Uteri](#)
- [Oral Cavity and Pharynx](#)
- [Vulva](#)

Evidence-based Resources

State and local statistics on HPV vaccination and HPV knowledge can be used to prioritize cancer control efforts and are available on the [State Cancer Profiles](#) website. Locate evidence-based practices and population-based intervention approaches along with [evidence-based interventions](#) on the [Cancer Control P.L.A.N.E.T.](#) web portal.

Additional Information on HPV Immunization For the public

- [HPV vaccines](#). American Cancer Society.
- [The HPV vaccine: 3 shots of prevention](#)(<http://blogs.cancer.org/expertvoices/2011/07/26/the-hpv-vaccine-3-shots-of-prevention/>). American Cancer Society.
- [Human Papillomavirus \(HPV\) Vaccination & Cancer Prevention](#). Centers for Disease Control and Prevention.
- [Fact Sheet – HPV and Cancer](#). National Cancer Institute.
- [Fact Sheet – Human Papillomavirus \(HPV\) Vaccines](#). National Cancer Institute.

For health professionals

- [What Works Fact Sheet: Increasing Appropriate Vaccination](#). Centers for Disease Control and Prevention.
- [Cervical Cancer Prevention \(PDQ®\)](#). National Cancer Institute.

Scientific reports

- [Applying a gender lens on human papillomavirus infection: cervical cancer screening, HPV DNA testing, and HPV vaccination](#). Brankovic I, Verdonk P, and Klinge I. *Int J Equity Health* 2013;12:14.
- [FDA licensure of bivalent human papillomavirus vaccine \(HPV2, Cervarix\) for use in females and updated HPV vaccination recommendations from the Advisory Committee on Immunization Practices](#). Centers for Disease Control and Prevention. *MMWR* 2010;59(20):626–629.
- [National and state vaccination coverage among adolescents aged 13–17 years – United States, 2011](#). Centers for Disease Control and Prevention. *MMWR* 2012;61(34):671–677.
- [Recommendations on the use of quadrivalent human papillomavirus vaccine in males — Advisory Committee on Immunization Practices, 2011](#). Centers for Disease Control and Prevention. *MMWR* 2011;60(50):1705–1708.
- [Prevalence of genital human papillomavirus among females in the United States, the National Health and Nutrition Examination Survey, 2003–2006](#). Hariri S, Unger ER, Sternberg M, et al. *J Infect Dis* 2011;204(4):566–73.
- [Efficacy of a bivalent HPV 16/18 vaccine against anal HPV 16/18 infection among young women: a nested analysis within the Costa Rica Vaccine Trial](#). Kreimer AR, Gonzalez P, Katki HA, et al. *Lancet Oncol*. 2011;12(9):862–70.
- [Long term protection against cervical infection with the human papillomavirus: review of currently available vaccines](#). Romanowski B. *Hum Vaccin*. 2011;7(2):161–9.
- [American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer](#). Saslow D, Solomon D, Lawson HW, et al. *Am J Clin Pathol* 2012;137(4):516–42.
- [Adolescent vaccination-coverage levels in the United States: 2006–2009](#)(<http://pediatrics.aappublications.org/content/128/6/1078>). Sokley S, Cohn A, Dorell C, et al. *Pediatrics* 2011;128(6):1078–1086.

Statistics

- [Behavioral Risk Factor Surveillance System: Prevalence Data & Data Analysis Tools](#). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- [Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey](#).
- [Health Information National Trends Survey](#). National Cancer Institute.

Secondhand Smoke

Secondhand smoke (SHS), also known as environmental tobacco smoke, is a mixture of the side stream smoke released by a smoldering cigarette, pipe, hookah/waterpipe, or cigar, and the mainstream smoke exhaled by a smoker. SHS is a complex mixture containing thousands of chemicals, including formaldehyde, cyanide, carbon monoxide, ammonia, and nicotine. More than 250 of the chemicals in tobacco smoke are known to be harmful, and at least 69 are known to cause cancer. Secondhand aerosol (commonly incorrectly called “vapor” by the public) is a mixture of chemicals in the aerosol exhaled by e-cigarette users. Many of the chemicals identified in SHS are present in secondhand aerosol, but many are at much lower concentrations. However, this aerosol may contain nanoparticles and other constituents not found in tobacco smoke, partially a result of various flavorings in e-cigarettes.

Conclusive scientific evidence documents that SHS causes premature death and disease in children and adults who do not smoke. Exposure to SHS by adults has immediate adverse effects on the cardiovascular system, and long-term exposure to SHS causes coronary heart disease and lung cancer.

Children exposed to SHS are at increased risk for sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory symptoms, and slowed lung growth. At present there is little known about the impact of secondhand aerosol from e-cigarettes. However, some preliminary studies have found the presence of nicotine and some other constituents in the aerosol. Current and future research will reveal the impact of second-hand aerosol from e-cigarettes as well as the direct effects on the user.

There is no risk-free level of exposure to SHS, and only eliminating smoking in indoor spaces fully protects nonsmokers from exposure to SHS. Over the years, the focus of clean indoor air policies has shifted from partial restrictions on smoking to complete bans in a variety of environments, such as workplaces, bars, restaurants, and homes.

- [Secondhand Smoke Exposure](#)
- [Smoke-free Home Rules](#)
- [Smoke-free Workplace Rules and Laws](#)

Secondhand Smoke Exposure

Last Updated:

January 2017

Introduction

Conclusive scientific evidence documents that secondhand smoke (SHS) causes premature death and disease in children and adults who do not smoke. Exposure to SHS by adults has immediate adverse effects on the cardiovascular system, and long-term exposure to SHS causes coronary heart disease and lung cancer. Children exposed to SHS are at increased risk for sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory symptoms, and slowed lung growth.

There is no risk-free level of exposure to SHS, and only eliminating smoking in indoor spaces fully protects nonsmokers from exposure to SHS.

Exposure to secondhand smoke among non-tobacco users can be assessed by measurement of serum cotinine, a metabolite of nicotine. While serum cotinine levels may vary by individual due to the speed of nicotine metabolism and cotinine clearance, detection of serum cotinine above a minimum threshold is a validated measure of exposure to SHS in non-tobacco users.

Measure

The percentage of nonsmokers exposed to secondhand smoke. (The percentage of nonsmokers aged 3 years and older with a serum cotinine level greater than 0.05 ng/mL and less than or equal to 10 ng/mL.)

Healthy People 2020 Target

- Reduce the proportion of children aged 3 to 11 years who are regularly exposed to tobacco smoke to 47 percent.
- Reduce the proportion of adolescents aged 12 to 17 years who are regularly exposed to tobacco smoke to 41 percent.
- Reduce the proportion of adults exposed to secondhand smoke to 33.8 percent.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

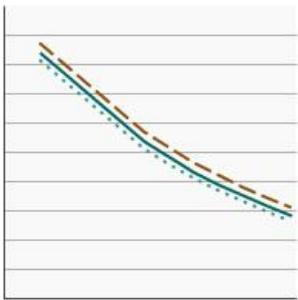
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey. "Secondhand smoke exposure" (<http://www.cdc.gov/nchs/nhanes.htm>)measure.

Trends and Most Recent Estimates

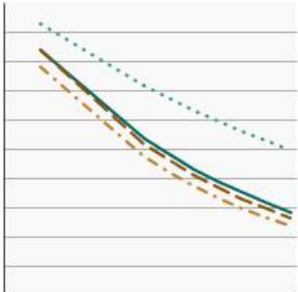
By Sex

Percentage of nonsmokers aged 3 years and older¹ exposed to secondhand smoke² by sex, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	95% Confidence Interval
	Both Sexes	26.2	(23.8 - 28.6)
	Male	28.5	(26.0 - 30.9)
	Female	24.3	(21.5 - 27.1)

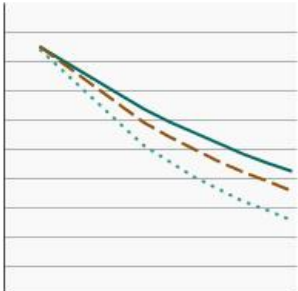
By Race/Ethnicity

Percentage of nonsmokers aged 3 years and older¹ exposed to secondhand smoke² by race/ethnicity, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	95% Confidence Interval
	All Races	26.2	(23.8 - 28.6)
	Non-Hispanic White	23.6	(21.0 - 26.3)
	Non-Hispanic Black	45.4	(39.0 - 51.9)
	Hispanic	22.6	(18.1 - 27.0)

By Age

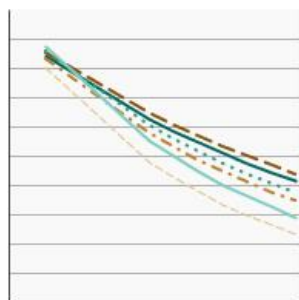
Percentage of nonsmokers aged 3 years and older¹ exposed to secondhand smoke² by age, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	95% Confidence Interval
	Ages 3-11	40.6	(34.4 - 46.8)
	Ages 12-17	31.2	(25.6 - 36.8)
	Ages 18+	23.0	(20.8 - 25.3)

By Sex and Age

Percentage of nonsmokers aged 3 years and older¹ exposed to secondhand smoke² by sex and age, 1988-2012

[Overview Graph](#)



[Detailed Trend Graphs](#)

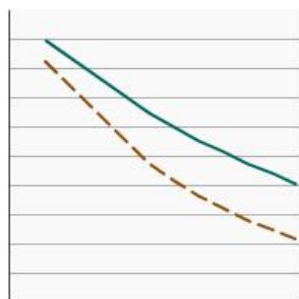
Most Recent Estimates (2011 to 2012)

	Percent of nonsmokers	95% Confidence Interval
Males, Ages 3-11	40.2	(33.0 - 47.4)
Females, Ages 3-11	41.0	(34.9 - 47.1)
Males, Ages 12-17	31.5	(24.8 - 38.3)
Females, Ages 12-17	30.9	(24.2 - 37.6)
Males, Ages 18+	26.1	(23.5 - 28.7)
Females, Ages 18+	20.6	(17.7 - 23.5)

Adults by Age

Percentage of nonsmokers aged 18 years and older exposed to secondhand smoke¹ by age, 1988-2012

[Overview Graph](#)



[Detailed Trend Graphs](#)

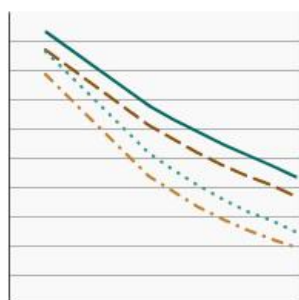
Most Recent Estimates (2011 to 2012)

	Percent of nonsmokers	95% Confidence Interval
Ages 18-29	37.2	(31.7 - 42.8)
Ages 30+	19.2	(17.4 - 20.9)

By Sex and Age

Percentage of nonsmokers aged 18 years and older exposed to secondhand smoke¹ by sex and age, 1988-2012

[Overview Graph](#)



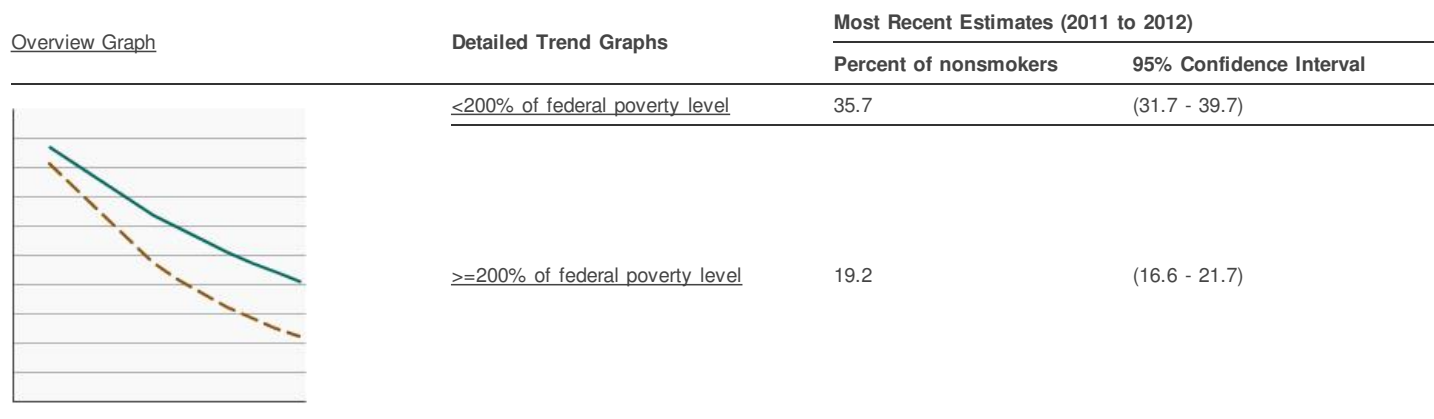
[Detailed Trend Graphs](#)

Most Recent Estimates (2011 to 2012)

	Percent of nonsmokers	95% Confidence Interval
Males, Ages 18-29	45.7	(38.3 - 53.1)
Females, Ages 18-29	30.3	(23.7 - 36.9)
Males, Ages 30+	20.7	(18.5 - 22.9)
Females, Ages 30+	18.0	(15.7 - 20.2)

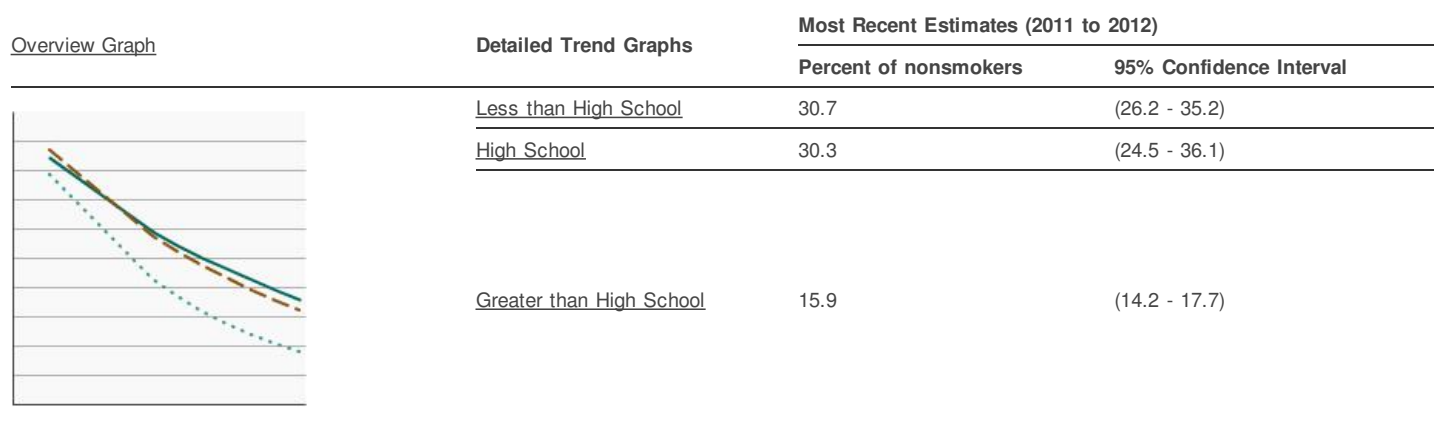
By Poverty Income Level

Percentage of nonsmokers aged 3 years and older¹ exposed to secondhand smoke² by poverty income level, 1988-2012



By Education Level

Percentage of nonsmokers aged 25 years and older exposed to secondhand smoke¹ by highest level of education obtained, 1988-2012



Cancers Related to Secondhand Smoke

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Lung and Bronchus](#)

Evidence-based Resources

State-level data are available on smoking that helps cancer control planner prioritize and develop plans to implement a cancer control program. [Smokefree laws](#) on each state are available, percentage of indoor workers reporting smoke-free policies at work regardless of state/local law policy (e.g., could be imposed by employer or building owner), and the percent of people not allowed to smoke in the home. Statistics are also available on the percent of state population with 100% smokefree in the workplace, restaurant, bar or all three.

Additional Information on Secondhand Smoke Exposure For the public

- [Health Risks of Secondhand Smoke](#). American Cancer Society.
- [Americans for Nonsmokers' Rights](http://www.no-smoke.org/)(<http://www.no-smoke.org/>).
- [Overview List – How many smokefree laws?](http://www.no-smoke.org/pdf/mediaordlist.pdf)(<http://www.no-smoke.org/pdf/mediaordlist.pdf>) American Nonsmokers' Rights Foundation.
- [Summary of 100% Smokefree State Laws and Protected by 100% U.S. Smokefree Laws](http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf)(<http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf>). American Nonsmokers' Rights Foundation.
- [U.S. 100% Smokefree Laws in Non-Hospitality Workplaces, Restaurants, and Bars](http://www.anr.no-smoke.org/pdf/WRBLawsMap.pdf)(<http://www.anr.no-smoke.org/pdf/WRBLawsMap.pdf>). American Nonsmokers' Rights Foundation.
- [Ending the Tobacco Problem: Resources for Local Action](http://sites.nationalacademies.org/Tobacco/index.htm)(<http://sites.nationalacademies.org/Tobacco/index.htm>). Institute of Medicine of the National Academies.
- [Second-Hand Smoke Exposure](#). National Cancer Institute.
- [Secondhand Smoke and Cancer](#). National Cancer Institute.
- [50 Years of Progress: A Report of the Surgeon General, 2014](http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html)(<http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html>). U.S. Department of Health and Human Services.

Scientific reports

- [Increasing prevalence of smoke-free homes and decreasing rates of sudden infant death syndrome in the United States: an ecological association study](#). Behm I, Kabir Z, Connolly GN, Alpert HR. *Tob Control* 2012;21(1):6–11.
- [Smoking restrictions in bars and bartender smoking in the United States, 1992–2007](#). Bitler MP, Carpenter C, Zavodny M. *Tob Control* 2011;20(3):196–200.
- [State smoke-free laws for worksites, restaurants, and bars – United States, 2000–2010](#)(<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6015a2.htm>). Centers for Disease Control and Prevention. *MMWR* 2011;60(15):472–475.
- [Vital signs: nonsmokers' exposure to secondhand smoke – United States, 1999–2008](#)(<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5935a4.htm>).

Centers for Disease Control and Prevention. MMWR 2010;59(35):1141–6.

- [Association between smokefree laws and voluntary smokefree-home rules](#). Cheng KW, Glantz SA, Lightwood JM. Am J Prev Med 2011;41(6):566–72.
- [Occupation and workplace policies predict smoking behaviors: analysis of national data from the current population survey](#). Ham DC, Przybeck T, Strickland JR, et al. J Occup Environ Med 2011;53(11):1337–45.
- [Parental home smoking policies: the protective effect of having a young child in the household](#). Hawkins SS, Berkman L. Prev Med 2011;53(1–2):61–3.
- [National and state estimates of secondhand smoke infiltration among U.S. multiunit housing residents](#). King BA, Babb SD, Tynan MA, Gerzoff RB. Nicotine Tob Res 2013 Jul;15(7):1316–21.
- [Home smoking bans among U.S. households with children and smokers. Opportunities for intervention](#). Mills AL, White MM, Pierce JP, Messer K. Am J Prev Med 2011;41(6):559–65.
- [Tobaccos Use Supplement to the Current Population Survey](#). National Cancer Institute.
- [The role of worksite and home smoking bans in smoking cessation among U.S. employed adult female smokers](#). Rose A, Fagan P, Lawrence D, Hart A Jr, Shavers VL, Gibson JT. Am J Health Promot 2011;26(1):26–36.
- [About the Report on Carcinogens](#). National Toxicology Program, U.S. Department of Health and Human Services.
- [Battling tobacco use at home: an analysis of smoke-free home rules among U.S. veterans from 2001 to 2011](#). Zhang X, Martinez-Donate AP, Cook J, Piper ME, Berg K, Jones NR. Am J Public Health 2014 Sep;104 Suppl 4:S572–9.

Statistics

- [Cancer Facts and Figures](http://www.cancer.org/research/cancerfactsstatistics/allcancerfactsfigures/index)(<http://www.cancer.org/research/cancerfactsstatistics/allcancerfactsfigures/index>). American Cancer Society.
- [State Tobacco Activities Tracking and Evaluation System](http://www.cdc.gov/statesystem/index.html)(<http://www.cdc.gov/statesystem/index.html>). Centers for Disease Control and Prevention.

Smoke-free Home Rules

Last Updated:

February 2018

Introduction

Conclusive scientific evidence documents that secondhand smoke (SHS) causes premature death and disease in children and adults who do not smoke. Exposure to SHS by adults has immediate adverse effects on the cardiovascular system, and long-term exposure to SHS causes coronary heart disease and lung cancer. Children exposed to SHS are at increased risk for sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory symptoms, and slowed lung growth.

Today, comprehensive smoke-free laws, covering public places and workplaces, including restaurants and bars are increasingly the norm. Additionally, smoke-free policies now extend to private spaces, including cars and multi-unit housing.

Many individuals and families, including both smokers and non-smokers, have adopted voluntary smoke-free rules for their homes, reflecting a change in community social norms. For children, smoking in the home is the main source of exposure to SHS. Studies have found that adoption of smoke-free home rules is a significant predictor of smoking cessation success.

Due to shared ventilation ducts and other related airborne conduits, SHS exposure may occur within multiunit housing by smoke drifting to the homes of non-smokers. To protect non-smokers living within public housing, the US Department of Housing and Urban Development has proposed a rule making all public housing smoke-free.

Measure

The percentage of respondents reporting a smoke-free home.

Healthy People 2020 Target

- Increase the proportion of smoke-free homes to 87 percent.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

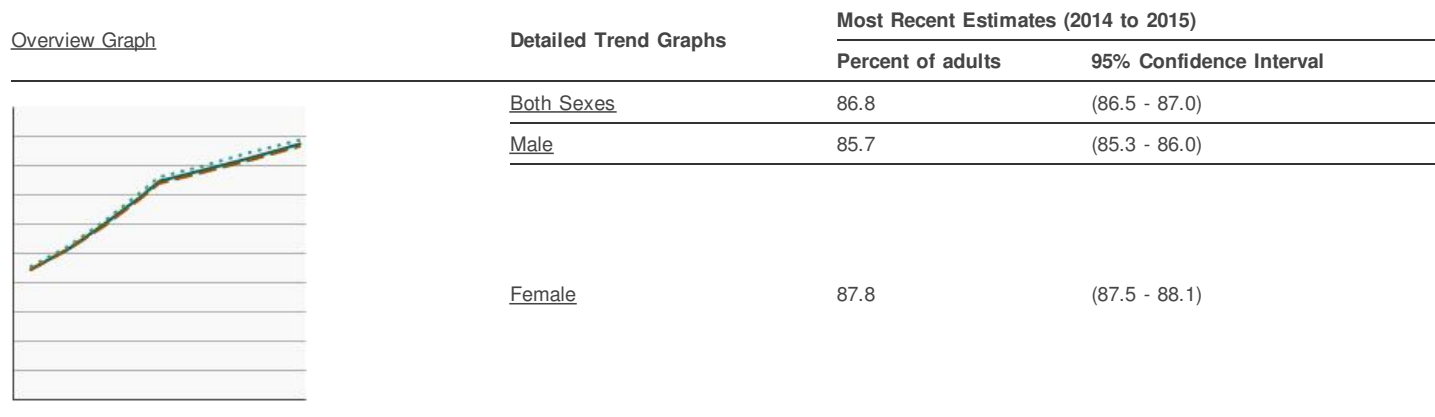
Data Source

National Cancer Institute. [Tobacco Use Supplement to the Current Population Supplement for "home smoke-free policies" measures.](#)

Trends and Most Recent Estimates

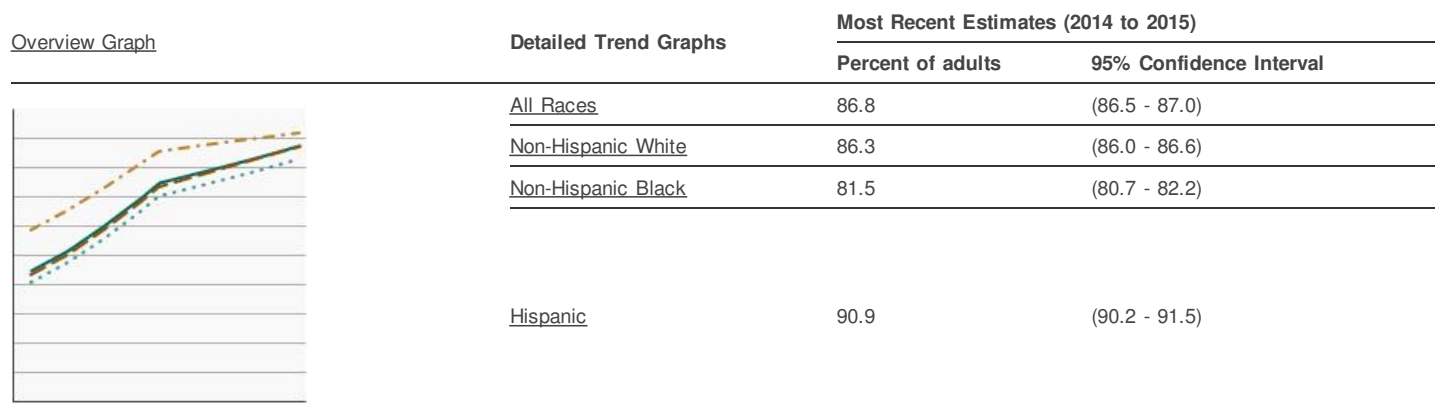
By Sex

Percentage of adults aged 18 years and older reporting a smoke-free home environment by sex, 1992-2015



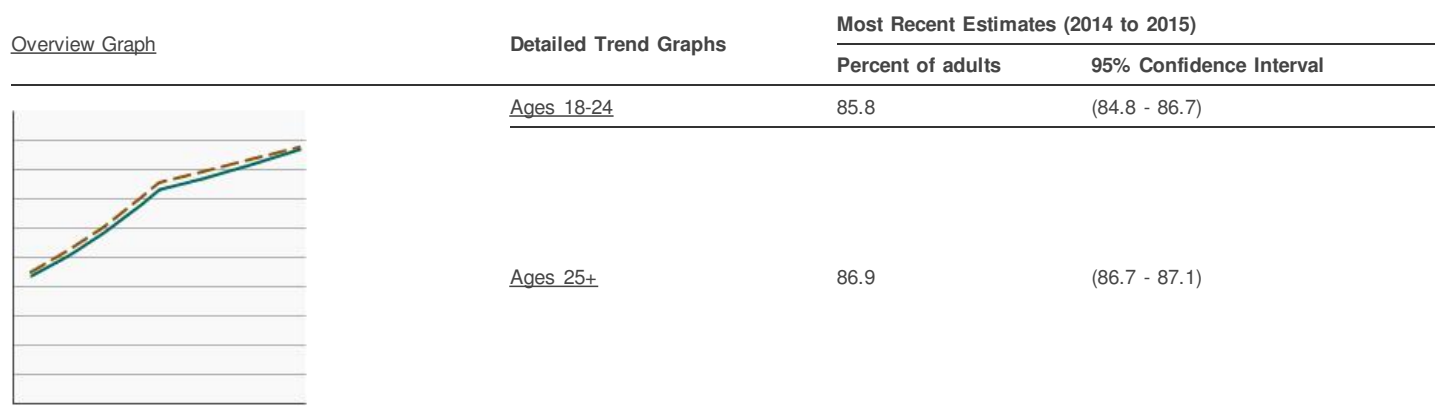
By Race/Ethnicity

Percentage of adults aged 18 years and older reporting a smoke-free home environment by race/ethnicity, 1992-2015



By Age

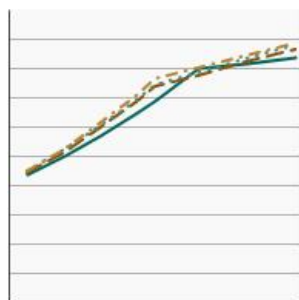
Percentage of adults aged 18 years and older reporting a smoke-free home environment by age, 1992-2015



By Sex and Age

Percentage of adults aged 18 years and older reporting a smoke-free home environment by sex and age, 1992-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

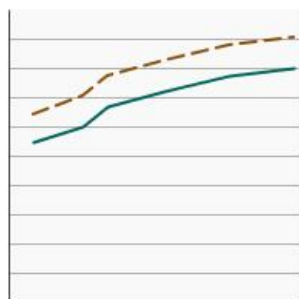
Most Recent Estimates (2014 to 2015)

	Percent of adults	95% Confidence Interval
Males, ages 18-24	83.8	(82.4 - 85.1)
Males, ages 25+	85.9	(85.6 - 86.2)
Females, ages 18-24	87.8	(86.7 - 88.7)
Females, ages 25+	87.8	(87.5 - 88.1)

By Poverty Income Level

Percentage of adults aged 18 years and older reporting a smoke-free home environment by poverty income level, 1998-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

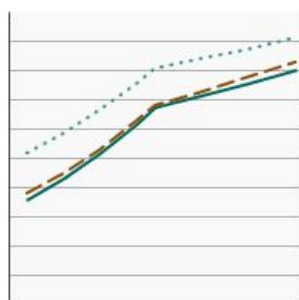
Most Recent Estimates (2014 to 2015)

	Percent of adults	95% Confidence Interval
< 200% of the federal poverty level	80.1	(79.6 - 80.6)
>= 200% of the federal poverty level	90.3	(90.1 - 90.6)

By Education Level

Percentage of adults aged 25 years and older reporting a smoke-free home environment by highest level of education obtained, 1992-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2014 to 2015)

	Percent of adults	95% Confidence Interval
Less than High School	78.8	(77.9 - 79.7)
High School	82.0	(81.5 - 82.5)
Greater than High School	90.1	(89.9 - 90.4)

Cancers Related to Smoke-free Home Rules

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Lung and Bronchus](#)

Evidence-based Resources

State-level data are available on the risk of smoking and percent of people not allowed to smoke in the home. These data are available on [State Cancer Profiles](#). These data can be used to prioritize cancer control efforts and develop action plans.

Additional Information on Smoke-free Home Rules For the public

- [Health Risks of Secondhand Smoke](#). American Cancer Society.
- [Americans for Nonsmokers' Rights](http://www.no-smoke.org/)(<http://www.no-smoke.org/>).
- [Ending the Tobacco Problem: Resources for Local Action](http://sites.nationalacademies.org/Tobacco/index.htm)(<http://sites.nationalacademies.org/Tobacco/index.htm>). Institute of Medicine of the National Academies.

- [Second-Hand Smoke Exposure](#). National Cancer Institute.
- [Secondhand Smoke and Cancer](#). National Cancer Institute.
- [50 Years of Progress: A Report of the Surgeon General, 2014](#). U.S. Department of Health and Human Services.

Scientific reports

- [Increasing prevalence of smoke-free homes and decreasing rates of sudden infant death syndrome in the United States: an ecological association study](#). Behm I, Kabir Z, Connolly GN, Alpert HR. *Tob Control* 2012;21(1):6–11.
- [Smoking restrictions in bars and bartender smoking in the United States, 1992–2007](#). Bitler MP, Carpenter C, Zavodny M. *Tob Control* 2011;20(3):196–200.
- [State smoke-free laws for worksites, restaurants, and bars – United States, 2000–2010](#). Centers for Disease Control and Prevention. *MMWR* 2011;60(15):472–475.
- [Vital signs: nonsmokers' exposure to secondhand smoke – United States, 1999–2008](#). Centers for Disease Control and Prevention. *MMWR* 2010;59(35):1141–6.
- [Association between smokefree laws and voluntary smokefree-home rules](#). Cheng KW, Glantz SA, Lightwood JM. *Am J Prev Med* 2011;41(6):566–72.
- [Occupation and workplace policies predict smoking behaviors: analysis of national data from the current population survey](#). Ham DC, Przybeck T, Strickland JR, et al. *J Occup Environ Med* 2011;53(11):1337–45.
- [Parental home smoking policies: the protective effect of having a young child in the household](#). Hawkins SS, Berkman L. *Prev Med* 2011;53(1–2):61–3.
- [National and state estimates of secondhand smoke infiltration among U.S. multiunit housing residents](#). King BA, Babb SD, Tynan MA, Gerzoff RB. *Nicotine Tob Res* 2013 Jul;15(7):1316–21.
- [National and state prevalence of smoke-free rules in homes with and without children and smokers: Two decades of progress](#). King BA, Patel R, Babb SD, Hartman AM, Freeman A. *Prev Med*. 2016 Jan;82:51–8.
- [Home smoking bans among U.S. households with children and smokers. Opportunities for intervention](#). Mills AL, White MM, Pierce JP, Messer K. *Am J Prev Med* 2011;41(6):559–65.
- [The role of worksite and home smoking bans in smoking cessation among U.S. employed adult female smokers](#). Rose A, Fagan P, Lawrence D, Hart A Jr, Shavers VL, Gibson JT. *Am J Health Promot* 2011;26(1):26–36.
- [About the Report on Carcinogens](#). National Toxicology Program, U.S. Department of Health and Human Services.
- [Effects of hookah smoking on indoor air quality in homes](#)(<http://tobaccocontrol.bmj.com/content/26/5/586>). Weitzman M, Yusufali AH, Bali F, et al. *Tobacco Control* 2017;26:586–591.
- [Battling tobacco use at home: an analysis of smoke-free home rules among U.S. veterans from 2001 to 2011](#). Zhang X, Martinez-Donate AP, Cook J, Piper ME, Berg K, Jones NR. *Am J Public Health* 2014 Sep;104 Suppl 4:S572–9.

Statistics

- [Cancer Facts and Figures](#). American Cancer Society.
- [Americans for Non-Smokers Right Foundation](http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf)(<http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf>).
- [National Health and Nutrition Examination Survey](#). Centers for Disease Control and Prevention, National Center for Health Statistics.
- [State Tobacco Activities Tracking and Evaluation System](#). Centers for Disease Control and Prevention.

Smoke-free Workplace Rules and Laws

Last Updated:

February 2018

Introduction

Conclusive scientific evidence documents that secondhand smoke (SHS) causes premature death and disease in children and adults who do not smoke. Exposure to SHS by adults has immediate adverse effects on the cardiovascular system, and long-term exposure to SHS causes coronary heart disease and lung cancer. Children exposed to SHS are at increased risk for sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory symptoms, and slowed lung growth.

Today, comprehensive smoke-free laws, covering public places and workplaces, including restaurants and bars are increasingly the norm. Additionally, smoke-free polices now extend to private spaces, including cars and multi-unit housing.

Numerous states, cities, and jurisdictions have implemented comprehensive smoke-free policies to protect employees and the public from the dangers of exposure to secondhand smoke. The non-profit organization, Americans for Non-Smokers' Rights, tracks the status of smoke-free policies at both the state and local level. As of October 2, 2017, 25 states and over 900 municipalities have adopted comprehensive smoke-free policies for workplaces, restaurants, and bars.

Electronic nicotine delivery systems (ENDS), including e-cigarettes, are battery-powered devices designed to heat a liquid, typically containing nicotine, to produce an aerosol for inhalation by the user. Secondhand aerosol contains nicotine, fine and ultrafine particles, metals, and other toxicants. At least 430 cities and several states prohibit the use of ENDS products in places that prohibit smoking of cigarettes and other tobacco products.

Measure

The percentage of indoor workers reporting a smoke-free work environment.

The percentage of the population protected by local and state smoke-free indoor air laws covering workplaces, restaurants, and bars. This measure draws on data collected and analyzed by the Americans for Nonsmokers' Rights Foundation. Use of this information allows the National Cancer Institute (NCI) to include both local and state laws in its assessments.

Healthy People 2020 Target

- Increase the proportion of persons covered by indoor worksite policies that prohibit smoking to 100 percent.
- Increase the number of jurisdictions (states and Washington, D.C.) with smoke-free indoor air laws that prohibit smoking in public places and worksites to 51.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

National Cancer Institute. Tobacco Use Supplement to the Current Population Supplement for "work place smoke-free policies" measures.

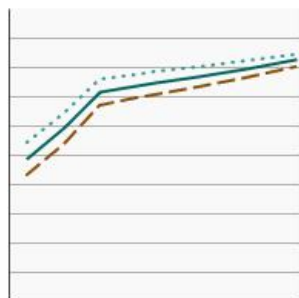
Americans for Nonsmokers Right Foundation. "Percentage of the population covered by local and/or state 100% smoke-free air laws".

Trends and Most Recent Estimates Smoke-free Workplace Rules

By Sex

Percentage of workers aged 18 years and older reporting a smoke-free work environment by sex, 1992-2015

[Overview Graph](#)



Detailed Trend Graphs

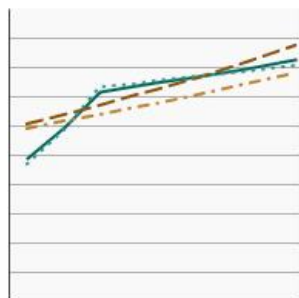
Most Recent Estimates (2014 to 2015)

	Percent of workers	95% Confidence Interval
Both Sexes	80.2	(79.7 - 80.6)
Male	77.6	(76.9 - 78.2)
Female	82.5	(82.0 - 83.0)

By Race/Ethnicity

Percentage of workers aged 18 years and older reporting a smoke-free work environment by race/ethnicity, 1992-2015

[Overview Graph](#)



Detailed Trend Graphs

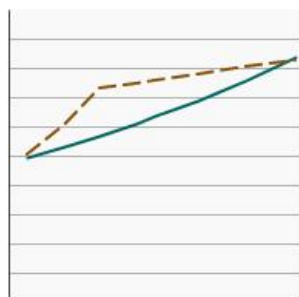
Most Recent Estimates (2014 to 2015)

	Percent of workers	95% Confidence Interval
All Races	80.2	(79.7 - 80.6)
Non-Hispanic White	81.8	(81.3 - 82.3)
Non-Hispanic Black	78.5	(77.0 - 79.9)
Hispanic	74.1	(72.4 - 75.7)

By Age

Percentage of workers aged 18 years and older reporting a smoke-free work environment by age, 1992-2015

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014 to 2015)

	Percent of workers	95% Confidence Interval
Ages 18-24	75.1	(73.5 - 76.7)
Ages 25+	80.9	(80.4 - 81.3)

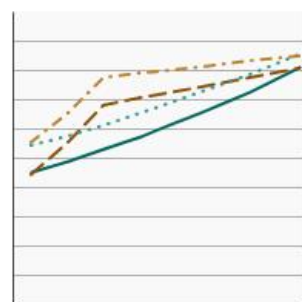
By Sex and Age

Percentage of workers aged 18 years and older reporting a smoke-free work environment by sex and age, 1992-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2014 to 2015)



[Males, ages 18-24](#)

Percent of workers

95% Confidence Interval

72.0

(69.7 - 74.2)

[Males, ages 25+](#)

78.3

(77.7 - 79.0)

[Females, ages 18-24](#)

77.8

(75.7 - 79.8)

[Females, ages 25+](#)

83.2

(82.7 - 83.7)

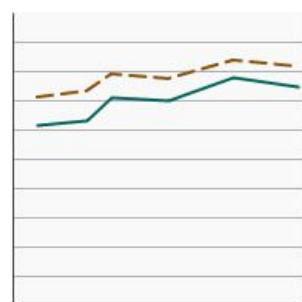
By Poverty Income Level

Percentage of workers aged 18 years and older reporting a smoke-free work environment by poverty income level, 1998-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2014 to 2015)



[< 200% of the federal poverty level](#)

Percent of workers

95% Confidence Interval

74.8

(73.7 - 75.9)

[>= 200% of the federal poverty level](#)

81.7

(81.2 - 82.3)

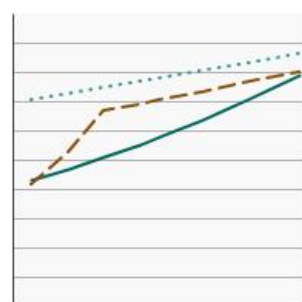
By Education Level

Percentage of workers aged 25 years and older reporting a smoke-free work environment by highest level of education obtained, 1992-2015

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2014 to 2015)



[Less than High School](#)

Percent of workers

95% Confidence Interval

69.1

(66.9 - 71.3)

[High School](#)

76.4

(75.3 - 77.3)

[Greater than High School](#)

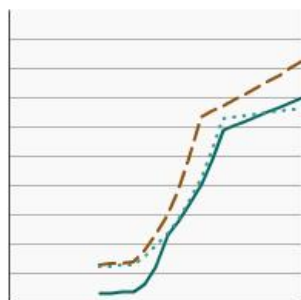
83.0

(82.5 - 83.5)

Indoor Air Laws

Percentage of population protected by local and state 100% smoke-free indoor air laws, 1990-2016

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2016)

	Percent of population	95% Confidence Interval
Workplaces	73.4	Not available
Restaurants	77.2	Not available
Bars	65.2	Not available

Cancers Related to Smoke-free Workplace Rules and Laws

Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- [Lung and Bronchus](#)

Evidence-based Resources

State-level data are available on the risk of smoking and the implication of smoke-free laws in bars, restaurant and the workplace. These data are available on [State Cancer Profiles](#). These data can be used to prioritize cancer control efforts and develop action plans.

Additional Information on Smoke-free Workplace Rules and Laws For the public

- [Health Risks of Secondhand Smoke](#). American Cancer Society.
- [Ending the Tobacco Problem: Resources for Local Action](#)(<http://sites.nationalacademies.org/Tobacco/index.htm>). Institute of Medicine of the National Academies.
- [Second-Hand Smoke Exposure](#). National Cancer Institute.
- [50 Years of Progress: A Report of the Surgeon General, 2014](#). U.S. Department of Health and Human Services.

Scientific reports

- [Increasing prevalence of smoke-free homes and decreasing rates of sudden infant death syndrome in the United States: an ecological association study](#). Behm I, Kabir Z, Connolly GN, Alpert HR. *Tob Control* 2012;21(1):6–11.
- [Smoking restrictions in bars and bartender smoking in the United States, 1992–2007](#). Bitler MP, Carpenter C, Zavodny M. *Tob Control* 2011;20(3):196–200.
- [State smoke-free laws for worksites, restaurants, and bars – United States, 2000–2010](#). Centers for Disease Control and Prevention. *MMWR* 2011;60(15):472–475.
- [Vital signs: nonsmokers' exposure to secondhand smoke – United States, 1999–2008](#). Centers for Disease Control and Prevention. *MMWR* 2010;59(35):1141–6.
- [Association between smokefree laws and voluntary smokefree-home rules](#). Cheng KW, Glantz SA, Lightwood JM. *Am J Prev Med* 2011;41(6):566–72.
- [Occupation and workplace policies predict smoking behaviors: analysis of national data from the current population survey](#). Ham DC, Przybeck T, Strickland JR, et al. *J Occup Environ Med* 2011;53(11):1337–45.
- [Parental home smoking policies: the protective effect of having a young child in the household](#). Hawkins SS, Berkman L. *Prev Med* 2011;53(1–2):61–3.
- [National and state estimates of secondhand smoke infiltration among U.S. multiunit housing residents](#). King BA, Babb SD, Tynan MA, Gerzoff RB. *Nicotine Tob Res* 2013 Jul;15(7):1316–21.
- [Home smoking bans among U.S. households with children and smokers. Opportunities for intervention](#). Mills AL, White MM, Pierce JP, Messer K. *Am J Prev Med* 2011;41(6):559–65.
- [The role of worksite and home smoking bans in smoking cessation among U.S. employed adult female smokers](#). Rose A, Fagan P, Lawrence D, Hart A Jr, Shavers VL, Gibson JT. *Am J Health Promot* 2011;26(1):26–36.
- [About the Report on Carcinogens](#). National Toxicology Program, U.S. Department of Health and Human Services.
- [Battling tobacco use at home: an analysis of smoke-free home rules among U.S. veterans from 2001 to 2011](#). Zhang X, Martinez-Donate AP, Cook J, Piper ME, Berg K, Jones NR. *Am J Public Health* 2014 Sep;104 Suppl 4:S572-9.

Statistics

- [Cancer Facts and Figures](#). American Cancer Society.
- [National Health and Nutrition Examination Survey](#). Centers for Disease Control and Prevention, National Center for Health Statistics.
- [State Tobacco Activities Tracking and Evaluation System](#). Centers for Disease Control and Prevention.

Chemical and Environmental Exposures

Exposure to carcinogens that exist as chemical pollutants or radioactive gas in our air, food, water, and soil, also influence the incidence of cancer. Most exposure to toxic chemical substances and hazardous wastes results from human activities, particularly through agricultural and industrial production. Chemicals were selected for inclusion in this report based on the following set of criteria: (1) likely or probable carcinogen as classified by IARC classification (Group 1 or 2A), (2) available biomarker data from the National Health and Nutrition Examination Survey (NHANES) since 2004, and (3) ubiquitous (i.e. >50% with detectable levels) in the U.S. general population (based on NHANES data). Most exposures to radioactive gases result from the naturally occurring breakdown of certain elements in rocks, soil, and water. The most common of these is radon, which is the second leading cause of lung cancer and has been included in this report.

- [Arsenic](#)
- [Benzene](#)
- [Cadmium](#)
- [Nitrate](#)
- [Radon](#)

Methodology for Chemical Exposures

The R function "svyquantile" from the R Package "survey" was used to estimate the percentiles and their confidence limits. The "betaWald" interval option was chosen, which was computed by adapting the method proposed by Woodruff (1952) and the method proposed by Korn & Graubard (1998). The R function "svyranktest" from the same package was used to test whether there is statistically significant difference between the estimated percentiles obtained from different survey years. For more details on the R functions used, see <https://cran.r-project.org/web/packages/survey/survey.pdf>. The R functions were chosen in order to perform the desired significance tests.

References

- Korn EL, Graubard BI. (1998). Confidence Intervals For Proportions With Small Expected Number of Positive Counts Estimated From Survey Data. *Survey Methodology*, 23, 193-201.
- Woodruff RS (1952). Confidence intervals for medians and other position measures. *JASA*, 57, 622-627.

Arsenic

Last Updated:

[February 2018](#)

Introduction

Arsenic is a tasteless, odorless element in the environment that can be found naturally in rocks and soil, water, air, and in plants and animals. It can also be released into the environment from some agricultural and industrial sources.

Arsenic is usually part of chemical compounds, including inorganic compounds (combined with oxygen, iron, chlorine, and sulfur), and organic compounds (combined with carbon and other atoms).

Inorganic arsenic compounds are found in industry, in building products (in some "pressure-treated" woods), and in arsenic-contaminated water. Soil and water contamination also can occur as a result of mining and smelting activities. Past use of arsenic-containing herbicides has resulted in soil contamination and some food crops grown in these soils take up the arsenic. Inorganic arsenic compounds are more toxic than organic arsenic compounds, and inorganic arsenic has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate.

We typically take in small amounts of inorganic arsenic in the food we eat (in particular, rice and fish), the water we drink, and the air we breathe. Arsenic also is present in tobacco smoke. People may be exposed to higher levels of arsenic at work in certain industries, but such exposures are now rare in the United States. People may also be exposed to greater amounts of arsenic if they live near current or former industrial or agricultural sources of arsenic, live in areas where arsenic is naturally high in drinking water, or eat a lot of seafood (although the organic form predominantly found in seafood is likely to be much less harmful). A major dietary source of inorganic arsenic includes rice and rice products.

Both short- and long-term exposure to arsenic can cause health problems. Breathing in high levels of arsenic may cause a sore throat and irritated lungs.

Swallowing high levels of arsenic can be fatal. Exposure to lower levels of arsenic over longer periods of time can result in liver and kidney damage.

Moreover, arsenic and cigarette smoking exposure act synergistically to increase the incidence of lung cancer.

Examination of arsenic is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [\[Methodology\]](#)

Healthy People 2020 Target

Level of urinary total arsenic (creatinine corrected) for 95 percent of the population aged 6 years and older to below 35.28 µg/g of creatinine.

[Healthy People 2020](#) is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey.

Trends and Most Recent Estimates

By Sex

95th percentile for urinary (creatinine corrected) concentrations ($\mu\text{g/g}$ of creatinine) of total arsenic among persons aged 6 years and older by sex, 2003-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/gram creatinine ($\mu\text{g/g}$)	Confidence Interval
	Both Sexes	52.0	43.4 - 59.4
	Male	47.7	36.1 - 56.5
	Female	54.1	46.3 - 70.6

By Race/Ethnicity

95th percentile for urinary (creatinine corrected) concentrations ($\mu\text{g/g}$ of creatinine) of total arsenic among persons aged 6 years and older by race/ethnicity, 2003-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/gram creatinine ($\mu\text{g/g}$)	Confidence Interval
	All Races	52.0	43.4 - 59.4
	Non-Hispanic White	49.3	40.4 - 57.6
	Non-Hispanic Black	36.2	26.0 - 66.3
	Hispanic	28.6	23.1 - 38.8

By Age

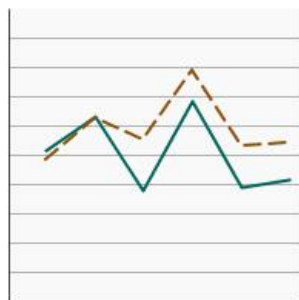
95th percentile for urinary (creatinine corrected) concentrations ($\mu\text{g/g}$ of creatinine) of total arsenic among persons aged 6 years and older by age, 2003-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/gram creatinine ($\mu\text{g/g}$)	Confidence Interval
	Ages 6-11	29.4	20.7 - 47.3
	Ages 12-19	30.5	21.0 - 53.2
	Ages 20+	54.0	48.8 - 67.0

By Poverty Income Level

95th percentile for urinary (creatinine corrected) concentrations ($\mu\text{g/g}$ of creatinine) of total arsenic among persons aged 6 years and older by poverty income level, 2003-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013 to 2014)

[< 200% of the federal poverty level](#)

Microgram/gram creatinine ($\mu\text{g/g}$)

Confidence Interval

41.7

31.6 - 54.0

[>= 200% of the federal poverty level](#)

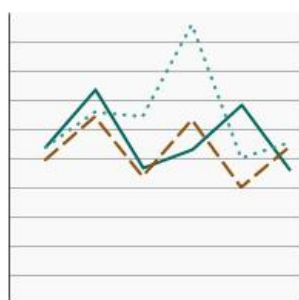
54.0

48.1 - 67.9

By Education Level

95th percentile for urinary (creatinine corrected) concentrations ($\mu\text{g/g}$ of creatinine) of total arsenic among persons aged 20 years and older by highest level of education obtained, 2003-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013 to 2014)

Microgram/gram creatinine ($\mu\text{g/g}$)

Confidence Interval

[Less than High School](#)

46.3

22.5 - 72.6

[High School](#)

53.8

32.7 - 86.0

[Greater than High School](#)

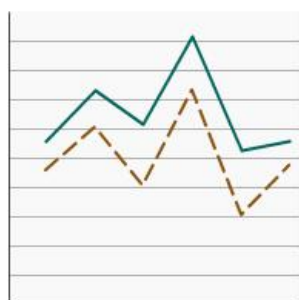
55.1

48.8 - 68.4

By Smoking Status

95th percentile for urinary (creatinine corrected) concentrations ($\mu\text{g/g}$ of creatinine) of total arsenic among persons aged 20 years and older by smoking status, 2003-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2013 to 2014)

Microgram/gram creatinine ($\mu\text{g/g}$)

Confidence Interval

[Non-Smoker](#)

55.8

48.3 - 70.2

[Smoker](#)

47.2

30.5 - 53.9

Additional Information on Arsenic For the public

- [Toxic Substances Portal – Arsenic: CCA- Treated Wood](#). Agency for Toxic Substances & Disease Registry.
- [Toxic Substances Portal – Arsenic: Public Health Statement for Arsenic](#). Agency for Toxic Substances & Disease Registry.
- [Toxic Substances Portal – Arsenic: ToxFAQs™ for Arsenic](#). Agency for Toxic Substances and Disease Registry.
- [Arsenic and Cancer Risk](#). American Cancer Society.
- [Known and Probable Human Carcinogens](#). American Cancer Society.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume One](#). Centers for Disease Control and Prevention.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume Two](#). Centers for Disease Control and Prevention.

- [Occupational Cancer](#). Centers for Disease Control and Prevention.
- [Drinking Water Requirements for States and Public Water Systems: Chemical Contaminant Rules](#). Environmental Protection Agency.
- [Fact Sheet on Arsenic](#). Environmental Protection Agency.
- [Arsenic](#). National Cancer Institute.
- [Arsenic in groundwater of the United States](#). U.S. Geological Survey, National Water-Quality Assessment Program, Trace Elements National Synthesis Project.

For health professionals

- [Environmental Health and Medicine Education – Arsenic Toxicity](#). Agency for Toxic Substances & Disease Registry.
- [Interaction Profiles for Toxic Substances: Arsenic, Cadmium, Chromium, Lead](#). Agency for Toxic Substances & Disease Registry.
- [Minimal Risk Levels \(MRLs\) List](#). Agency for Toxic Substances & Disease Registry.
- [Toxic Substances Portal – Arsenic](#). Agency for Toxic Substances & Disease Registry.
- [Toxic Substances Portal – Arsenic: Toxicological Profile for Arsenic](#). Agency for Toxic Substances & Disease Registry.
- [Arsenic](#). Environmental Protection Agency, Integrated Risk Information System.

Scientific reports

- [Bladder cancer mortality and private well use in New England: an ecological study](#). Ayotte JD, Baris D, Cantor KP, et al. *J Epidemiol Community Health* 2006;60:168–172.
- [Ingested arsenic, cigarette smoking, and lung cancer risk: a follow-up study in arseniosis-endemic areas in Taiwan](#). Chen CL, Hsu LI, Chiou HY, et al. *JAMA* 2004;292:2984–90.
- [Dietary sources of methylated arsenic species in urine of the United States population, NHANES 2003-2010](#). deCastro BR, Caldwell KL, Jones RL, Blount BC, Pan Y, Ward C, Mortensen ME. *PLoS One*. 2014 Sep 24;9(9):e108098.
- [Arsenic and Arsenic Compounds](#)(<http://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C-6.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100(c):41–93.
- [Arsenic in Drinking-Water](#)(<http://monographs.iarc.fr/ENG/Monographs/vol84/mono84-6.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2004;84:41–267.
- [New England Bladder Cancer Study](#). National Cancer Institute, Division of Cancer Epidemiology & Genetics.
- [Exogenous factors in the origin and cause of cancer: interactions of genes and/or genetic polymorphisms with exogenous and/or endogenous factors](#). National Cancer Institute. NCI Funded Research Portfolio. 2009.
- [Estimating water supply arsenic levels in the New England bladder cancer study](#). Nuckols JR, Freeman LEB, Lubin JH, et al. *Environ Health Perspect* 2011;119(9):1279–1285.
- [The Chemical Components of Tobacco and Tobacco Smoke](#)(<http://pubs.acs.org/doi/abs/10.1021/cr60252a002>). Rodgman A., Perfetti T.A. CRC Press; Boca Raton, FL, USA: 2009.
- [Arsenic and Inorganic Arsenic Compounds](#). U.S. Department of Health and Human Services, National Toxicology Program. Report on Carcinogens, Twelfth Edition 2011:50–53.

Benzene

Last Updated:

November 2015

Introduction

Benzene is an organic chemical that is colorless and has a sweet odor. It is highly flammable, and evaporates quickly when exposed to air. Benzene is formed through natural processes, such as volcanoes and forest fires, and is present in crude oil, gasoline, and cigarette smoke. Most exposure to benzene results from human activities. Benzene use in materials and to adjust fuel octane levels has been minimized, resulting in reduced benzene exposure among non-smokers. Cigarette smoking has been shown to be the primary exposure source of benzene blood levels in the U.S., with some benzene exposure in non-smokers attributable to secondhand smoke exposure. The chemical also is widely used as a component of plastics, rubber, resins, and synthetic fabrics, as well as an additive in motor fuels and as a solvent in printing, paints, and dry cleaning, and for other purposes. Benzene is also used in the manufacture of detergents, explosives, pharmaceuticals, and dyestuffs.

Benzene is known to cause cancer and has toxic effects on the blood and the bone marrow (the soft, inner parts of bones where new blood cells are made). The link between benzene and cancer has largely focused on leukemia and cancers of other blood cells.

The main way people are exposed is by breathing in air containing benzene—in emissions from burning coal and oil, motor vehicle exhaust, and evaporation from gasoline service stations and in industrial solvents. It is estimated that about half of the exposure to benzene in the United States results from smoking tobacco or from exposure to tobacco smoke. It can also be absorbed through the skin during contact with a source such as gasoline, but because liquid benzene evaporates quickly, this is less common.

Examination of benzene is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [\[Methodology\]](#)

Healthy People 2020 Target

There are no Healthy People 2020 targets regarding benzene.

[Healthy People 2020](#) is a set of goals set forth by the Department of Health and Human Services.

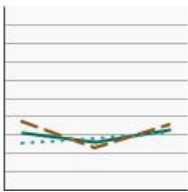
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey.

Trends and Most Recent Estimates

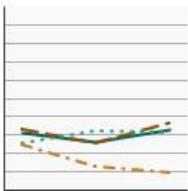
By Sex

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by sex, 2001-2006

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	Confidence Interval
	Both Sexes	0.33	(0.30 - 0.36)
	Male	0.35	(0.30 - 0.40)
	Female	0.31	(0.26 - 0.36)

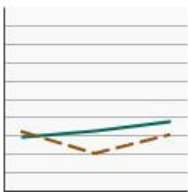
By Race/Ethnicity

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by race/ethnicity, 2001-2006

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	Confidence Interval
	All Races	0.33	(0.30 - 0.36)
	Non-Hispanic White	0.36	(0.31 - 0.39)
	Non-Hispanic Black	0.31	(0.22 - 0.41)
	Hispanic	0.09	(0.08 - 0.14)

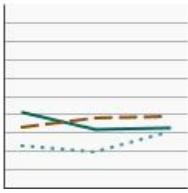
By Poverty Income Level

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by poverty income level, 2001-2006

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	Confidence Interval
	< 200% of the federal poverty level	0.38	(0.33 - 0.45)
	>= 200% of the federal poverty level	0.30	(0.26 - 0.33)

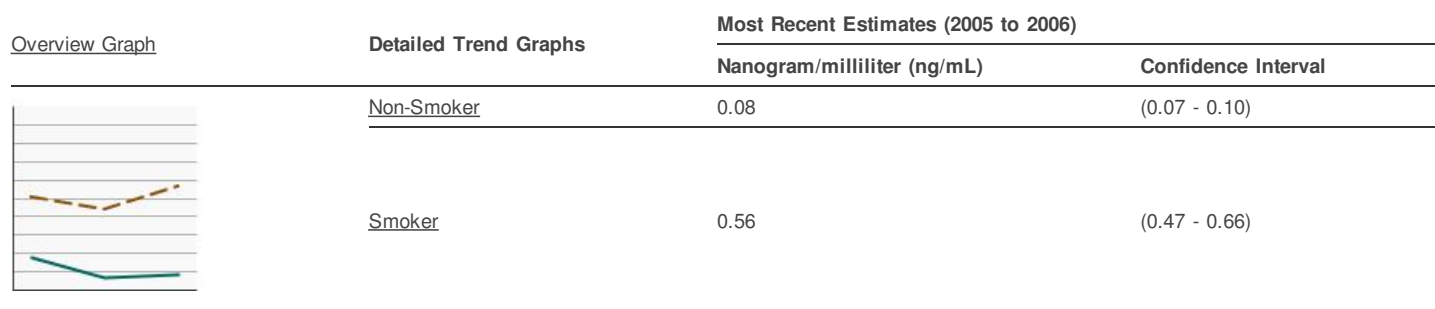
By Education Level

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by highest level of education obtained, 2001-2006

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	Confidence Interval
	Less than High School	0.33	(0.29 - 0.38)
	High School	0.39	(0.31 - 0.55)
	Greater than High School	0.30	(0.25 - 0.34)

By Smoking Status

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by smoking status, 2001-2006



Additional Information on Benzene For the public

- [Toxic Substances Portal – Benzene: Toxicology Profile for Benzene](#). Agency for Toxic Substances & Disease Registry.
- [Benzene and Cancer Risk](#). American Cancer Society.
- [Known and Probable Human Carcinogens](#). American Cancer Society.
- [Facts about benzene](#). Centers for Disease Control and Prevention.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume One](#). Centers for Disease Control and Prevention.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume Two](#). Centers for Disease Control and Prevention.
- [Drinking Water Requirements for States and Public Water Systems: Chemical Contaminant Rules](#). Environmental Protection Agency.
- [Benzene](#). Environmental Protection Agency.
- [Benzene](#). National Library of Medicine.
- [Benzene](#). U.S. Department of Labor, Occupational Safety & Health Administration.

For health professionals

- [Minimal Risk Levels \(MRLs\) List](#). Agency for Toxic Substances & Disease Registry.
- [Benzene](#). Environmental Protection Agency, Integrated Risk Information System.

Scientific reports

- [Toxicological Profile for Benzene, 2007](#). Agency for Toxic Substances & Disease Registry.
- [Impact of Cigarette Smoking on Volatile Organic Compound \(VOC\) Blood Levels in the U.S. Population: NHANES 2003-2004](#). Chambers D, Ocariz JM, McGuirk M, Blount BC. Environ Int. 2011 Nov;37(8):1321-8.
- [Benzene](http://monographs.iarc.fr/ENG/Monographs/vol100F/mono100F-24.pdf)(<http://monographs.iarc.fr/ENG/Monographs/vol100F/mono100F-24.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100f:249-294.
- [Hematotoxicity in workers exposed to low levels of benzene](#). Lan Q, Zhang L, Li G, et al. Science 2004;306(5702):1,774–6.
- [Carcinogenicity of benzene](http://www.sciencedirect.com/science/article/pii/S147020451730832X?via%3Dihub)(<http://www.sciencedirect.com/science/article/pii/S147020451730832X?via%3Dihub>). Loomis D, Guyton KZ, Grosse Y, et al. Lancet Oncol. Available online 26 Oct 2017. In Press.
- [Benzene-associated hematoxity and carcinogenicity](#). National Cancer Institute, Division of Cancer Epidemiology & Genetics.
- [Benzene-exposed workers in China](#). National Cancer Institute, Occupational and Environmental Epidemiology Branch.

Cadmium

Last Updated:

[February 2018](#)

Introduction

Cadmium is an element found in low concentrations in the earth's crust. It is usually found as a mineral combined with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide).

All soils and rocks, including coal and mineral fertilizers, contain some cadmium. Most cadmium used in the United States is extracted during the production of other metals like zinc, lead, and copper. Cadmium has many uses, including in the production of batteries, pigments, metal coatings, and plastics.

Cadmium and its compounds are highly toxic and exposure is known to cause cancer. It is primarily associated with human lung, prostate, and kidney cancers, and recently pancreatic cancer. It has also been associated with cancers of the breast and urinary bladder.

The general population may be exposed to small amounts of cadmium daily through food, tobacco smoke (as active or secondhand smoke), drinking water, and air. Cadmium is introduced to the food chain through agricultural soils, which may naturally contain cadmium, or from anthropogenic (human) sources, from cadmium-based pigments, and stabilizers used in certain plastics. While dietary sources can be sporadic, intake from tobacco occurs with each cigarette smoked and can proceed for decades resulting in accumulation of metals like cadmium in the body. Cadmium levels are expected to be low in drinking water and ambient air except in the vicinity of cadmium-emitting industries or incinerators.

Occupational exposure to cadmium primarily occurs in operations involving heating cadmium-containing products. Occupations with the highest potential for exposure include alloy production, battery production, pigment production and use, plastics production, and smelting and refining. Although levels vary widely among the different industries, occupational exposures generally have decreased since the 1970s.

Examination of cadmium is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [\[Methodology\]](#)

Healthy People 2020 Target

Level of cadmium in blood samples for 95 percent of the population aged 1 year and older to below 1.12 µg/L.

[Healthy People 2020](#) is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey.

Trends and Most Recent Estimates

By Sex

95th percentile for blood concentrations ($\mu\text{g/L}$) of cadmium among persons aged 1 year and older by sex, 1999-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/liter ($\mu\text{g/L}$)	Confidence Interval
	Both Sexes	1.2	1.1 - 1.4
	Male	1.2	1.0 - 1.3
	Female	1.3	1.1 - 1.5

By Race/Ethnicity

95th percentile for blood concentrations ($\mu\text{g/L}$) of cadmium among persons aged 1 year and older by race/ethnicity, 1999-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/liter ($\mu\text{g/L}$)	Confidence Interval
	All Races	1.2	1.1 - 1.4
	Non-Hispanic White	1.3	1.1 - 1.5
	Non-Hispanic Black	1.5	1.2 - 1.7
	Hispanic	0.8	0.7 - 0.9

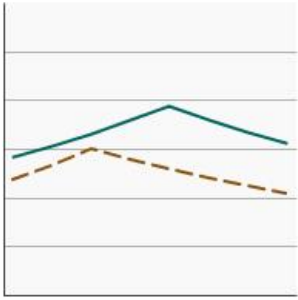
By Age

95th percentile for blood concentrations ($\mu\text{g/L}$) of cadmium among persons aged 1 year and older by age, 1999-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/liter ($\mu\text{g/L}$)	Confidence Interval
	Ages 1-5	0.2	0.1 - 0.2
	Ages 6-11	0.2	0.2 - 0.2
	Ages 12-19	0.5	0.4 - 0.9
	Ages 20+	1.4	1.3 - 1.5

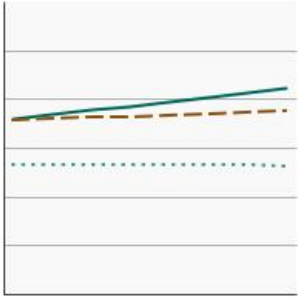
By Poverty Income Level

95th percentile for blood concentrations ($\mu\text{g/L}$) of cadmium among persons aged 1 year and older by poverty income level, 1999-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/liter ($\mu\text{g/L}$)	Confidence Interval
	<u>< 200% of the federal poverty level</u>	1.6	1.4 - 1.8
	<u>>= 200% of the federal poverty level</u>	0.9	0.8 - 1.1

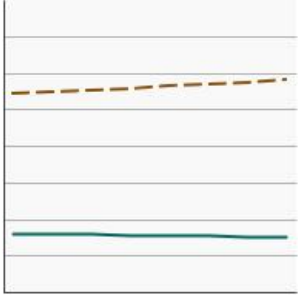
By Education Level

95th percentile for blood concentrations ($\mu\text{g/L}$) of cadmium among persons aged 20 years and older by highest level of education obtained, 1999-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/liter ($\mu\text{g/L}$)	Confidence Interval
	<u>Less than High School</u>	1.9	1.4 - 2.6
	<u>High School</u>	1.8	1.4 - 2.3
	<u>Greater than High School</u>	1.1	1.0 - 1.2

By Smoking Status

95th percentile for blood concentrations ($\mu\text{g/L}$) of cadmium among persons aged 20 years and older by smoking status, 1999-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Microgram/liter ($\mu\text{g/L}$)	Confidence Interval
	<u>Non-Smoker</u>	0.7	0.7 - 0.8
	<u>Smoker</u>	2.7	2.4 - 3.0

Additional Information on Cadmium For the public

- [Toxic Substances Portal – Cadmium](#). Agency for Toxic Substances & Disease Registry.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume One](#). Centers for Disease Control and Prevention.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume Two](#). Centers for Disease Control and Prevention.
- [Workplace Safety & Health Topics – Cadmium](#). Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health.
- [Drinking Water Requirements for States and Public Water Systems: Chemical Contaminant Rules](#). Environmental Protection Agency.
- [Cadmium Compounds](#). Environmental Protection Agency, Technology Transfer Network – Air Toxics Web Site.
- [Fact Sheet – Cadmium](#). Environmental Protection Agency.
- [Cadmium](#). National Cancer Institute.
- [Cadmium](#). U.S. Department of Labor, Occupational Safety & Health Administration.

For health professionals

- [Interaction Profiles for Toxic Substances: Arsenic, Cadmium, Chromium, Lead](#). Agency for Toxic Substances & Disease Registry.
- [Minimal Risk Levels \(MRLs\) List](#). Agency for Toxic Substances & Disease Registry.
- [ToxGuide™ for Cadmium](#). Agency for Toxic Substances & Disease Registry.
- [Cadmium](#). Environmental Protection Agency, Integrated Risk Information System.

Scientific reports

- [Cadmium exposure and cancer mortality in a prospective cohort: the strong heart study](#). Garcia-Esquinas E, Pollan M, Tellez-Plaza M, et al. *Environ Health Perspect* 2014;122(4):363–370.
- [Cadmium-induced cancers in animals and in humans](#). Huff J, Lunn RM, Waalkes MP, et al. *Int J Occup Environ Health* 2007;13(2):202–12.
- [Cadmium and Cadmium Compounds](#)(<http://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C-8.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 1997;100c:121–145.
- [Cadmium-induced pathologies: where is the oxidative balance lost \(or not\)?](#) Nair AR, DeGheselle O, Smeets K, et al. *Int J Mol Sci* 2013;14(3):6116–6143.
- [Exogenous factors in the origin and cause of cancer: interactions of genes and/or genetic polymorphisms with exogenous and/or endogenous factors](#). National Cancer Institute. NCI Funded Research Portfolio. 2009.
- [Cadmium exposure in the population: from health risks to strategies of prevention](#). Nawrot TS, Staessen JA, Roels HA, et al. *Biometals* 2010;23(5):769–82.
- [Tobacco smoke exposure and levels of urinary metals in the U.S. youth and adult population: The National Health and Nutrition Examination Survey \(NHANES\) 1999–2004](#). Richter PA, Bishop EE, Wang J, et al. *Int J Environ Res Public Health* 2009;6(7):1930-1946.
- [Cadmium exposure and incident peripheral arterial disease](#). Tellez-Plaza M, Guallar E, Fabsitz RR, et al. *Circ Cardiovasc Qual Outcomes* 2013;6(6):626–33.
- [Cadmium exposure and incident cardiovascular disease](#). Tellez-Plaza M, Guallar E, Howard BV, et al. *Epidemiology* 2013;24(3):421–9.
- [Arsenic and Inorganic Arsenic Compounds](#). U.S. Department of Health and Human Services, National Toxicology Program. Report on Carcinogens, Twelfth Edition 2011:80–83.

Nitrate

Last Updated:

February 2018

Introduction

Nitrates and nitrites are nitrogen-oxygen chemical units that naturally occur in soil, water, and some foods. When taken into the body by drinking water and through other dietary sources, nitrate and nitrite can react with amines and amides to form N-nitroso compounds (NOC), which are known to cause cancer in animals and may cause cancer in humans. Excessive nitrate or nitrite exposure can also result in acute acquired methemoglobinemia, a blood abnormality that causes blood to lose its ability to carry oxygen to tissues (anoxia). This is especially dangerous in infants younger than 4 months of age.

Most studies assessing connections between nitrate and cancer in humans have focused on excess exposure to nitrate in areas containing nitrogen-based fertilizers. Some of the highest levels of nitrate are found in shallow wells and surface water supplies that contain high levels due to runoff from nitrogen fertilizers, as well as from leaking septic tanks and sewage, and confined animal feedlot operations and resulting excrement. When drinking water or eating food from areas containing nitrogen fertilizers, people could be exposed to high levels of nitrate. In addition, workers who manufacture these fertilizers can have high exposures to dusts that contain nitrate. Oral tobacco also may contribute to nitrate intake, but is minor compared to diet or contaminated drinking water.

Studies have shown increased risks of colon, kidney, and stomach cancer among people with higher ingestion of water nitrate and higher meat intake compared with low intakes of both, a dietary pattern that results in increased NOC formation. Other studies have shown modest evidence that higher nitrate intake can increase the risk of thyroid cancer and ovarian cancer among women.

Examination of nitrate is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [\[Methodology\]](#)

Healthy People 2020 Target

There are no Healthy People 2020 targets regarding nitrate.

[Healthy People 2020](#) is a set of goals set forth by the Department of Health and Human Services.

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey.

Trends and Most Recent Estimates

By Sex

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by sex, 2001-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013.5)	
		Milligram/gram of creatinine (mg/g)	Confidence Interval
	<u>Both Sexes</u>	123.3	115.6 - 135.3
	<u>Male</u>	110.0	99.1 - 128.9
	<u>Female</u>	134.7	120.0 - 149.3

By Race/Ethnicity

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by race/ethnicity, 2001-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013.5)	
		Milligram/gram of creatinine (mg/g)	Confidence Interval
	<u>All Races</u>	123.3	115.6 - 135.3
	<u>Non-Hispanic White</u>	121.2	108.5 - 134.7
	<u>Non-Hispanic Black</u>	87.1	75.8 - 98.2
	<u>Hispanic</u>	126.1	105.6 - 135.9

By Age

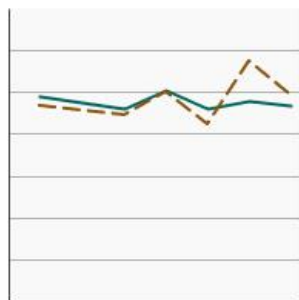
95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by age, 2001-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013.5)	
		Milligram/gram of creatinine (mg/g)	Confidence Interval
	<u>Ages 6-11</u>	157.9	126.1 - 219.3
	<u>Ages 12-19</u>	84.5	76.5 - 99.4
	<u>Ages 20+</u>	123.2	112.9 - 137.8

By Poverty Income Level

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by poverty income level, 2001-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2013.5)

< 200% of the federal poverty level

Milligram/gram of creatinine (mg/g)

117.0

Confidence Interval

106.4 - 142.9

>= 200% of the federal poverty level

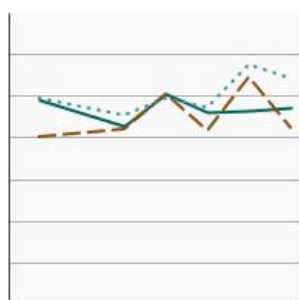
123.4

112.9 - 138.3

By Education Level

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 20 years and older by highest level of education obtained, 2001-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2013.5)

Milligram/gram of creatinine (mg/g)

Confidence Interval

Less than High School

118.4

98.7 - 135.0

High School

105.9

89.3 - 116.7

Greater than High School

135.5

119.8 - 153.7

Additional Information on Nitrate For the public

- [Toxic Substances Portal – Nitrate and Nitrite: ToxFAQs™ for Nitrate and Nitrite](#). Agency for Toxic Substances & Disease Registry.
- [What Are the Risk Factors for Stomach Cancer?](#) American Cancer Society.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume One](#) . Centers for Disease Control and Prevention.
- [Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2017, Volume Two](#) . Centers for Disease Control and Prevention.
- [Drinking Water Requirements for States and Public Water Systems: Chemical Contaminant Rules](#). Environmental Protection Agency.

For health professionals

- [ATSDR Case Studies in Environmental Medicine Nitrate/Nitrite Toxicity](#). Agency for Toxic Substances and Disease Registry.
- [Nitrate](#). Environmental Protection Agency, Integrated Risk Information System.

Scientific reports

- [Pancreatic cancer and exposure to dietary nitrate and nitrite in the NIH-AARP Diet and Health Study](#). Aschebrook-Kilfoy B, Cross AJ, Stolzenberg-Solomon RZ, et al. Am J Epidemiol. 2011;174(3):305–15.
- [Thyroid cancer risk and dietary nitrate and nitrite intake in the Shanghai women's health study](#). Aschebrook-Kilfoy B, Shu XO, Gao YT, et al. Int J Cancer 2013;132(4):897–904.
- [Epithelial ovarian cancer and exposure to dietary nitrate and nitrite in the NIH-AARP Diet and Health Study](#). Aschebrook-Kilfoy B, Ward MH, Gierach GL, et al. Eur J Cancer Prev. 2012;21(1):65–72.
- [Pancreatic cancer and drinking water and dietary sources of nitrate and nitrite](#). Coss A, Cantor KP, Reif JS, et al. Am J Epidemiol. 2004;159(7):693–701.
- [Nitrate in public water supplies and risk of colon and rectum cancers](#). De Roos A, Ward MH, Lynch C, and Cantor KP. Epidemiology 2003;14(6):640–9.
- [Carcinogenicity of nitrate, nitrite, and cyanobacterial peptide toxins](#). Grosse Y, Baan R, Straif K, et al. Lancet Oncol. 2006;7(8):628–9.
- [Dietary intake of polyphenols, nitrate and nitrite and gastric cancer risk in Mexico City](#). Hernandez-Ramirez RU, Galvan-Portillo MV, Ward MH, et al. Int J Cancer 2009;125(6):1424–30.
- [Nitrate in public water supplies and risk of renal cell carcinoma](#). Ward MH, Rusiecki J, Lynch CF, Cantor KP. Cancer Causes Control 2007 Dec;18(10):1141–51.
- [Ingested Nitrate and Nitrite, and Cyanobacterial Peptide Toxins](#)(<http://monographs.iarc.fr/ENG/Monographs/vol94/>). International Agency for Research

Radon

Last Updated:

Fall 2017

Introduction

Radon is a radioactive gas that comes from the natural breakdown of uranium in soil, rock and water. Radon has no smell or taste and cannot be seen. It can be found all over the United States, in every state. Radon can get into any type of building where there is naturally occurring radon in the ground. When buildings have high levels of radon in the air, people can breathe air containing radon which can cause lung cancer. Radon is the second leading cause of lung cancer after smoking tobacco. Radon is the leading cause of lung cancer in non-smokers.

Most people are exposed to radon primarily in their homes since that is where people spend most of their time. Homes can be tested for radon. If high levels of radon are detected, there are ways to lower radon levels in a home. New homes can be built with radon-resistant features. These features can reduce radon entry, and can make it easier and less expensive to lower radon levels if necessary.

Measure

The proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure. This measure is expressed as a percentage. It is calculated for each year by dividing the cumulative number of single family dwellings (SFD) with an operating mitigation system by the number of SFDs estimated to have a radon level $\geq 4\text{pCi/L}$, which is EPA's action level. The number of SFDs with an operating mitigation system is calculated based on the gross number of radon vent fans sold for a given year adjusted for longevity by subtracting the fans installed 11 years before, assuming the useful life of a fan is 10 years, and assuming one fan per SFD. The number of fans sold is based on radon vent fan sales data from three major fan manufacturers that represent over 90 percent of the market. More information available on the [Healthy People 2020 website](#).

Healthy People 2020 Target

- Increase the proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

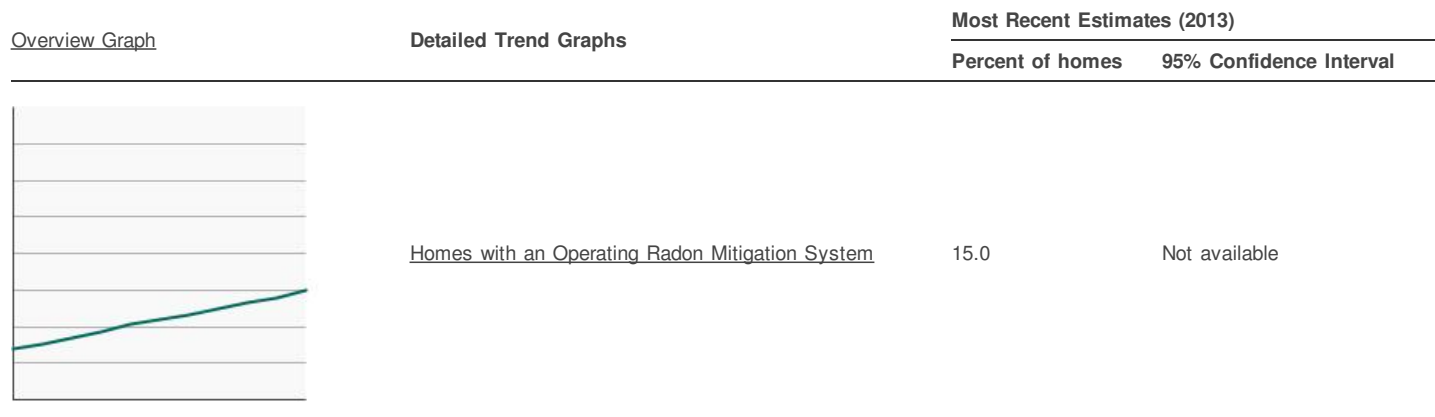
Data Source

Radon Vent Fan Manufacturers' Sales Data (<https://www.healthypeople.gov/2020/data-source/homes-with-radon-mitigation-systems>)

Trends and Most Recent Estimates

Homes with an Operating Radon Mitigation System

The proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure, 2003-2013



Additional Information on Radon For the public

- [Radon](http://www.lung.org/our-initiatives/healthy-air/indoor/indoor-air-pollutants/radon.html)(<http://www.lung.org/our-initiatives/healthy-air/indoor/indoor-air-pollutants/radon.html>). American Lung Association.
- [A Citizen's Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon](#). Environmental Protection Agency.
- [Basic Radon Facts](#). Environmental Protection Agency.
- [Radon and Cancer](#). National Cancer Institute.

For health professionals

- [Environmental Health and Medicine Education: Radon Toxicity](#). Agency for Toxic Substances and Disease Registry.
- [ToxGuide™ for Radon](#). Agency for Toxic Substances and Disease Registry.

Scientific reports

- [Man-made Mineral Fibres and Radon](http://monographs.iarc.fr/ENG/Monographs/vol43/mono43.pdf)(<http://monographs.iarc.fr/ENG/Monographs/vol43/mono43.pdf>). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 1988;43.

Early Detection

The use of screening tests to detect cancers early provides better opportunities for patients to obtain more effective treatment with fewer side effects. Patients whose cancers are found early and treated in a timely manner are more likely to survive these cancers than are those whose cancers are not found until symptoms appear.

While there are clear benefits to screening, screening tests also carry risk. Not all screening tests are helpful and most have risks. It is important to know the risks associated with the test and whether it has been shown to improve one's chances of surviving cancer.

This section describes trends in the use of breast, cervical, colorectal, lung and prostate screening tests, which have been found to detect cancers accurately for specified age groups and can increase chances of survival.

- [Breast Cancer Screening](#)
- [Cervical Cancer Screening](#)
- [Colorectal Cancer Screening](#)
- [Lung Cancer Screening](#)
- [Prostate Cancer Screening](#)

Breast Cancer Screening

Last Updated:

January 2017

Introduction

Mammography screening uses an x-ray of the breast to look for disease in women who don't have symptoms. This screening method allows for the early detection of breast cancer, which helps increase survival, especially in women aged 50 to 69 years.

The U.S. Preventive Services Task Force recommends that women aged 50 to 74 years receive a mammogram at least once every 2 years. The American College of Obstetricians and Gynecologists Executive Board recommends further that women aged 40 years and older be offered screening mammography annually. Regular screening mammograms, followed by timely treatment when breast cancer is diagnosed, can help women improve their chances of survival.

Measure

The percentage of women aged 50 to 74 years who reported having had a mammogram within the past 2 years, by race/ethnicity, income, and education level, .

Healthy People 2020 Target

- Increase to 81.1 percent the proportion of women aged 50 to 74 years who have received a breast cancer screening based on the most recent guidelines.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

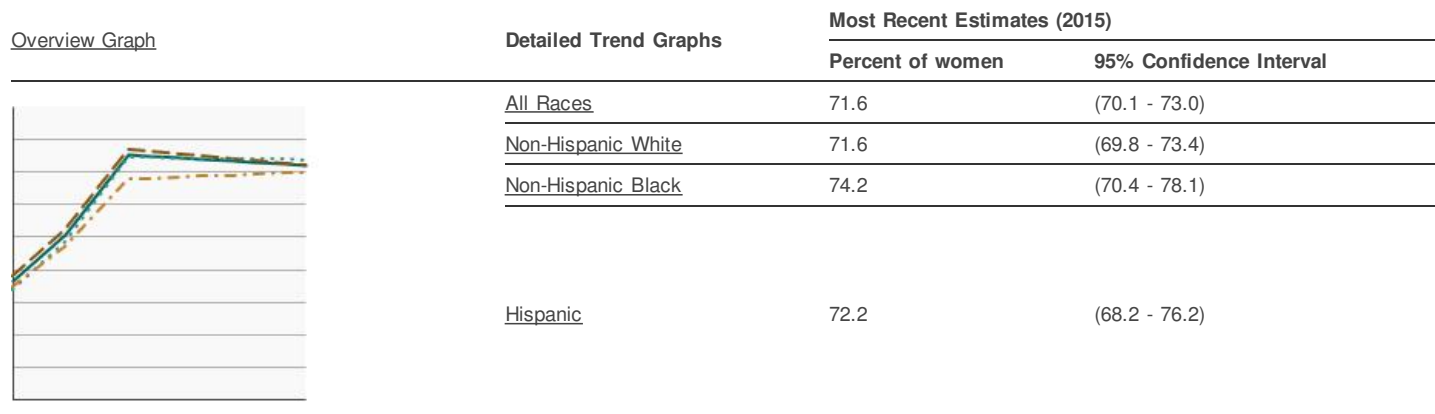
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2015.

Trends and Most Recent Estimates

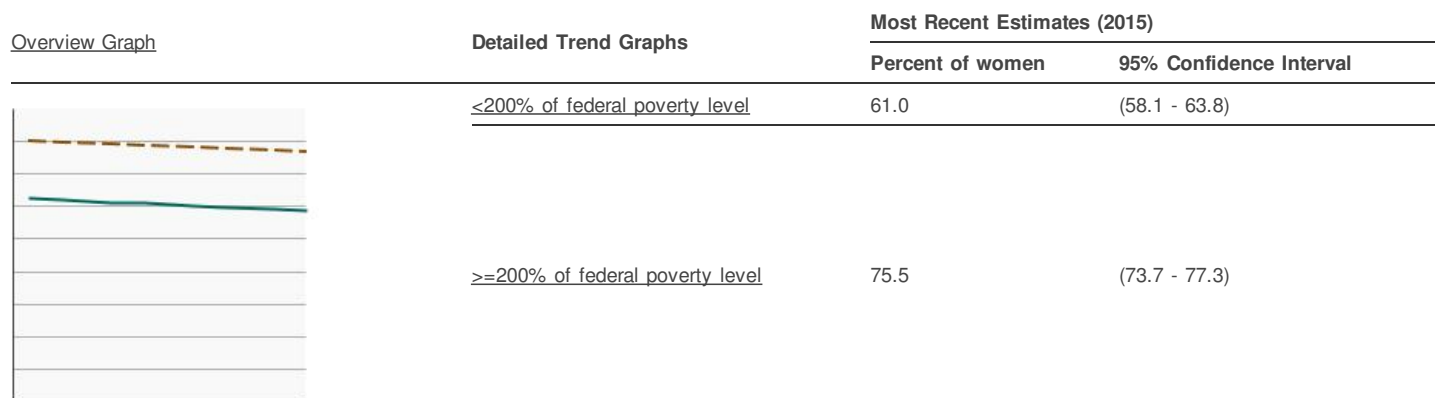
By Race/Ethnicity

Percent of women aged 50-74 years who had mammography within the past 2 years by race/ethnicity, 1987-2015



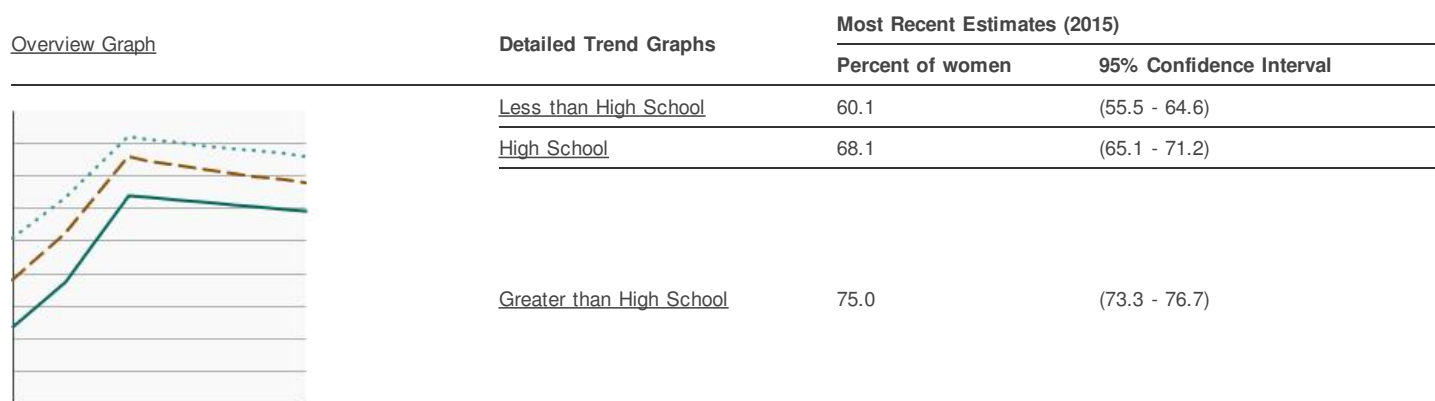
By Poverty Income Level

Percent of women aged 50-74 years who had mammography within the past 2 years by poverty income level, 1998-2015



By Education Level

Percent of women aged 50-74 years who had mammography within the past 2 years by highest level of education obtained, 1987-2015



Evidence-based Resources

Resources are available on breast cancer screening to allow for the prioritization of cancer control efforts and the development, implementation and evaluation of cancer control plans. State and local level breast cancer data, research-tested interventions, state plans, discussions and more are available on [Cancer Control P.L.A.N.E.T. – breast cancer](#).

Additional Information on Breast Cancer Screening For the public

- [Breast Cancer Early Detection and Diagnosis](#). American Cancer Society.
- [Medicare Coverage for Cancer Prevention and Early Detection](#). American Cancer Society.
- [What is Breast Cancer Screening?](#) Centers for Disease Control and Prevention.
- [National Breast and Cervical Cancer Early Detection Program](#). Centers for Disease Control and Prevention.
- [Breast Cancer Screening \(PDQ®\)](#). National Cancer Institute.
- [BRCA1 and BRCA2: Cancer Risk and Genetic Testing](#). National Cancer Institute.

- [Mammograms](#). National Cancer Institute.

For health professionals

- [The Guide to Community Preventive Services – Cancer Prevention and Control](http://www.thecommunityguide.org/index.html)(<http://www.thecommunityguide.org/index.html>). Centers for Disease Control and Prevention.
- [Breast Cancer Screening \(PDQ®\)](#). National Cancer Institute.
- [NCI Breast Cancer Surveillance Consortium research network](#).
- [The Guide to Clinical Preventive Services, Appendix F: Screening for Breast Cancer](#). U.S. Agency for Healthcare Research and Quality.
- [Breast Cancer: Screening \(January 2016\)](#). U.S. Preventive Services Task Force.

Scientific reports

- [Detection of breast cancer with addition of screening ultrasound or a single screening MRI to mammography in women with elevated breast cancer risk](#). Berg WA, Zhang Z, Lehrer D, et al. JAMA 2012;307(13):1394–404.
- [Screening mammography: update and review of publications since our report in the New England Journal of Medicine on the magnitude of the problem in the United States.](#) Bleyer A. Acad Radiol. 2015 Aug;22(8):949-60.
- [Effect of three decades of screening mammography on breast-cancer incidence](#). Bleyer A and Welch HG. N Engl J Med 2012;367(21):1998–2005.
- [Beyond mammography: new frontiers in breast cancer screening](#). Drukteinis JS, Mooney BP, Flowers CI, and Gatenby RA. Am J Med. 2013;126(6):472–9.
- [Screening for breast cancer with mammography](#). Gotzsche PC, Jorgensen KJ. Cochrane Database Syst Rev 2013.
- [Breast and colorectal cancer screening: U.S. primary care physicians' reports of barriers](#). Meissner HI, Klabunde CN, Breen N, et al. Am J Prev Med 2012;43(6):584–9.
- [Breast MRI use among U.S. women](#). Miller JW, Sabatino SA, Thompson TD, Breen N, et al. Cancer Epidemiol Biomarkers Prev. 2013 Jan; 22(1): 159-66.
- [Screening for Breast Cancer: A Systematic Review to Update the 2009 U.S. Preventive Services Task Force Recommendation \[Internet\]](#). Nelson HD, Cantor A, Humphrey L, Fu R, Pappas M, Daeges M, Griffin J. Rockville (MD): Agency for Healthcare Research and Quality (US); 2016 Jan.
- [The American Cancer Society Guidelines on Screening for Breast Cancer: What's New?](#) Viale PH. J Adv Pract Oncol. 2015 Nov-Dec;6(6):508-10. Epub 2015 Nov 1.

Statistics

- [Behavioral Risk Factor Surveillance System Prevalence Data](#). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- [Measure Summary – Breast cancer screening: percentage of women 50 to 74 years of age who had a mammogram to screen for breast cancer](#). U.S. Agency for Healthcare Research and Quality, and the National Quality Measures Clearinghouse.

Cervical Cancer Screening

Last Updated:

January 2017

Introduction

Screening methods used to find cervical changes that may lead to cervical cancer include the Pap test and human papillomavirus (HPV) testing. Such screening tests may find cancers early, when they are most treatable. Women who have never been screened or who have not been screened in the past 5 years face a greater risk of developing invasive cervical cancer.

Although it is widely accepted that Pap screening can reduce cervical cancer mortality, and although the percentage of women aged 18 years and older who reported they had a Pap test within the past 3 years is relatively high, certain groups of women in the United States are less likely than others to be screened. A number of factors have been associated with lower rates of cervical cancer screening, including low income, less education, a lack of health insurance, older age, smoking status (smoker), and obesity. Studies have also shown that women who have had a medical visit in the last year are more likely to have received a cervical cancer screening, which suggests that having a usual source of care or a recent clinical encounter may be a necessary condition for women to receiving screening.

Understanding the reasons why women do or do not maintain regular cervical cancer screening is important, given that cervical cancer is one of the most successfully treatable cancers, particularly when detected and treated early.

Measure

The percentage of women aged 21 to 65 years who reported they had a Pap test within the past 3 years, by race/ethnicity, income, and education level, .

Healthy People 2020 Target

- Increase to 93 percent the proportion of women aged 21 to 65 years who received a cervical cancer screening based on the most recent guidelines. The U.S. Preventive Services Task Force recommends screening for cervical cancer in women aged 21 to 65 years with a Pap test every 3 years or, for women aged 30 to 65 years who want to lengthen the screening interval, screening with a combination of Pap testing and HPV testing every 5 years.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2015.

Trends and Most Recent Estimates

By Race/Ethnicity

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by race/ethnicity, 1987-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	95% Confidence Interval
	<u>All Races</u>	78.7	(77.8 - 79.7)
	<u>Non-Hispanic White</u>	79.7	(78.4 - 81.0)
	<u>Non-Hispanic Black</u>	82.8	(80.5 - 85.0)
	<u>Hispanic</u>	75.9	(73.6 - 78.1)

By Poverty Income Level

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	95% Confidence Interval
	<u><200% of federal poverty level</u>	71.5	(69.5 - 73.4)
	<u>>=200% of federal poverty level</u>	81.9	(80.8 - 83.1)

By Education Level

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by highest level of education obtained, 1987-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	95% Confidence Interval
	<u>Less than High School</u>	67.7	(64.4 - 71.0)
	<u>High School</u>	72.3	(69.7 - 74.8)
	<u>Greater than High School</u>	82.4	(81.3 - 83.5)

Evidence-based Resources

Resources are available on cervical cancer screening to allow for the prioritization of cancer control efforts and the development, implementation and evaluation of cancer control plans. State and local level cervical cancer data, research-tested interventions, state plans for comprehensive cancer control, discussions and more are available on [Cancer Control P.L.A.N.E.T. – cervical cancer](#).

Additional Information on Cervical Cancer Screening For the public

- [Cervical Cancer: Prevention and Early Detection](#). American Cancer Society.
- [Medicare Coverage for Cancer Prevention and Early Detection](#). American Cancer Society.
- [Gynecological Cancers – What Should I Know About Screening?](#) Centers for Disease Control and Prevention.
- [National Breast and Cervical Cancer Early Detection Program](#). Centers for Disease Control and Prevention.
- [Cervical Cancer](#). National Cancer Institute.
- [Pap and HPV Testing](#). National Cancer Institute.

For health professionals

- [The Guide to Community Preventive Services – Cancer Prevention and Control](http://www.thecommunityguide.org/cancer/index.html)(<http://www.thecommunityguide.org/cancer/index.html>). Centers for Disease Control and Prevention.
- [Cervical Cancer Prevention \(PDQ®\)](#). National Cancer Institute.
- [Guideline Syntheses – Screening for Cervical Cancer in Women at Average Risk](#). U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.
- [Screening for cervical cancer: U.S. Preventive Services Task Force recommendation statement. 1996 \(Revised 2012 Jun 19\)](#). U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.
- [Cervical Cancer: Screening \(March 2012\)](#). U.S. Preventative Services Task Force.

Scientific reports

- [ACOG Practice Bulletin Number 131: Screening for cervical cancer](#). American Congress of Obstetricians and Gynecologists. *Obstet Gynecol* 2012;120(5):1222–38.
- [Cancer screening practices among physicians in the national breast and cervical cancer early detection program](#). Benard VB, Saraiya MS, Soman A, et al. *J Women's Health* 2011;20(10):1479–84.
- [Applying a gender lens on human papillomavirus infection: cervical cancer screening, HPV DNA testing, and HPV vaccination](#). Brankovic I, Verdonk P, and Klinge I. *Int J Equity Health* 2013;12:14.
- [Challenges in meeting healthy people 2020 objectives for cancer-related preventive services](#). National Health Interview Survey, 2008 and 2010. Brown ML, Klabunde CN, Cronin KA, White MC, et al. *Prev Chronic Dis* 2014 Feb 27;11:E29.
- [Cervical cancer screening: How our approach may change](#). Hofmeister S. *J Fam Pract*. 2016 Aug;65(8):551-3. Review.
- [2012 updated consensus guidelines for the management of abnormal cervical cancer screening tests and cancer precursors](#). Massad LS, Einstein MH, Huh WK, et al. *Obstet Gynecol* 2013;121(4):829–46.
- [Screening for cervical cancer: a systematic review and meta-analysis](#). Peirson L, Fitzpatrick-Lewis D, Ciliska D, et al. *Syst Rev* 2013;2:35.
- [Cervical cancer screening among young adult women in the United States](#). Roland KB, Benard VB, Soman A, Breen N, Kepka D, Saraiya M. *Cancer Epidemiol Biomarkers Prev*. 2013 Apr;22(4):580-8. doi: 10.1158/1055-9965.EPI-12-1266. Epub 2013 Jan 25
- [American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer](#). Saslow D, Solomon D, Lawson HW, et al. *Am J Clin Pathol* 2012;137(4):516–42.
- [Cancer screening in the United States, 2013: a review of current American Cancer Society guidelines, current issues in cancer screening, and new guidance on cervical cancer screening and lung cancer screening](#). Smith RA, Brooks D, Cokkinides V, et al. *CA Cancer J Clin* 2013;63(2):88–105.
- [Human papillomavirus vaccination coverage among adolescents, 2007-2013, and postlicensure vaccine safety monitoring, 2006-2014--United States](#). Stokley S, Jeyarajah J, Yankey D, Cano M, Gee J, Roark J, Curtis RC, Markowitz L; Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC; Centers for Disease Control and Prevention (CDC). *MMWR Morb Mortal Wkly Rep*. 2014 Jul 25;63(29):620-4.

Statistics

- [Behavioral Risk Factor Surveillance System: Prevalence Data & Data Analysis Tools](#). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- [Health Information National Trends Survey](#). National Cancer Institute.
- [Measure Summary – Cervical cancer screening: percentage of women 21 to 64 years of age who were screened for cervical cancer](#). U.S. Agency for Healthcare Research and Quality.

Colorectal Cancer Screening

Last Updated:

January 2017

Introduction

The United States Prevention Services Task Force (USPSTF) recommends screening for colorectal cancer starting at age 50 years and continuing until age 75 years. Regular colorectal cancer screening is important for preventing new colorectal cancers from developing as well as for identifying existing colorectal cancers early - which can improve survival. Multiple screening tests are used to detect colorectal cancer, including:

- **Fecal occult blood test (FOBT) and fecal immunochemical test (FIT)** - Test for blood in the stool, which can be a sign of cancer. When conducted annually using home-based test kits for people aged 50 to 75 years, the FOBT can increase the rate of survival for colorectal cancer.
- **Computed tomography (CT) colonography** (otherwise known as a virtual colonoscopy) - Produces three-dimensional image of the colon which your doctor examines for colorectal cancer and precancerous polyps. The USPSTF recommends CT colonography for adults aged 50-75 once every 5 years.
- **Sigmoidoscopy** - A procedure where a doctor looks into the rectum and part of the colon using flexible narrow tube to identify colorectal cancer or precancerous polyps. Regular sigmoidoscopy can increase one's chances of surviving colorectal cancer. The USPSTF recommends sigmoidoscopy for adults aged 50 to 75 years once every 5 years, when conducted along with high-sensitivity FOBT once every 3 years.
- **Colonoscopy** - A procedure where a doctor looks into the rectum and the entire colon using flexible narrow tube to identify colorectal cancer or precancerous polyps. Used not only as a screening test, colonoscopies are also used as a diagnostic procedure to follow up after positive results from an FOBT or FIT, sigmoidoscopy or CT colonography. USPSTF suggests a screening colonoscopy for adults aged 50 to 75 years once every 10 years.

Measure

- **FOBT:** The percentage of adults aged 50 to 75 years who reported that they had a fecal occult blood test (FOBT) within the past year, by sex, racial/ethnic group, poverty/income, and education. For the 2000 National Health Interview Survey (NHIS), respondents were asked about both home- and office-based FOBTs; starting in 2003, respondents were asked only about home-based FOBTs. For the 2015 NHIS respondents were asked about both FOBT and FIT.
- **CT Colonography:** The percentage of adults aged 50-75 years who reported that they had a CT Colonography within the past five years, by sex, racial/ethnic group, poverty/income, and education.
- **Sigmoidoscopy:** The percentage of adults aged 50 to 75 years who reported that they had a sigmoidoscopy within the past five years, by sex, racial/ethnic group, poverty/income, and education.
- **Colonoscopy:** The percentage of adults aged 50 to 75 years who reported that they have had a colonoscopy within the past 10 years., by sex, racial/ethnic group, poverty/income, and education.
- **Colorectal cancer tests:** The percentage of adults aged 50 to 75 years who had a colorectal cancer test recommended by the USPSTF as of 2015 (i.e., a home-based FOBT in the past year; sigmoidoscopy within the past 5 years and FOBT within the past 3 years; or colonoscopy within the past 10 years).

Healthy People 2020 Target

- Increase to 70.5 percent the proportion of adults aged 50 to 75 years who have received a colorectal screening test based on the most recent guidelines. The U.S. Preventive Services Task Force suggests conducting a high-sensitivity FOBT at home every year; a sigmoidoscopy every 5 years, along with a high-sensitivity FOBT every 3 years; or a colonoscopy every 10 years.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

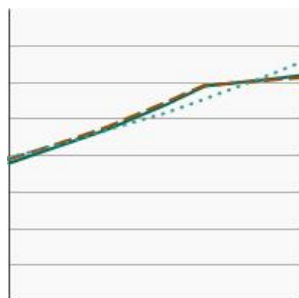
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2015.

Trends and Most Recent Estimates Guideline Screening

By Sex

Colorectal test use rates¹ for adults aged 50-75 years by sex, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

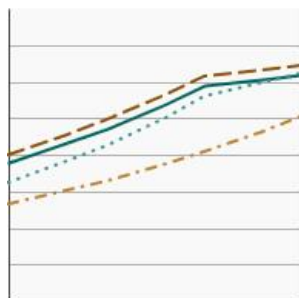
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Both Sexes	62.9	(61.6 - 64.2)
Male	62.4	(60.6 - 64.2)
Female	63.4	(61.8 - 65.0)

By Race/Ethnicity

Colorectal test use rates¹ for adults aged 50-75 years by race/ethnicity, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

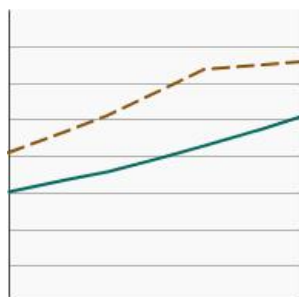
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
All Races	62.9	(61.6 - 64.2)
Non-Hispanic White	65.9	(64.3 - 67.4)
Non-Hispanic Black	62.2	(59.2 - 65.2)
Hispanic	49.1	(45.9 - 52.3)

By Poverty Income Level

Colorectal test use rates¹ for adults aged 50-75 years by poverty income level, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

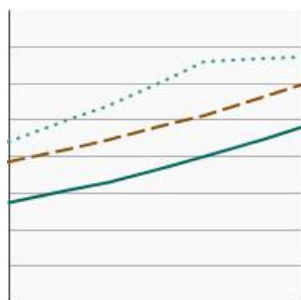
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
<200% of federal poverty level	50.0	(47.8 - 52.1)
>=200% of federal poverty level	67.4	(65.8 - 68.9)

By Education Level

Colorectal test use rates¹ for adults aged 50-75 years by highest level of education obtained, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

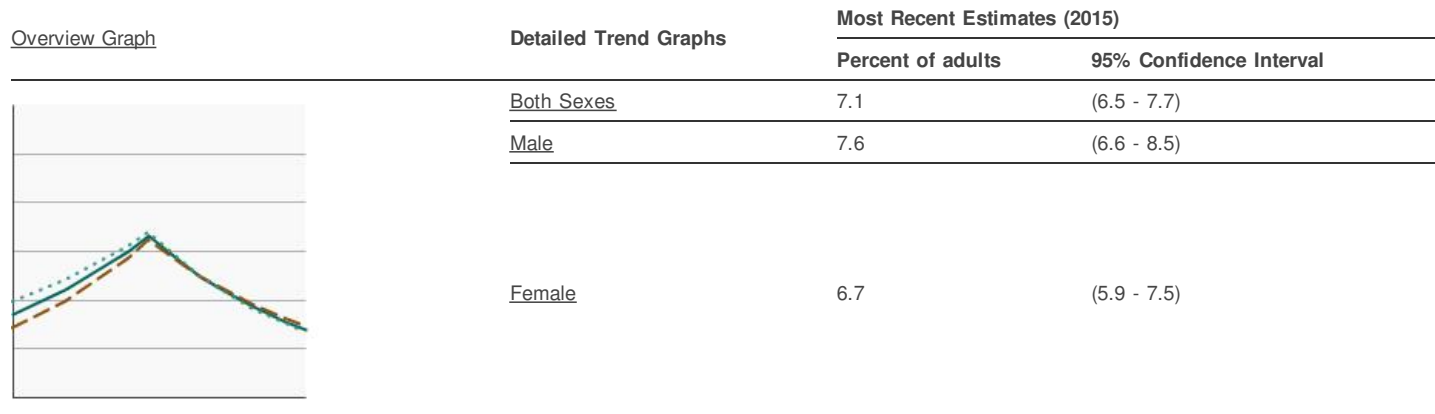
Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	46.4	(43.3 - 49.6)
High School	58.4	(56.1 - 60.7)
Greater than High School	67.9	(66.5 - 69.3)

Home FOBT

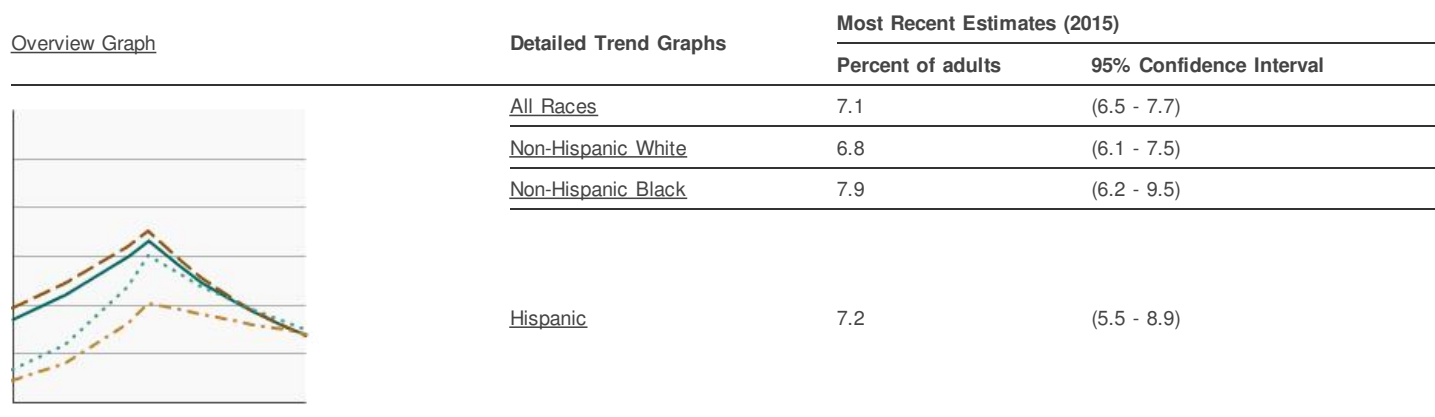
By Sex

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by sex, 1987-2015



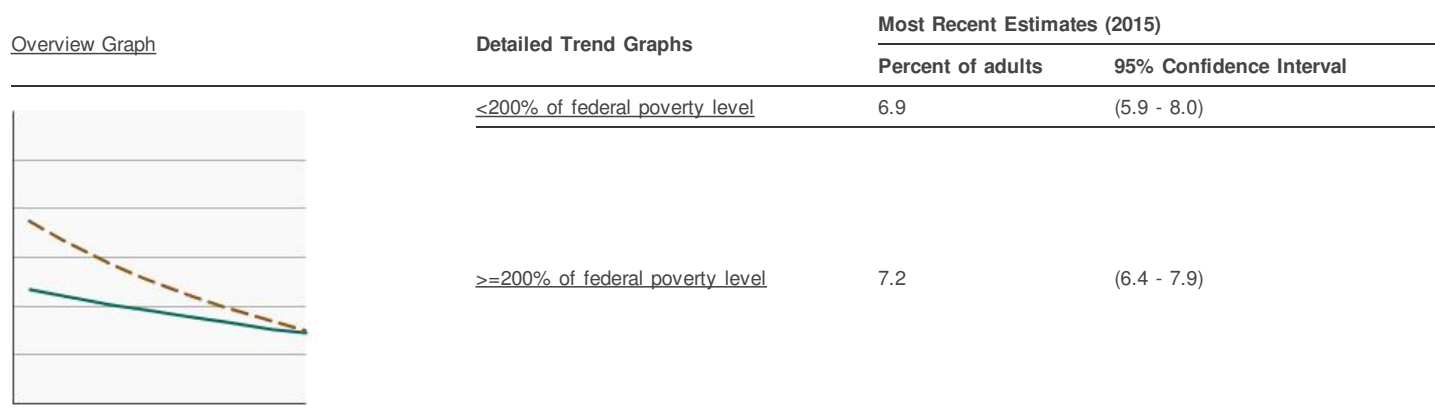
By Race/Ethnicity

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by race/ethnicity, 1987-2015



By Poverty Income Level

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by poverty income level, 1998-2015



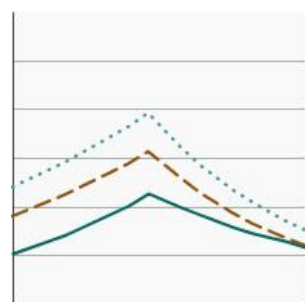
By Education Level

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by highest level of education obtained, 1987-2015

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2015)



[Less than High School](#)

6.4

(4.8 - 8.0)

[High School](#)

7.0

(5.8 - 8.2)

[Greater than High School](#)

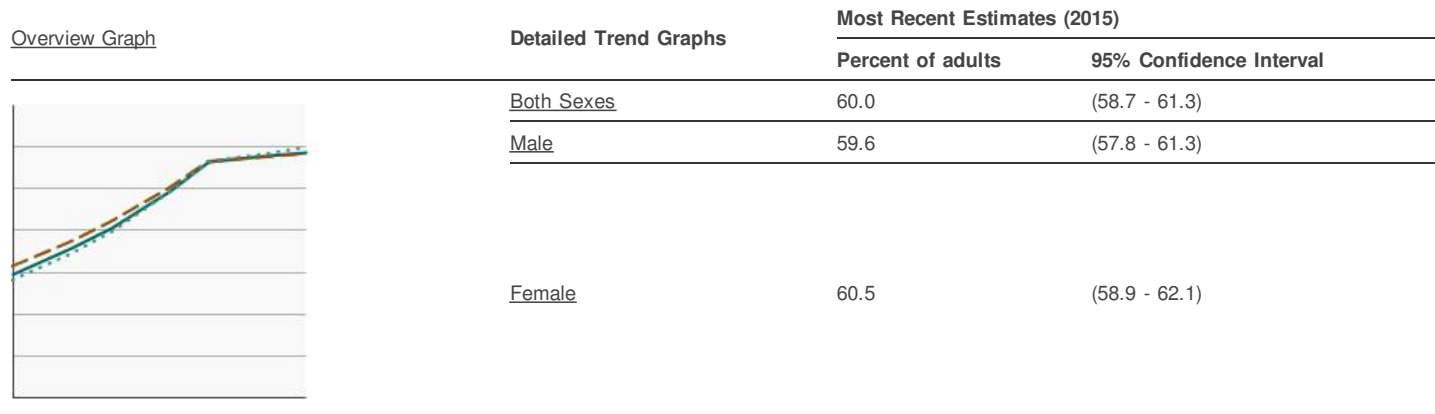
7.3

(6.6 - 8.1)

Sigmoidoscopy or Colonoscopy

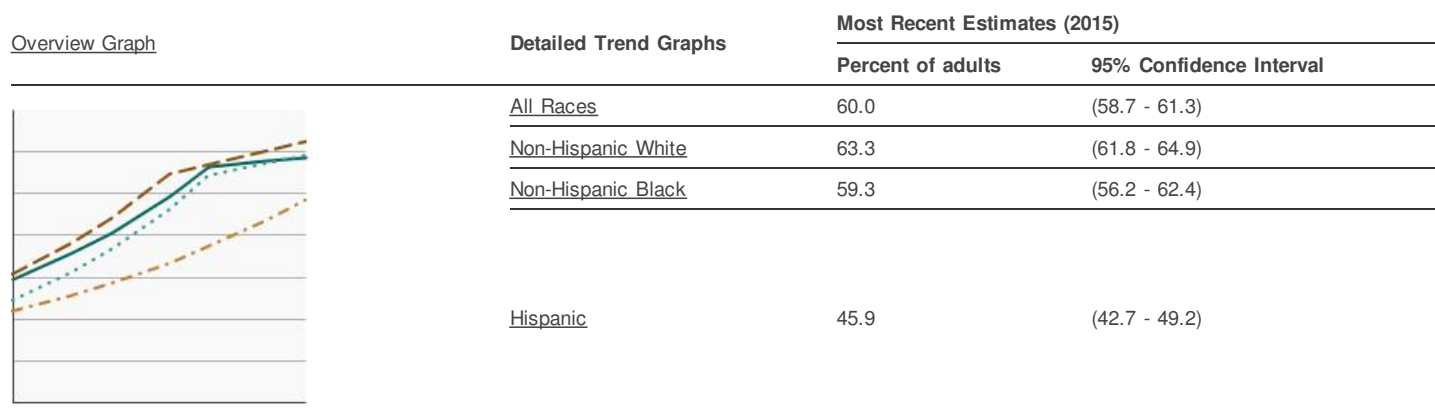
By Sex

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by sex, 2000-2015



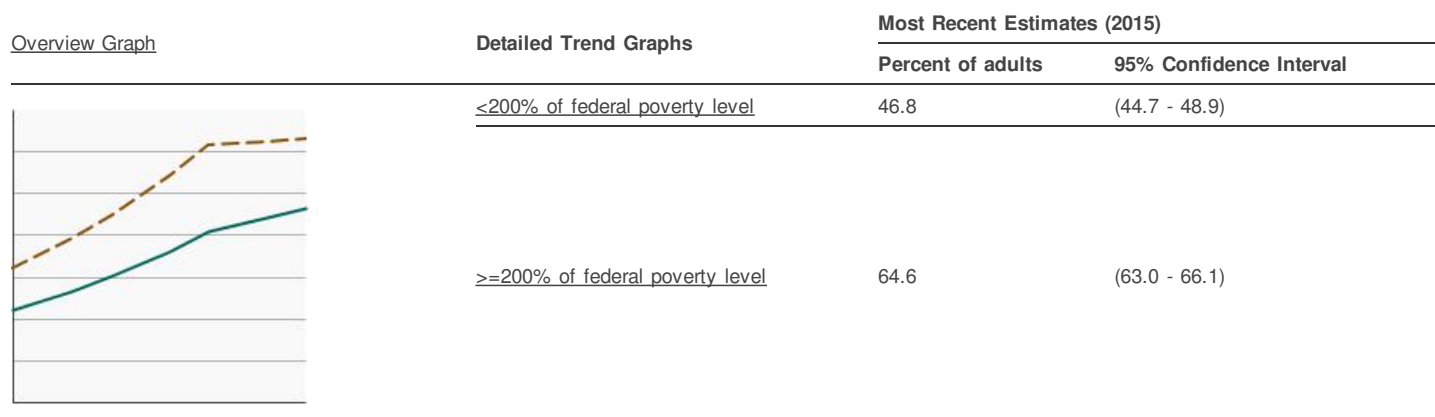
By Race/Ethnicity

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by race/ethnicity, 2000-2015



By Poverty Income Level

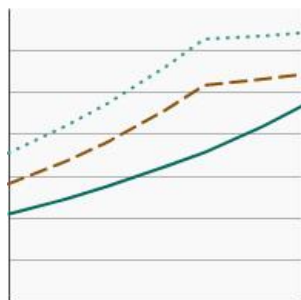
Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by poverty income level, 2000-2015



By Education Level

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years, by highest level of education obtained, 2000-2015

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2015)

	Percent of adults	95% Confidence Interval
Less than High School	43.8	(40.6 - 47.0)
High School	55.6	(53.3 - 57.8)
Greater than High School	65.0	(63.5 - 66.4)

□

Evidence-based Resources

Resources are available on colorectal cancer screening to allow for the prioritization of cancer control efforts and the development, implementation and evaluation of cancer control plans. To identify high-risk populations, connect with researchers and practitioners, learn from evidence-based interventions and more, visit [Cancer Control P.L.A.N.E.T.](#) – colorectal cancer.

Additional Information on Colorectal Cancer Screening For the public

- [Colorectal Cancer: Early Detection, Diagnosis, and Staging](#). American Cancer Society.
- [Medicare Coverage for Cancer Prevention and Early Detection](#). American Cancer Society.
- [Colorectal \(Colon\) Cancer](#). Centers for Disease Control and Prevention.
- [Colorectal Cancer Screening \(PDQ®\)](#). National Cancer Institute.
- [Tests to Detect Colorectal Cancer and Polyps](#). National Cancer Institute.

For health professionals

- [American Gastroenterological Association](http://www.gastro.org)(<http://www.gastro.org>).
- [American Society of Colon & Rectal Surgeons](http://www.fascrs.org)(<http://www.fascrs.org>).
- [The Guide to Community Preventive Services – Cancer Prevention and Control](http://www.thecommunityguide.org/cancer/index.html)(<http://www.thecommunityguide.org/cancer/index.html>). Centers for Disease Control and Prevention.
- [Colorectal Cancer Screening \(PDQ®\)](#). National Cancer Institute.
- [Health Care Systems for Tracking Colorectal Cancer Screening Tests: Final Report](#). U.S. Agency for Healthcare Research and Quality.
- [Screening for colorectal cancer: a guidance statement from the American College of Physicians](#). U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.
- [Colorectal Cancer: Screening \(June 2016\)](#). U.S. Preventive Services Task Force.

Scientific reports

- [Overuse of colorectal cancer screening services in the United States and its implications](#). Bian J, Chin J. *Cancer*. 2016 Sep 15;35(1):88
- [Evidence-Based Guideline: The USPSTF recommends screening for colorectal cancer in adults 50 to 75 years of age](#). Koretz RL. *Ann Intern Med*. 2016 Sep 20;165(6):
- [Fecal DNA testing in screening for colorectal cancer in average-risk adults](#). Lin JS, Webber EM, Beil TL, et al. *Comparative Effectiveness Reviews* No. 52 (2012).
- [Breast and colorectal cancer screening: U.S. primary care physicians' reports of barriers](#). Meissner HI, Klabunde CN, Breen N, et al. *Am J Prev Med* 2012;43(6):584–9.
- [Racial/Ethnic and Socioeconomic Differences in Colorectal and Breast Cancer Treatment Quality: The Role of Physician-level Variations in Care](#). Popescu I, Schrag D, Ang A, Wong M. *Med Care*. 2016 Aug;54(8):780-8.
- [Aid-assisted decision making and colorectal cancer screening: a randomized controlled trial](#). Schroy PC 3rd, Emmons KM, Peters E, et al. *Am J Prev Med* 2012;43(6):573–83.
- [Reducing racial and ethnic disparities in colorectal cancer screening is likely to require more than access to care](#). Stimpson JP, Pagán JA, and Chen LW. *Health Aff* 2012;31(12):2747–54.
- [Screening for colorectal cancer: the role of the primary care physician](#). Triantafyllidis JK, Vagianos C, Gikas A, Korontzi M, Papalois A. *Eur J Gastroenterol Hepatol*. 2016 Sep 26.
- [Final Research Plan – Screening for Colorectal Cancer](#). U.S. Preventative Services Task Force.

Statistics

- [Behavioral Risk Factor Surveillance System: Prevalence Data & Data Analysis Tools](#). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- [Measure Summary – Colorectal cancer screening: percentage of members 50 to 75 years of age who had appropriate screening for colorectal cancer](#). U.S. Agency for Healthcare Research and Quality, and the National Quality Measures Clearinghouse.

Lung Cancer Screening

Last Updated:

February 2018

Introduction

Lung cancer screening uses a type of chest computed tomography (CT), known as low radiation CT (LDCT), to create very detailed three-dimensional pictures of the lungs. Doctors use lung cancer screening for early detection of disease in former and current smokers who do not have symptoms. Another name for LDCT is low-dose helical CT.

The U.S. Preventive Services Task Force recommends annual LDCT screening for lung cancer in adults aged 55 to 80 years who have a 30 pack-year smoking history or more and who currently smoke or have quit within the past 15 years. The National Lung Screening Trial (NLST), a large randomized controlled trial, demonstrated that lung cancer screening with LDCT reduced the risk of dying from lung cancer by 20 percent in people of that age and with that smoking history.

Quitting smoking is the best way to reduce the risk of dying from lung cancer. Lung cancer screening is not a substitute for smoking cessation.

Measure

The percentage of men and women who reported having a chest CT to check for lung cancer in the 12 months prior to interview. Percentages are shown by race/ethnicity, income, and education level, and are restricted to respondents aged 55 to 80 years old who smoked at least 30 pack-years, and if former smokers, who quit within the past 15 years. The reason for the chest CT was not ascertained; therefore, percentages should be considered an upper bound on the prevalence of lung cancer screening in the US. Smoking history was calculated using the methods of Doria-Rose VP et al (Cancer Epidemiol Biomarkers Prev. 2012 Jul;21(7):1049-59).

Healthy People 2020 Target

There are no Healthy People 2020 targets for lung cancer screening.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2010–2015.

Trends and Most Recent Estimates

By Sex

Percent of adults at risk for lung cancer due to smoking¹, aged 55-80 years, who had a CT scan to check for lung cancer within the past year by sex, 2010-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	95% Confidence Interval
	<u>Both Sexes</u>	5.5	3.8 - 7.9
	<u>Male</u>	5.6	3.6 - 8.6
	<u>Female</u>	6.3	3.3 - 11.8

By Race/Ethnicity

Percent of adults at risk for lung cancer due to smoking¹, aged 55-80 years, who had a CT scan to check for lung cancer within the past year by race/ethnicity, 2010-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	95% Confidence Interval
	<u>All Races</u>	5.5	3.8 - 7.9
	<u>Non-Hispanic White</u>	6.2	4.1 - 9.2
	<u>Non-Hispanic Black</u>	6.8	3.2 - 13.6
	<u>Hispanic</u>	0.7	0.1 - 4.6

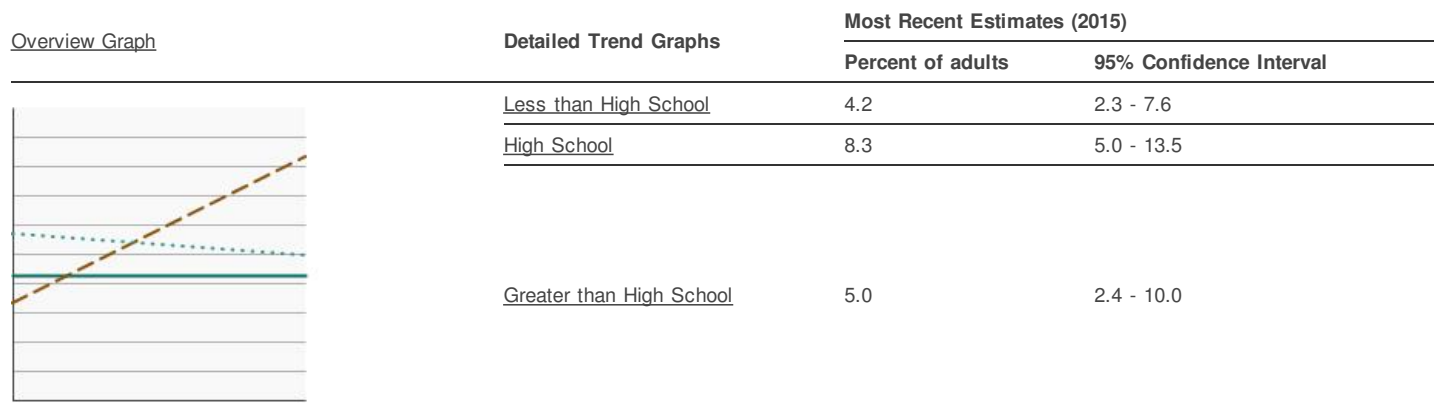
By Poverty Income Level

Percent of adults at risk for lung cancer due to smoking¹, aged 55-80 years, who had a CT scan to check for lung cancer within the past year by poverty income level, 2010-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	95% Confidence Interval
	<u><200% of federal poverty level</u>	5.2	3.3 - 8.2
	<u>>=200% of federal poverty level</u>	6.2	3.7 - 10.2

By Education Level

Percent of adults at risk for lung cancer due to smoking¹, aged 55-80 years, who had a CT scan to check for lung cancer within the past year by highest level of education obtained, 2010-2015



Additional Information on Lung Cancer Screening For the public

- [Is Lung Cancer Screening Right for Me?](#). Agency for Healthcare Research and Quality.
- [Can lung cancer be found early?](#). American Cancer Society.
- [Guide for quitting smoking](#). Centers for Disease Control and Prevention.
- [Lung Cancer](#). Centers for Disease Control and Prevention.
- [Lung Cancer: What screening tests are there?](#). Centers for Disease Control and Prevention.
- [Tips from Former Smokers: smoking and cancer](#). Centers for Disease Control and Prevention.
- [Medicare coverage of yearly lung cancer screenings](#). Medicare Interactive.
- [Lung Cancer](#). National Cancer Institute.
- [Lung Cancer Screening \(PDQ®\)](#). National Cancer Institute.
- [National Comprehensive Cancer Network Guidelines for Patients®: Lung Cancer Screening](#). National Comprehensive Cancer Network.
- [Screening for Lung Cancer](#). U.S. Department of Veterans Affairs
- [Lung Cancer: Screening \(Related Information for Consumers\)](#). U.S. Preventive Services Task Force.
- [Smokefree.gov](#).
- [Testing for lung cancer in people at high risk](#)(<http://onlinelibrary.wiley.com/doi/10.3322/caac.21177/pdf>). Wiley Online Library.

For health professionals

- [Lung cancer screening tools](#). Agency for Healthcare Research and Quality.
- [Lung Cancer Screening Guidelines](#). American Cancer Society.
- [Health Care Providers: How you can help your patients quit](#). Centers for Disease Control and Prevention.
- [Lung Cancer](#). National Cancer Institute
- [Lung Cancer Screening \(PDQ®\)](#). National Cancer Institute
- [NCCN Guidelines. Lung Cancer Screening](#). National Comprehensive Cancer Network.
- [Help others quit](#). Smokefree.gov.
- [Final Recommendation Statement. Lung Cancer: Screening](#). U.S. Preventive Services Task Force.
- [Lung Cancer: Screening \(Talking with your Patients about Lung Cancer Screening\)](#). U.S. Preventive Services Task Force.

Scientific reports

- [Results of the two incidence screenings in the National Lung Screening Trial](#). Aberle DR, DeMello S, Berg CD, Black WC, Brewer B, Church TR, Clingan KL, Duan F, Fagerstrom RM, Gareen IF, Gatsonis CA, Gierada DS, Jain A, Jones GC, Mahon I, Marcus PM, Rathmell JM, Sicks J; National Lung Screening Trial Research Team.
- [Benefits and harms of computed tomography lung cancer screening strategies: a comparative modeling study for the U.S. Preventive Services Task Force](#). de Koning HJ, Meza R, Plevritis SK, ten Haaf K, Munshi VN, Jeon J, Erdogan SA, Kong CY, Han SS, van Rosmalen J, Choi SE, Pinsky PF, Berrington de Gonzalez A, Berg CD, Black WC, Tammemägi MC, Hazelton WD, Feuer EJ, McMahon PM.
- [Screening for lung cancer with low-dose computed tomography: a systematic review to update the US Preventive services task force recommendation](#). Humphrey LL, Deffebach M, Pappas M, Baumann C, Artis K, Mitchell JP, Zakher B, Fu R, Slatore CG.
- [Reduced lung-cancer mortality with low-dose computed tomographic screening](#). National Lung Screening Trial Research Team, Aberle DR, Adams AM, Berg CD, Black WC, Clapp JD, Fagerstrom RM, Gareen IF, Gatsonis C, Marcus PM, Sicks JD.
- [Results of initial low-dose computed tomographic screening for lung cancer](#). National Lung Screening Trial Research Team, Church TR, Black WC, Aberle DR, Berg CD, Clingan KL, Duan F, Fagerstrom RM, Gareen IF, Gierada DS, Jones GC, Mahon I, Marcus PM, Sicks JD, Jain A, Baum S.

Statistics

- [SEER Cancer Stat Facts: Lung and Bronchus Cancer](#).
- [Use of lung cancer screening tests in the United States: results from the 2010 National Health Interview Survey](#). Doria-Rose VP, White MC, Klabunde CN, Nadel MR, Richards TB, McNeel TS, Rodriguez JL, Marcus PM.
- [Lung Cancer Screening With Low-Dose Computed Tomography in the United States-2010 to 2015](#). Jemal A, Fedewa SA.

Prostate Cancer Screening

Last Updated:

February 2018

Introduction

Prostate-specific antigen, or PSA, is a protein produced by normal, as well as malignant, cells of the prostate gland. The PSA test measures the level of PSA in a man's blood. For this test, a blood sample is sent to a laboratory for analysis. The results are usually reported as nanograms of PSA per milliliter (ng/mL) of blood.

Sometimes a PSA test can find a cancer that, if not detected through screening, would never have caused any symptoms in the person's lifetime because it was growing so slowly that the person died of something else before any symptoms occurred. This is called overdiagnosis. Although no one ever knows if they are overdiagnosed, the harm is detecting and treating a cancer that otherwise never would have caused the person any problems in their lifetime.

In April 2017, the U.S. Preventative Services Task Force (USPSTF) proposed a draft recommendation statement to update PSA screening guidelines for two subsets of the population:

1. for men age 70 years and older, the USPSTF recommends against PSA-based screening for prostate cancer, and
2. for men ages 55 to 69 years, that clinicians inform them about the potential benefits and harms of PSA-based screening for prostate cancer, stating that the decision about whether to be screened for prostate cancer should be an individual one.

Measure

The percentage of men aged 50 and older who reported having had a prostate-specific antigen (PSA) test within the past year, by race/ethnicity, income, and education level.

Healthy People 2020 Target

There is no Healthy People 2020 target related to being screened for prostate cancer. There is a target goal to increase the proportion of men who have discussed the advantages and disadvantages of the prostate-specific antigen (PSA) test to screen for prostate cancer with their health care provider.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

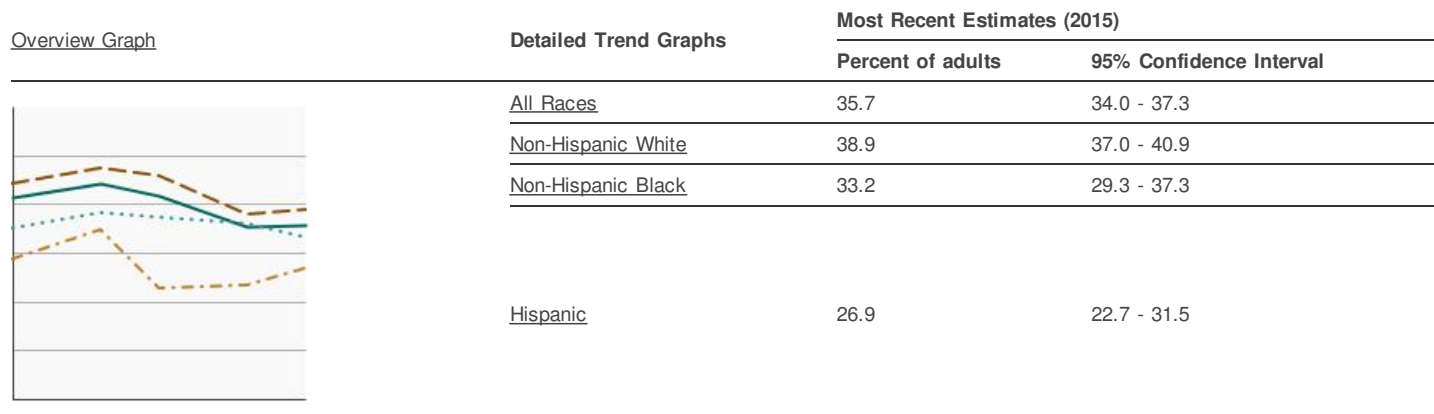
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005-2015.

Trends and Most Recent Estimates

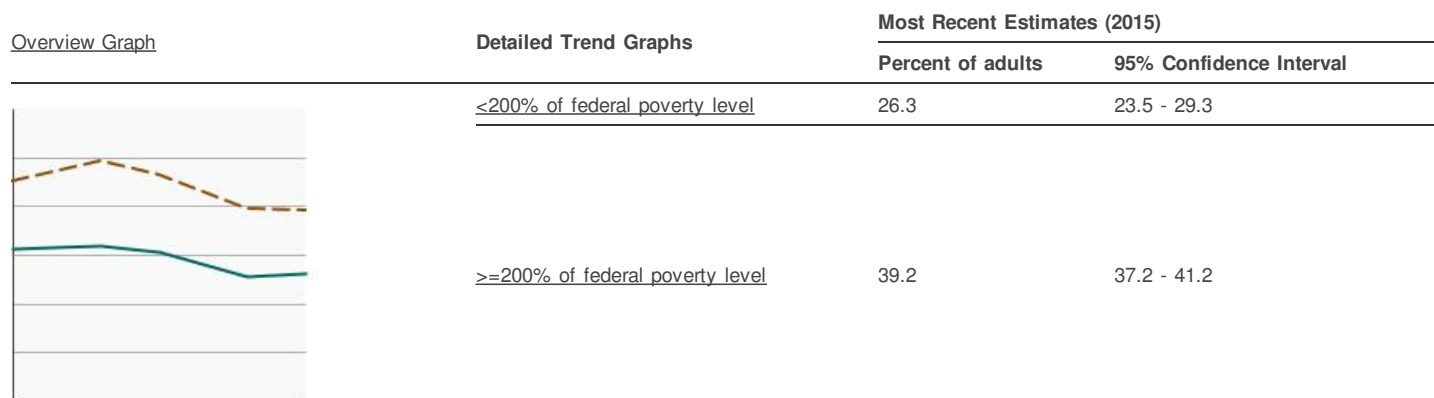
By Race/Ethnicity

Percent of men aged 50 and older who had a prostate-specific antigen (PSA) test within the past year by race/ethnicity, 2005-2015



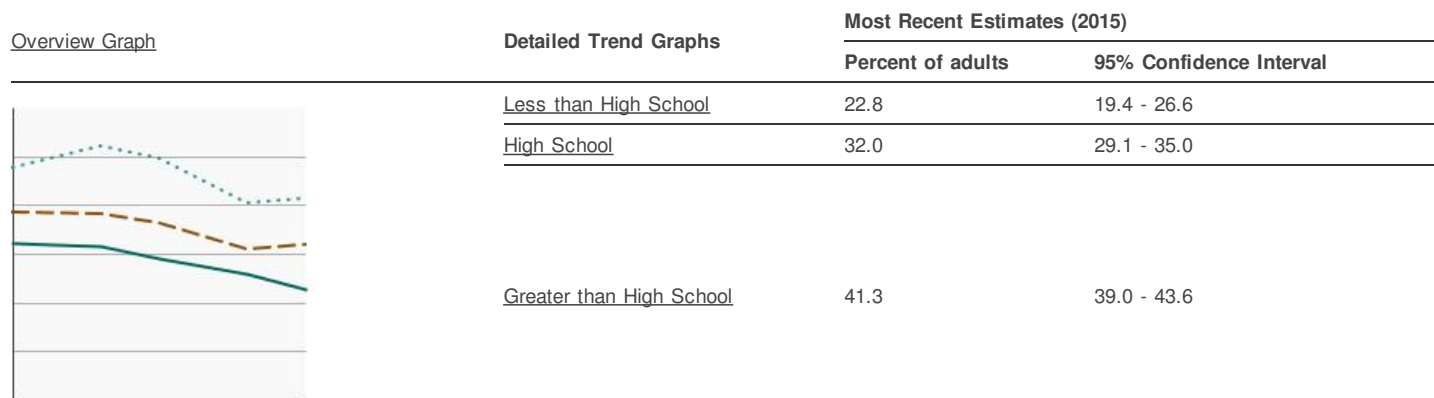
By Poverty Income Level

Percent of men aged 50 and older who had a prostate-specific antigen (PSA) test within the past year by poverty income level, 2005-2015



By Education Level

Percent of men aged 50 and older who had a prostate-specific antigen (PSA) test within the past year by highest level of education obtained, 2005-2015



Additional Information on Prostate Cancer Screening For the public

- [Prostate Cancer Screening \(PDQ®\)](#). National Cancer Institute.
- [Prostate-Specific Antigen \(PSA\) Test](#). National Cancer Institute.
- [Q&A: What is Cancer Overdiagnosis?](#). National Cancer Institute.
- [Prostate Cancer Screening Draft Recommendations](#). U.S. Preventative Services Task Force.

For health professionals

- [Prostate Cancer Screening \(PDQ®\)](#). National Cancer Institute.

Diagnosis

The rate of newly diagnosed cancer cases (incidence) is one way to measure progress against cancer. A lower rate of new cases suggests greater progress is being made.

Another important measure is the proportion of cancers diagnosed at a later stage of development. The stage of a cancer shows how far the disease has progressed and spread within the body. The earlier the stage at diagnosis, the better the chances are for a cure. Downward trends in the proportion of late cancer diagnoses are a sign that screening is working for cancers for which early detection methods are available.

This section describes trends in the rates of new cancers by cancer site and by racial and ethnic group. It also includes data on the proportion of cancers diagnosed at a late stage for six of the major cancer sites (female breast, lung, colon, rectum, cervix, and prostate) where cancer screening has been shown to make a difference in outcomes and is recommended or is being widely used. In this report, late stage colon, rectum, cervix, and prostate cancer cases are distant stage cases only. Late stage female breast and lung cancer cases include both regional and distant stage cases.

- [Incidence](#)
- [Stage at Diagnosis](#)

Incidence

Last Updated:

February 2018

Introduction

Cancer incidence is usually measured as the number of new cases each year for every 100,000 people (for sex-specific cancers, people of the same sex serve as the denominator) and age-adjusted to a standard population to allow comparisons over time.

In 2018, nearly half of all new cancer cases are expected to be cancers of the prostate, female breast, lung, and colon/rectum. According to American Cancer Society projections, about 1,735,350 new cases of cancer are expected to be diagnosed in 2018, including 164,690 cases of prostate cancer, 266,120 cases of female breast cancer, 234,030 cases of lung and bronchus cancer, and 140,250 cases of colon and rectum cancer.

Measure

Incidence rate: the observed number of new cancer cases per 100,000 people per year, adjusted for cancer case reporting delays and based on data from approximately 10 percent of the U.S. population.

Delay adjustment: a method of estimating delayed reporting of incident cases and then adjusting rates to account for this delay.

Healthy People 2020 Target

- Reduce new cases of invasive colorectal cancer to 39.9 per 100,000 people.
- Reduce new cases of invasive uterine cervical cancer to 7.2 per 100,000 females.

Note: There is strong evidence that screening can prevent colorectal and uterine cervical cancers.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

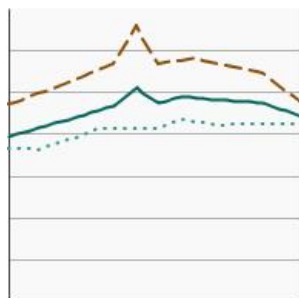
SEER Program, National Cancer Institute, 1975–2014.

Trends and Most Recent Estimates All Cancer Sites Combined

By Sex

Rates of new cases of all cancer, delay-adjusted cancer incidence by sex, 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

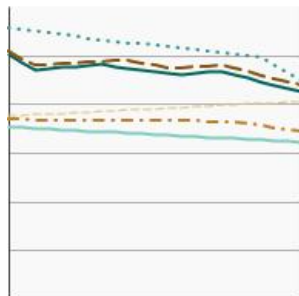
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
<u>Both Sexes</u>	446.9	444.6 - 449.3
<u>Male</u>	480.2	476.6 - 483.9
<u>Female</u>	426.5	423.4 - 429.7

By Race/Ethnicity

Rates of new cases of all cancer, delay-adjusted cancer incidence by race/ethnicity, 1992-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014)

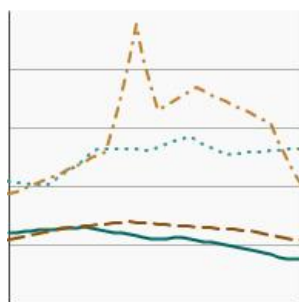
	Rate per 100,000	95% Confidence Interval
<u>All Races</u>	429.1	427.1 - 431.0
<u>White</u>	443.3	441.0 - 445.6
<u>Black</u>	445.8	439.3 - 452.4
<u>Hispanic</u>	345.7	340.9 - 350.4
<u>Asian/Pacific Islander</u>	315.1	310.5 - 319.6
<u>American Indian/Alaska Native</u>	391.8	369.4 - 415.2

Top Cancer Sites

Comparison of Top Cancer Sites

Rates of new cases of the most common cancers, delay-adjusted cancer incidence, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

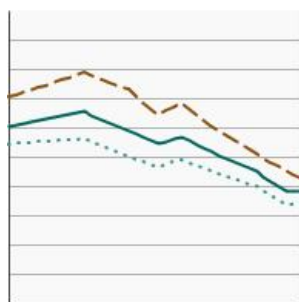
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Colon and Rectum	38.9	38.2 - 39.6
Lung and Bronchus	53.7	52.9 - 54.5
Female Breast	132.3	130.5 - 134.0
Prostate	102.9	101.3 - 104.6

Colon and Rectum Cancer by Sex

Rates of new cases of colon and rectum cancer, delay-adjusted cancer incidence by sex, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

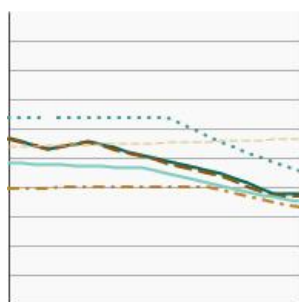
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Both Sexes	38.9	38.2 - 39.6
Male	44.1	43.0 - 45.2
Female	34.6	33.7 - 35.5

Colon and Rectum Cancer by Race/Ethnicity

Rates of new cases of colon and rectum cancer, delay-adjusted cancer incidence by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

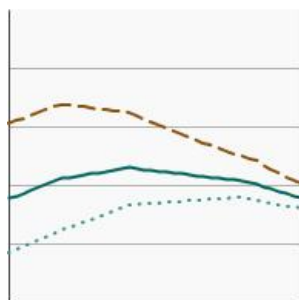
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	38.1	37.5 - 38.7
White	37.5	36.8 - 38.2
Black	43.5	41.5 - 45.6
Hispanic	34.1	32.6 - 35.6
Asian/Pacific Islander	35.0	33.5 - 36.5
American Indian/Alaska Native	61.2	52.3 - 71.1

Lung and Bronchus Cancer by Sex

Rates of new cases of lung and bronchus cancer, delay-adjusted cancer incidence by sex, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

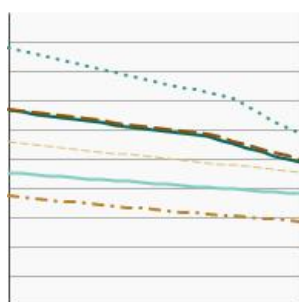
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Both Sexes	53.7	52.9 - 54.5
Male	60.9	59.5 - 62.2
Female	48.4	47.4 - 49.5

Lung and Bronchus Cancer by Race/Ethnicity

Rates of new cases of lung and bronchus cancer, delay-adjusted cancer incidence by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

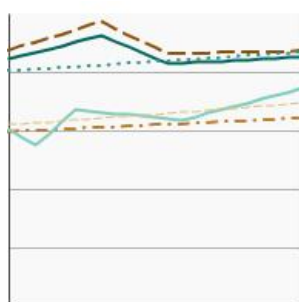
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	49.4	48.7 - 50.0
White	50.6	49.8 - 51.4
Black	57.9	55.5 - 60.3
Hispanic	27.5	26.0 - 29.0
Asian/Pacific Islander	36.1	34.5 - 37.6
American Indian/Alaska Native	38.1	31.1 - 46.0

Female Breast Cancer by Race/Ethnicity

Rates of new cases of female breast cancer, delay-adjusted cancer incidence by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

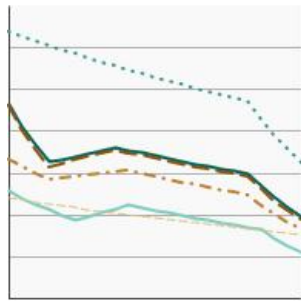
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	127.0	125.6 - 128.5
White	130.2	128.5 - 132.0
Black	128.8	124.4 - 133.4
Hispanic	98.0	94.8 - 101.3
Asian/Pacific Islander	109.1	105.6 - 112.8
American Indian/Alaska Native	115.4	99.9 - 132.5

Prostate Cancer by Race/Ethnicity

Rates of new cases of prostate cancer, delay-adjusted cancer incidence by race/ethnicity, 1992-2014

[Overview Graph](#)



Detailed Trend Graphs

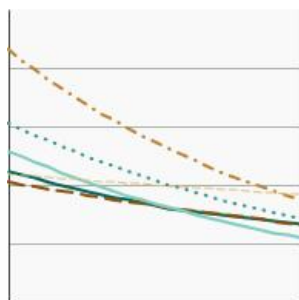
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	99.6	98.3 - 101.0
White	96.6	95.0 - 98.1
Black	156.9	151.0 - 162.9
Hispanic	83.8	80.1 - 87.5
Asian/Pacific Islander	56.2	53.4 - 59.2
American Indian/Alaska Native	64.8	50.2 - 81.8

Additional Cancer Site with Healthy People 2020 Targets

Rates of new cases of invasive uterine cervical cancer, delay-adjusted cancer incidence by race/ethnicity, 1992-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014)

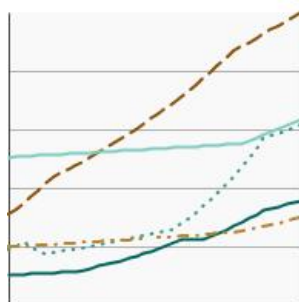
	Rate per 100,000	95% Confidence Interval
All Races	6.9	6.6 - 7.3
White	7.0	6.6 - 7.5
Black	6.7	5.7 - 7.8
Hispanic	8.7	7.8 - 9.7
Asian/Pacific Islander	6.3	5.5 - 7.2
American Indian/Alaska Native	9.4	5.3 - 15.2

Selected Cancer Sites with Increasing Trends

Increasing Greater than 1% Annually

Rates of selected cancer sites that are increasing by 1% or greater per year^a, delay-adjusted cancer incidence, 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

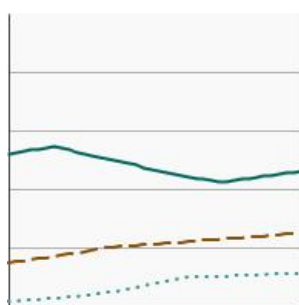
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Liver and Intrahepatic Bile Duct	8.9	8.6 - 9.2
Melanoma of the Skin	25.9	25.3 - 26.5
Thyroid	15.3	14.8 - 15.7
Myeloma	7.2	6.9 - 7.5
Leukemia	15.8	15.3 - 16.3

Increasing Less than 1% Annually

Rates of selected cancer sites that are increasing by less than 1% per year^a, delay-adjusted cancer incidence, 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Oral Cavity and Pharynx	11.6	11.3 - 12.0
Testis	6.4	5.9 - 6.8
Esophageal adenocarcinoma	2.7	2.5 - 2.9

Selected Cancer Sites with Decreasing Trends

Decreasing Greater than 1% Annually

Rates of selected cancer sites that are decreasing by 1% or greater per year[^], delay-adjusted incidence[^], 1975-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Rate per 100,000	95% Confidence Interval
	<u>Stomach</u>	6.7	6.4 - 7.0
	<u>Larynx</u>	2.8	2.6 - 3.0
	<u>Ovary</u>	11.8	11.3 - 12.3
	<u>Hodgkin Lymphoma</u>	2.8	2.6 - 3.0
	<u>Esophageal squamous cell carcinoma</u>	1.2	1.1 - 1.4

Decreasing Less than 1% Annually

Rates of selected cancer sites that are decreasing by less than 1% per year[^], delay-adjusted incidence[^], 1975-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Rate per 100,000	95% Confidence Interval
	<u>Urinary Bladder</u>	20.7	20.2 - 21.2
	<u>Brain and Other Nervous System</u>	6.4	6.1 - 6.7

Additional Information on Incidence For the public

- [Learn About Cancer](#). American Cancer Society.
- [Cancer Incidence Rate](#). National Cancer Institute.
- [Common Cancer Types](#). National Cancer Institute.

For health professionals

- [Resources for Health Professionals](#). National Cancer Institute.

Scientific reports

- [Lung cancer incidence trends among men and women – United States, 2005–2009](#). Henley SJ, Richards TB, Underwood JM, et al. MMWR Morb Mortal Wkly Rep. 2014;63(01):1–5.
- [Invasive cancer incidence – United States, 2010](#). Henley SJ, Singh S, King J, Wilson R, and Ryerson B. MMWR Morb Mortal Wkly Rep. 2014;63(12):253–259.
- [Annual Report to the Nation on the Status of Cancer](#). National Cancer Institute.
- [Invasive cancer incidence – United States, 2009](#). Singh S, Henley SJ, Wilson R, King J, and Ehemann C. MMWR Morb Mortal Wkly Rep. 2013;62(07):113–118.

Statistics

- [Cancer Facts & Figures 2017](#). American Cancer Society.
- [WONDER Online Databases – United States Cancer Statistics](#). Centers for Disease Control and Prevention.
- [State Cancer Profiles](#). National Cancer Institute, and Centers for Disease Control and Prevention.
- [United States Cancer Statistics](#). National Cancer Institute, and Centers for Disease Control and Prevention.
- [United States Cancer Statistics – Interpreting Incidence Data](#). National Cancer Institute, and Centers for Disease Control and Prevention.
- [SEER Cancer Statistics Review](#). National Cancer Institute.
- [SEER Fast Stats: An interactive tool for access to SEER cancer statistics](#). Surveillance Research Program, National Cancer Institute.

Stage at Diagnosis

Last Updated:

February 2018

Introduction

Cancers can be diagnosed at different stages in their development. Stage of cancer diagnosis may be expressed as numbers (for example, I, II, III, or IV) or by terms such as “localized,” “regional,” and “distant.” The lower the number or the more localized the cancer, the better a person’s chances of benefiting from treatment.

Tracking the rates of late-stage (distant) cancers is a good way to monitor the impact of cancer screening. When more cancers are detected in early stages, fewer should be detected in late stages.

Both rates of late stage disease and stage proportions are provided below since each has a somewhat different interpretation. For example, rates could be declining among all stages of disease, but the proportion of late stage disease among diagnosed cases could be relatively constant.

Measure

Late-stage diagnosis rate: The number of new cancer cases diagnosed at a distant stage, per 100,000 people per year for cancers of the prostate, colon, rectum, and cervix uteri. Late stage is defined as regional and distant stage diagnoses, per 100,000 women per year for cancer of the female breast. Late stage is defined as AJCC 6th edition Stage III and Stage IV diagnoses, per 100,000 people per year for cancers of the lung and bronchus.

Stage Distribution: The proportion of new cancer cases among all cases diagnosed in a specific year. The full distribution of all stages (local, regional, distant and unstaged or I, II, III, IV and unstaged) is shown.

Healthy People 2020 Target

- Healthy People 2020 has only one target for late-stage diagnoses: to reduce the number of new late-stage female breast cancer cases to 42.1 per 100,000 females. Healthy People 2020 also includes targets for increasing the proportion of adults who are screened for cervical, colorectal, and breast cancer, and for increasing the proportion of men who are counseled about prostate-specific screening tests. These screenings may increase the proportion of adults whose cancer is detected in its early stage.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

SEER Program, National Cancer Institute, 1980–2014.

Trends and Most Recent Estimates

Late Stage Breast Cancer Rates

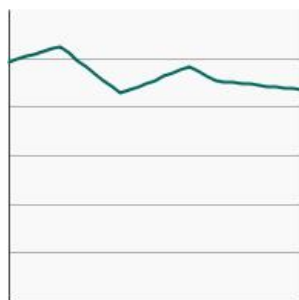
Rates of new cases of late stage breast cancer, 1980-2014

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2014)

Rate per 100,000 **95% Confidence Interval**



[Late Stage Breast Cancer](#)

43.4

(42.4 - 44.4)

Late Stage Lung Cancer Rates

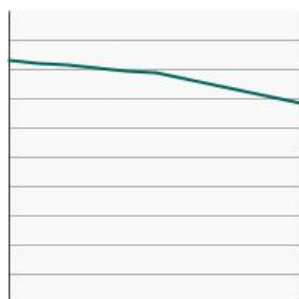
Rates of new cases of late stage lung cancer, 2004-2014

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2014)

Rate per 100,000 **95% Confidence Interval**



[Late Stage Lung Cancer](#)

34.3

(34.0 - 34.7)

Distant Stage Cancer Rates

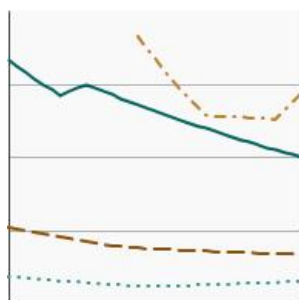
Rates of new cancers of distant stage diseases, 1980-2014

[Overview Graph](#)

[Detailed Trend Graphs](#)

Most Recent Estimates (2014)

Rate per 100,000 **95% Confidence Interval**



[Colon](#)

6.1

(5.9 - 6.4)

[Rectum](#)

2.1

(1.9 - 2.2)

[Cervix](#)

0.9

(0.8 - 1.1)

[Prostate](#)

8.4

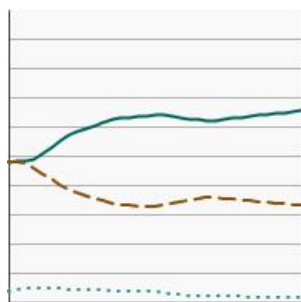
(8.0 - 8.9)

Stage Distribution

Female Breast Cancer

Distribution of female breast cancer diagnoses by stage at diagnosis, 1980-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014)

Localized

Percent of diagnoses

95% Confidence Interval

65.8

(65.2 - 66.4)

Regional/Distant

32.8

(32.1 - 33.4)

Unstaged

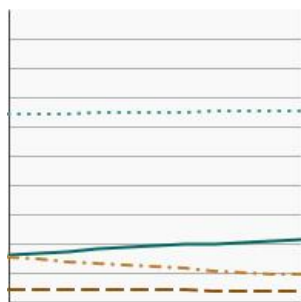
1.5

(1.3 - 1.6)

Lung Cancer

Distribution of lung cancer diagnoses by stage at diagnosis, 2004-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014)

Stage I

Percent of diagnoses

95% Confidence Interval

21.5

(21.2 - 21.9)

Stage II

3.9

(3.7 - 4.0)

Stage III/IV

65.1

(64.7 - 65.5)

Unknown Stage

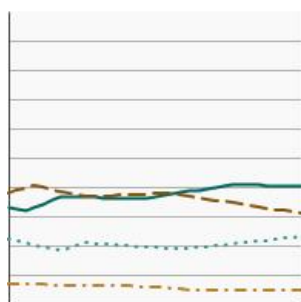
9.5

(9.3 - 9.8)

Colon Cancer

Distribution of colon cancer diagnoses by stage at diagnosis, 1980-2014

[Overview Graph](#)



Detailed Trend Graphs

Most Recent Estimates (2014)

Localized

Percent of diagnoses

95% Confidence Interval

40.1

(39.0 - 41.1)

Regional

31.7

(30.7 - 32.7)

Distant

23.0

(22.1 - 23.9)

Unstaged

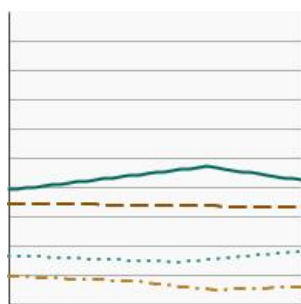
5.2

(4.8 - 5.7)

Rectum Cancer

Distribution of rectum cancer diagnoses by stage at diagnosis, 1980-2014

[Overview Graph](#)



Detailed Trend Graphs

[Localized](#)

[Regional](#)

[Distant](#)

[Unstaged](#)

Most Recent Estimates (2014)

Percent of diagnoses	95% Confidence Interval
42.8	(41.2 - 44.3)
34.2	(32.7 - 35.7)
17.8	(16.6 - 19.0)
5.2	(4.5 - 5.9)

42.8

(41.2 - 44.3)

34.2

(32.7 - 35.7)

17.8

(16.6 - 19.0)

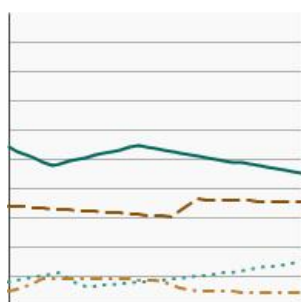
5.2

(4.5 - 5.9)

Cervix Uteri Cancer

Distribution of cervix uteri cancer diagnoses by stage at diagnosis, 1980-2014

[Overview Graph](#)



Detailed Trend Graphs

[Localized](#)

[Regional](#)

[Distant](#)

[Unstaged](#)

Most Recent Estimates (2014)

Percent of diagnoses	95% Confidence Interval
47.3	(44.3 - 50.3)
34.4	(31.5 - 37.2)
14.3	(12.2 - 16.4)
4.0	(2.9 - 5.2)

47.3

(44.3 - 50.3)

34.4

(31.5 - 37.2)

14.3

(12.2 - 16.4)

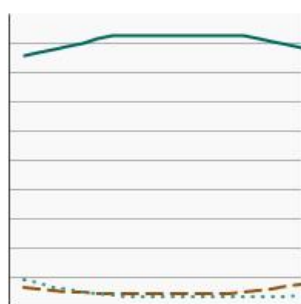
4.0

(2.9 - 5.2)

Prostate Cancer

Distribution of prostate cancer diagnoses by stage at diagnosis, 1995-2014

[Overview Graph](#)



Detailed Trend Graphs

[Localized/regional](#)

[Distant](#)

[Unstaged](#)

Most Recent Estimates (2014)

Percent of diagnoses	95% Confidence Interval
88.6	(88.1 - 89.1)
7.6	(7.2 - 8.0)
3.8	(3.5 - 4.1)

88.6

(88.1 - 89.1)

7.6

(7.2 - 8.0)

3.8

(3.5 - 4.1)

Additional Information on Stage at Diagnosis For the public

- [Staging](#). American Cancer Society.
- [Cancer Staging](#). National Cancer Institute.
- [Metastatic Cancer](#). National Cancer Institute.
- [Tumor Grade](#). National Cancer Institute.
- [Tumor Markers](#). National Cancer Institute.
- [Understanding Laboratory Tests](#). National Cancer Institute.

For health professionals

- [Resources for Health Professionals](#). National Cancer Institute.
- [SEER Coding and Staging Manuals](#). National Cancer Institute.

Scientific Reports

- [Annual Report to the Nation on the Status of Cancer](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Factsheets: Breast Cancer](#). National Cancer Institute.
- [SEER Cancer Statistics Factsheets: Cervix Uteri Cancer](#). National Cancer Institute.
- [SEER Cancer Statistics Factsheets: Colon and Rectum Cancer](#). National Cancer Institute.
- [SEER Cancer Statistics Factsheets: Lung and Bronchus Cancer](#). National Cancer Institute.
- [SEER Cancer Statistics Factsheets: Prostate Cancer](#). National Cancer Institute.
- [SEER Cancer Statistics Review](#). National Cancer Institute.

Treatment

Cancer treatment is improving, saving lives and extending survival for many people. Depending on various factors, treatment options may include surgery, radiation, immunotherapy, chemotherapy, hormone therapy, or targeted, local therapy, among others. These treatments might be used alone or in combination. Clinical trials evaluate the benefits of new therapies and broaden the options available to patients.

This section includes treatment trends for cancer sites for which there are available data trends and definitive treatment guidelines based on rigorous evidence of benefit to patients, including bladder, breast, colorectal, kidney, lung, ovarian, and prostate cancers.

- [Bladder Cancer Treatment](#)
- [Breast Cancer Treatment](#)
- [Colorectal Cancer Treatment](#)
- [Kidney Cancer Treatment](#)

- [Lung Cancer Treatment](#)
- [Ovarian Cancer Treatment](#)
- [Prostate Cancer Treatment](#)

Bladder Cancer Treatment

Last Updated:

March 2015

Introduction

Bladder cancer is a disease in which malignant (cancer) cells form in the tissues of the bladder. Treatment options depend on the stage of bladder cancer. Four types of standard treatment are used: surgery, radiation therapy, chemotherapy, and immunotherapy. Intravesical (within the bladder) therapy is another less common treatment option which involves the instillation of an agent or biologic into the bladder. The use of intravesical therapy has been associated with improved survival. There has been a significant increase in the use of intravesical therapy for patients diagnosed with non-muscle invasive Ta G1-2 bladder cancer. The Ta G1-2 means non-invasive papillary carcinoma (Ta) that is Grade 1 (well differentiated) or Grade 2 (moderately differentiated).

Measure

Percentage of individuals receiving intravesical therapy in non-muscle invasive bladder cancer.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including bladder cancer treatment.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

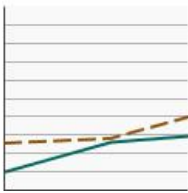
Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1995-2009.

Trends and Most Recent Estimates

Intravesical Therapy

Percent of patients receiving intravesical therapy for non-muscle invasive disease Ta G1-2 and all other non-muscle invasive disease, 1995-2009

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2009)	
		Percent of patients	95% Confidence Interval
	Ta G1-2	29.7	(22.3 - 37.1)
	Other non-muscle invasive disease	39.9	(31.2 - 48.6)

Additional Information on Bladder Cancer Treatment For the public

- [Bladder Cancer – General Treatment Information](#). American Cancer Society.
- [Bladder Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

For health professionals

- [Bladder Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Factsheets: Bladder Cancer](#). National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute.

Breast Cancer Treatment

Last Updated:

February 2018

Introduction

Breast cancer is the most common type of cancer among women in the United States (other than skin cancer). Women with breast cancer have many treatment options, including surgery, radiation therapy, hormone therapy, chemotherapy, and targeted therapy. Treatment options for a woman diagnosed with breast cancer may include more than one type of treatment (ex. Surgery and radiation) or more than one agent (multi-agent chemotherapy).

The proportion of women with node-positive disease (cancer in the lymph nodes near the tumor) receiving guideline treatment is high. Clinical trials have demonstrated that women with early stage breast cancer who receive breast-conserving surgery (BCS) with radiation have a survival rate similar to those of women who undergo a mastectomy. Among women for whom chemotherapy is indicated, older women are less likely to receive chemotherapy than younger women, but there are no major differences in treatment among major racial and ethnic groups.

Breast cancer also develops in men, but it is rare.

Measure

Percentage of women aged 20 and older, diagnosed with early stage breast cancer (less than stage IIIA), receiving breast-conserving surgery and radiation treatment.

Percentage of women aged 20 and older, diagnosed with node-positive, stage I–IIIA breast cancer, receiving multi-agent chemotherapy.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including breast cancer treatment and multi-agent chemotherapy.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

Breast-conserving surgery and radiation treatment estimates: SEER 13 Registries, National Cancer Institute, 1992–2014.

Multi-agent chemotherapy estimates: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987–2010.

Trends and Most Recent Estimates

Treatment Distribution

Treatment distribution for invasive female breast cancer patients aged 20 years and older with AJCC stage less than IIIA, 1992-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Percent of patients	95% Confidence Interval
	Mastectomy	35.8	(35.6 - 36.0)
	BCS with radiation	47.2	(47.0 - 47.5)
	BCS without radiation	17.0	(16.8 - 17.1)

□

Chemotherapy

Percentage of node positive female breast cancer patients receiving multiagent chemotherapy treatment by age at diagnosis, 1987-2010

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010)	
		Percent of patients	95% Confidence Interval
	Ages 20+	65.2	(57.3 - 72.3)
	Ages 20-64	79.6	(70.9 - 86.1)
	Ages 65+	44.9	(30.3 - 60.5)

□

Additional Information on Breast Cancer Treatment For the public

- [Breast Biopsy](#). American Cancer Society.
- [Breast Cancer](#). National Cancer Institute.
- [Breast Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [What You Need to Know About™ Breast Cancer](#). National Cancer Institute.
- [Breast Cancer \(NCCN Guidelines for Patients®\)](#). National Comprehensive Cancer Network.

For health professionals

- [Breast Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Factsheets: Breast Cancer](#). National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute.

Colorectal Cancer Treatment

Last Updated:

March 2015

Introduction

Colon cancer forms in the tissues of the colon, which is the longest part of the large intestine. Rectal cancer forms in the tissues of the rectum, which is the last several inches of the large intestine closest to the anus.

The main types of treatment for colon and rectal cancer are surgery, radiation therapy, chemotherapy, and targeted therapy. Depending on the stage of the cancer, two or more of these types of treatment may be combined at the same time or used one after another.

Surgery is the most common treatment for all stages of colorectal cancer. Adjuvant chemo is used after surgery to minimize chances of recurrence and has been shown to help people with stage III colon and rectal cancer live longer. Radiation therapy uses high energy rays or particles to destroy cancer cells. Chemotherapy can make radiation therapy more effective against some colon and rectal cancers. The proportion of patients receiving guideline adjuvant therapy increased steadily between 1987 and 2005. Potential disparities remain for some groups of patients.

Measure

Percent of individuals, aged 20 years and older, diagnosed with stage III colon cancer who received chemotherapy or diagnosed with stage II or stage III rectal cancer who received chemotherapy with or without radiotherapy.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including colorectal cancer treatment.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

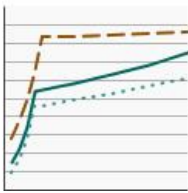
Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987 -2010.

Trends and Most Recent Estimates

Guideline Therapy

Percent of colon stage III and rectal stages II & III cancer patients who received the guideline chemotherapy treatment by age at diagnosis, 1987-2010

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010)	
		Percent of patients	95% Confidence Interval
	All Ages	68.9	(64.0 - 73.7)
	Ages <65	85.2	(80.0 - 90.3)
	Ages 65+	53.8	(46.6 - 61.0)

Additional Information on Colorectal Cancer Treatment For the public

- [Treating Colorectal Cancer](#). American Cancer Society.
- [Colon Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [Colorectal Cancer](#). National Cancer Institute
- [Rectal Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [Colon Cancer \(NCCN Guidelines for Patients®\)](#). National Comprehensive Cancer Network.

For health professionals

- [Colon Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [Rectal Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

Statistics

- [Colorectal Cancer Mortality Projections](#). Cancer Intervention Surveillance Network.
- [SEER Cancer Statistics Factsheets: Colon and Rectum Cancer](#). National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute.

Kidney Cancer Treatment

Last Updated:

February 2018

Introduction

Kidney cancer, also called renal cell cancer, is one of the ten most common cancers in both men and women. Treatment options may include surgery (open or laparoscopic), local therapies such as ablation and embolization, active surveillance, radiation therapy, targeted therapy, immunotherapy (biological therapy), and chemotherapy. These treatments might be used alone or in combination, depending on various factors.

Surgery is the main treatment for most types of kidney cancer. Since 2000, the use of complete nephrectomy (removal of the whole kidney) in patients with localized kidney cancer or cancer in the immediate surrounding tissue (regional kidney cancer) has decreased, while the rate of partial nephrectomy (removal of only the affected part of the kidney) has increased. Partial nephrectomy is now the preferred treatment for patients with early stage kidney cancer, but there are patients with early stage disease for whom partial nephrectomy may not be possible. Studies have shown the long-term results of partial nephrectomy and complete nephrectomy are about the same. Also, partial nephrectomy may prevent serious side effects like chronic kidney disease.

Measure

Partial nephrectomy or complete nephrectomy in patients with localized/regional kidney cancer.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including kidney cancer treatment.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

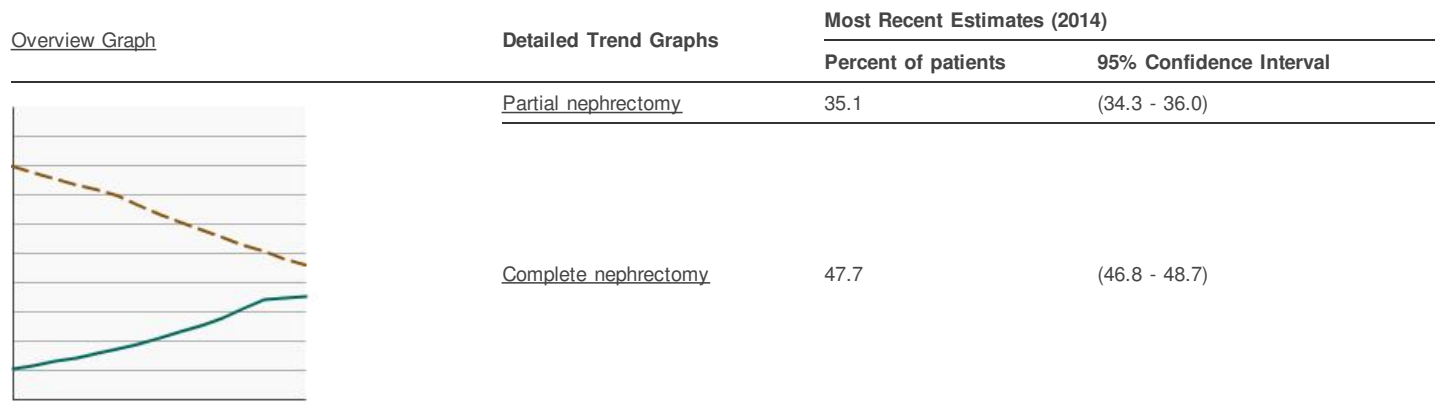
Data Source

SEER 18 Registries, National Cancer Institute, 2000–2014.

Trends and Most Recent Estimates

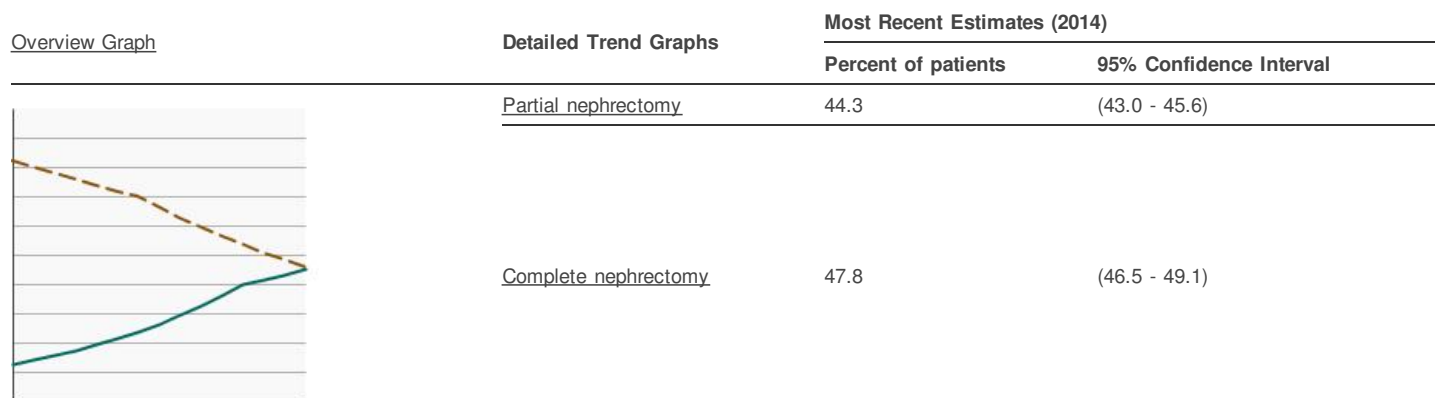
All Ages

Percent of patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2014



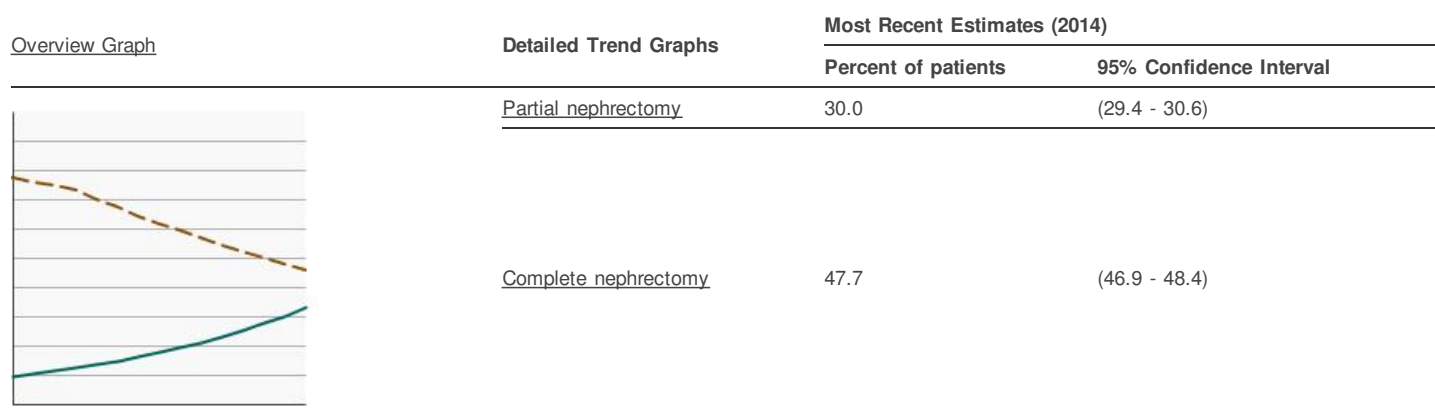
Ages 20-64

Percent of patients aged 20 - 64 years diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2014



Ages 65 and Older

Percent of patients aged 65 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2014



Additional Information on Kidney Cancer Treatment For the public

- [Kidney Cancer Treatment](#). American Cancer Society.
- [Kidney Cancer Association](http://www.kidneycancer.org)(<http://www.kidneycancer.org>).
- [Renal Cell Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [What You Need to Know About™ Kidney Cancer](#). National Cancer Institute.

For health professionals

- [Renal Cell Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Factsheets: Kidney and Renal Pelvis Cancer](#). National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute.

Lung Cancer Treatment

Last Updated:

March 2015

Introduction

Lung cancer forms in tissues of the lung, usually in the cells that line air passages. The two main types of lung cancer are small cell lung cancer and non-small cell lung cancer (NSCLC), which is the most common. About 85 percent of lung cancers are NSCLCs.

Primary treatment options for people with NSCLC include surgery, radiation therapy, other local treatments, chemotherapy, immunotherapy, and targeted therapies. In many cases, more than one of these treatments is used.

Surgery to remove the tumor presents the greatest chance of curing NSCLC, and is commonly used to treat stages I and II and some stage III cancers but is rarely used to treat stage IV cancers. Postoperative chemotherapy may provide an additional benefit to patients with resected NSCLC. Radiation therapy combined with chemotherapy can effectively treat a small number of patients and can provide palliation in most patients.

Measure

Chemotherapy following the diagnosis of non-small cell lung cancer stages IIIB or IV.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including lung cancer treatment.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

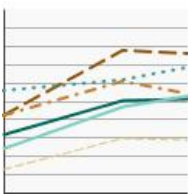
Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1996-2010.

Trends and Most Recent Estimates

Chemotherapy

Distribution of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer receiving any chemotherapy by age at diagnosis, 1996-2010

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010)	
		Percent of patients	95% Confidence Interval
	Ages 20 and older	51.1	(45.5 - 56.7)
	Ages 20-49	75.7	(62.6 - 88.8)
	Ages 50-59	68.4	(58.0 - 78.9)
	Ages 60-69	53.4	(42.1 - 64.8)
	Ages 70-79	53.2	(42.7 - 63.8)
	Ages 80 and older	28.2	(15.8 - 40.5)

Additional Information on Lung Cancer Treatment For the public

- [Treating Non-small Cell Lung Cancer](#). American Cancer Society.
- [Lung Cancer Treatment](http://www.lung.org/lung-health-and-diseases/lung-disease-lookup/lung-cancer/diagnosing-and-treating/how-lung-cancer-treated.html)(<http://www.lung.org/lung-health-and-diseases/lung-disease-lookup/lung-cancer/diagnosing-and-treating/how-lung-cancer-treated.html>). American Lung Association.
- [Non-Small Cell Lung Cancer Treatment](#). LungCancer.org.
- [Understanding Treatment Options](http://www.lungcanceralliance.org/what-if-i-am-diagnosed/understanding-treatment-options/)(<http://www.lungcanceralliance.org/what-if-i-am-diagnosed/understanding-treatment-options/>). Lung Cancer Alliance.
- [Non-Small Cell Lung Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [What You Need to Know About™ Lung Cancer](#). National Cancer Institute.
- [Non-Small Cell Lung Cancer \(NCCN Guidelines for Patients®\)](#). National Comprehensive Cancer Network.

For health professionals

- [Non-Small Cell Lung Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

For smokers

- [Stay Away from Tobacco](#). American Cancer Society.
- [Tobacco](#). National Cancer Institute.
- [Smokefree.gov](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Factsheets: Lung and Bronchus Cancer](#). National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute.

Ovarian Cancer Treatment

Last Updated:

January 2017

Introduction

Ovarian cancer forms in the tissues of the ovary (one of a pair of female reproductive glands in which the ova, or eggs, are formed). Most ovarian cancers are either ovarian epithelial carcinomas (cancer that begins in the cells on the surface of the ovary) or malignant germ cell tumors (cancer that begins in egg cells). Cancerous ovarian tumors can also begin in stromal cells, which release hormones and connect the different structures of the ovaries, though this is less common. Ovarian epithelial, fallopian tube, and primary peritoneal cancers form in the same tissue and are treated the same way.

The main treatments for ovarian cancer are surgery, chemotherapy, targeted therapy, radiation therapy, and hormone therapy. Often, two or more different treatments are used, though surgery is the main initial treatment for most ovarian cancers. Studies in early stage ovarian cancer have shown an increase in overall survival with the administration of chemotherapy, which is used in the majority of cases as a follow-up therapy to surgery.

Guidelines suggest intraperitoneal (IP) chemotherapy for later stage ovarian cancer. IP chemotherapy involves injecting a concentrated dose of drugs into the cancer cells in the abdominal cavity through a thin tube. In a study of women with advanced ovarian cancer, those receiving IP chemotherapy lived longer than those getting regular chemotherapy, but the side effects of IP chemotherapy were often more severe.

Measure

Percentage of individuals diagnosed with ovarian cancer who received chemotherapy by stage of diagnosis.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including ovarian cancer treatment.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

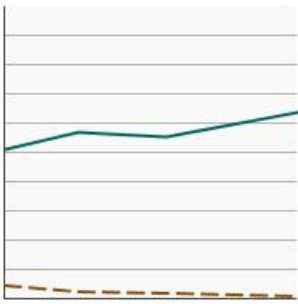
Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1991-2011.

Trends and Most Recent Estimates

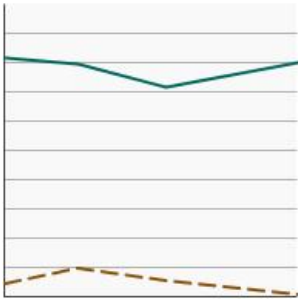
Stage I and II Diagnoses

Percent of patients aged 20 years and older diagnosed with stage I or II ovarian cancer by type of treatment received, 1991-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011)	
		Percent of patients	95% Confidence Interval
	<u>Chemotherapy</u>	63.5	(59.5 - 67.4)
	<u>Hormone therapy</u>	0.7	(0.1 - 1.2)

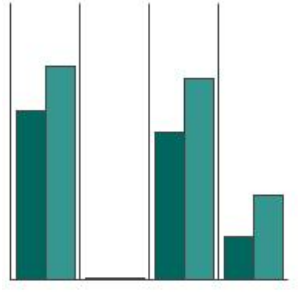
Stage III and IV Diagnoses

Percent of patients aged 20 years and older diagnosed with stage III or IV ovarian cancer by type of treatment received, 1991-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011)	
		Percent of patients	95% Confidence Interval
	<u>Chemotherapy</u>	79.9	(77.2 - 82.5)
	<u>Hormone therapy</u>	0.6	(0.2 - 1.0)

Distribution of Chemotherapeutic Agents

Distribution of chemotherapeutic agents given to ovarian cancer patients aged 20 years and older by type of treatment received, 2011

Overview graph	Chemotherapy agent received	Stage I and II		Stage III and IV	
		Percent of patients receiving agent	95% Confidence Interval	Percent of patients receiving agent	95% Confidence Interval
	Carboplatin/Cisplatin	61.1	(56.9 - 65.1)	77.5	(74.5 - 80.2)
	Cyclophosphamide (Cytoxan)	0.1	(0.0 - 0.4)	0.6	(0.3 - 1.0)
	Paclitaxol (Taxol)	53.3	(49.1 - 57.5)	72.6	(69.5 - 75.4)
	Other Chemo Agents	15.7	(12.9 - 19.1)	30.7	(27.7 - 34.0)

Additional Information on Ovarian Cancer Treatment For the public

- [Treating Ovarian Cancer](#). American Cancer Society.
- [Ovarian Cancer](http://www.foundationforwomenscancer.org/types-of-gynecologic-cancers/ovarian/)(<http://www.foundationforwomenscancer.org/types-of-gynecologic-cancers/ovarian/>). Foundation for Women's Cancer.
- [Ovarian, Fallopian Tube, and Primary Peritoneal Cancer](#). National Cancer Institute.
- [Ovarian Cancer \(NCCN Guidelines for Patients®\)](#). National Comprehensive Cancer Network.
- [Ovarian Cancer Treatment Options](http://ovarian.org/about-ovarian-cancer/treatment)(<http://ovarian.org/about-ovarian-cancer/treatment>). National Ovarian Cancer Coalition.
- [Treatment](#). Ovarian Cancer National Alliance.

For health professionals

- [Ovarian Epithelial Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

- [Ovarian Germ Cell Tumors Treatment \(PDQ®\)](#). National Cancer Institute.
- [Ovarian Low Malignant Potential Tumors Treatment \(PDQ®\)](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Factsheets: Ovary Cancer](#). National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute.

Prostate Cancer Treatment

Last Updated:

March 2015

Introduction

Prostate cancer forms in tissues of the prostate (a gland in the male reproductive system found below the bladder and in front of the rectum). This disease, which usually occurs in older men and grows relatively slowly, is the most common cancer among men (after skin cancer), but can often be treated successfully.

Standard treatment options may include active surveillance, surgery, radiation therapy, hormonal therapy, chemotherapy, biologic therapy, bisphosphonate therapy, and targeted therapy. These treatments are generally used one at a time, although in some cases they may be combined.

Hormonal therapy is also called *androgen deprivation therapy* or *androgen suppression therapy*. Its goal is to reduce levels of male hormones, called *androgens*, in the body, and to prevent them from reaching prostate cancer cells. This type of therapy can slow prostate cancer cell growth, which is stimulated by androgens.

The use of hormonal therapy for prostate cancer typically increases with the age of the patient, and it is currently also recommended for men with a high risk of recurrence. It may also be used for men who are not able to have surgery or radiation, and for men who can't be cured by these treatments because the cancer has already spread beyond the prostate gland. It is increasingly being used before, during, and after local treatment as well.

Measure

Hormonal therapy following the diagnosis of prostate cancer.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including prostate cancer treatment.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1998-2008.

Trends and Most Recent Estimates

Hormonal Therapy

Percent of men aged 40 years and older with localized/regional prostate cancer and receiving hormonal therapy by age at diagnosis, 1998-2008

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent of patients	95% Confidence Interval
	Ages 40 and older	21.1	(17.6 - 24.5)
	Ages 40-49	7.7	(3.4 - 12.1)
	Ages 50-59	10.4	(6.9 - 13.9)
	Ages 60-69	17.7	(10.9 - 24.5)
	Ages 70-79	24.7	(18.1 - 31.3)
	Ages 80 and older	53.0	(43.1 - 63.0)

Additional Information on Prostate Cancer Treatment For the public

- [Treating Prostate Cancer](#). American Cancer Society.
- [Hormone Therapy for Prostate Cancer](#). National Cancer Institute.
- [Prostate Cancer Treatment \(PDQ®\)](#). National Cancer Institute.
- [What You Need to Know About™ Prostate Cancer](#). National Cancer Institute.
- [Prostate Cancer \(NCCN Guidelines for Patients®\)](#). National Comprehensive Cancer Network.
- [Treatment Options](#). Prostate Cancer Foundation.
- [Treatment Options\(http://www.ustoo.org/Treatment-Options\)](http://www.ustoo.org/Treatment-Options). Us TOO International Prostate Cancer Education & Support Network.

For health professionals

- [Prostate Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

Scientific reports

- [Initial hormonal management of androgen-sensitive metastatic, recurrent, or progressive prostate cancer: 2006 update of an American Society of Clinical Oncology practice guideline](#). Loblaw DA, Virgo KS, Nam R, et al. *Journal of Clinical Oncology* 2004;22(20):4109–4118.
- [NIH-funded study shows increased survival in men with metastatic prostate cancer who receive chemotherapy when starting hormone therapy](#). National Cancer Institute. December 2013.
- [Immediate versus deferred hormonal treatment for patients with prostate cancer who are not suitable for curative local treatment: results of the randomized trial SAKK 08/88](#). Studer UE, Hauri D, Hanselmann S, et al. *Journal of Clinical Oncology* 2004;22(20):4109–4118.
- [Immediate or deferred androgen deprivation for patients with prostate cancer not suitable for local treatment with curative intent: European Organization for Research and Treatment of Cancer Trial 30891](#). Studer UE, Whelan P, Albrecht W, et al. *Journal of Clinical Oncology* 2006;24(12):1868–1876.

Statistics

- [SEER Cancer Statistics Factsheets: Prostate Cancer](#). National Cancer Institute. National Cancer Institute.
- [SEER-Medicare Linked Database](#). National Cancer Institute. National Cancer Institute.
- [SEER Patterns of Care/Quality of Care Studies](#). National Cancer Institute. National Cancer Institute.

Life After Cancer

More and more people are benefiting from the early detection of cancer and its successful treatment. These medical advances are improving both quality of life and length of survival, permitting many survivors to continue full and productive lives at home and at work.

National data regarding life after cancer track the financial burden of cancer care and relative survival rates, as well as the health behaviors of cancer survivors, including survivors' physical activity, weight management, and smoking status.

- [Financial Burden of Cancer Care](#)
- [Survival](#)
- [Cancer Survivors and Smoking](#)

- [Cancer Survivors and Obesity](#)
- [Cancer Survivors and Physical Activity](#)

Financial Burden of Cancer Care

Last Updated:

February 2018

Introduction

The financial costs of cancer care are a burden to people diagnosed with cancer, their families, and society as a whole. National expenditures associated with cancer have been steadily increasing in the United States. Care for cancer survivors accounted for an estimated 137.4 billion in medical care expenditures in the United States in 2010. In the near future, cancer costs may increase at a faster rate than overall medical expenditures. As the population ages, cancer prevalence and the absolute number of people treated for cancer will increase even if cancer incidence rates remain constant or decrease somewhat. Costs are also likely to increase as new, more advanced, and more expensive treatments are adopted as standards of care. The estimates presented here are based on cancer prevalence estimates modeled to 2017 and the costs of care which came from the period 2008-2010 depending on the cancer site.. This report will include updated estimates as they become available.

The national economic burden of cancer care in 2017 is shown below for bladder, brain, female breast, cervical, colorectal, esophageal, head and neck, kidney, lung, ovarian, pancreatic, prostate, stomach, and uterine cancers, as well as lymphoma, leukemia, and melanoma. All other cancers are combined as a single category.

National expenditures were largest for female breast, colorectal, prostate, lymphoma, and lung cancers, reflecting prevalence of disease, treatment patterns, and costs for different types of care.

Measure

Estimates of national expenditures for cancer care.

Healthy People 2020 Target

- There is no Healthy People 2020 target for the financial burden of cancer care.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

Bradley CJ, Yabroff KR, Dahman B, Feuer EJ, Mariotto A, Brown ML. Productivity costs of cancer mortality in the United States: 2000-2020. J Natl Cancer Inst 2008; 100: 1763-70.

Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. Projections of the cost of cancer care in the United States: 2010–2020. J Natl Cancer Inst 2011;103(2): 117–28.

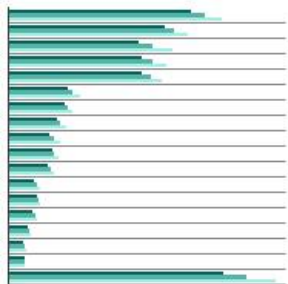
Warren, JL, Yabroff KR, Meekins A, Topor M, Lamont E, Brown ML. Evaluation of trends in the cost of initial cancer treatment. J Natl Cancer Inst 2008; 100: 888-897.

Trends and Most Recent Estimates Cost of Cancer Care

By Cancer Site

Estimates of national expenditures for cancer care (in billions of dollars) by cancer site and year

[Overview graph](#)

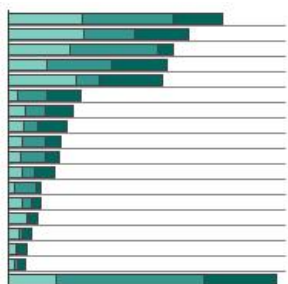


Cancer Site	2010	2013	2017
Female Breast	\$16.5	\$17.7	\$19.3
Colorectal	\$14.1	\$15.0	\$16.3
Prostate	\$11.8	\$13.0	\$14.8
Lymphoma	\$12.1	\$13.1	\$14.3
Lung	\$12.1	\$12.9	\$13.9
Leukemia	\$5.4	\$5.9	\$6.5
Ovary	\$5.1	\$5.4	\$5.8
Brain	\$4.5	\$4.8	\$5.2
Kidney	\$3.8	\$4.2	\$4.7
Bladder	\$4.0	\$4.2	\$4.6
Head and Neck	\$3.6	\$3.8	\$4.1
Melanoma	\$2.4	\$2.6	\$2.9
Uterus	\$2.6	\$2.7	\$2.9
Pancreas	\$2.3	\$2.4	\$2.7
Stomach	\$1.8	\$1.9	\$2.1
Esophagus	\$1.3	\$1.5	\$1.6
Cervix	\$1.5	\$1.5	\$1.5
All Other Sites	\$19.4	\$21.5	\$24.1

By Cancer Site and Phase of Care

Estimates of national expenditures for cancer care in 2017 (in billions of dollars) by cancer site and phase of care

[Overview graph](#)

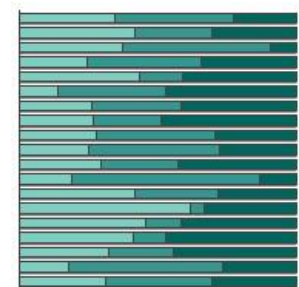


Cancer Site	Last year of life	Continuing care	Initial care
Female Breast	\$4.4	\$8.3	\$6.6
Colorectal	\$4.9	\$4.6	\$6.8
Prostate	\$1.4	\$7.9	\$5.5
Lymphoma	\$5.0	\$5.8	\$3.5
Lung	\$5.8	\$2.1	\$6.0
Leukemia	\$3.1	\$2.5	\$0.9
Ovary	\$2.4	\$1.9	\$1.5
Brain	\$2.6	\$1.3	\$1.4
Kidney	\$1.4	\$2.0	\$1.3
Bladder	\$1.3	\$2.2	\$1.1
Head and Neck	\$1.7	\$1.1	\$1.2
Melanoma	\$0.4	\$2.0	\$0.5
Uterus	\$0.8	\$0.9	\$1.2
Pancreas	\$0.9	\$0.1	\$1.6
Stomach	\$0.9	\$0.3	\$1.0
Esophagus	\$0.8	\$0.2	\$0.7
Cervix	\$0.7	\$0.4	\$0.5
All Other Sites	\$6.4	\$13.4	\$4.3

Distribution of Cost by Cancer Site

Estimates of the proportion of national expenditures for cancer care in 2017 by cancer site and phase of care

[Overview graph](#)



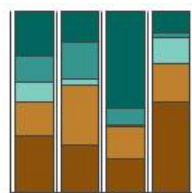
Cancer Site	Last year of life	Continuing care	Initial care
Female Breast	22.9%	42.8%	34.3%
Colorectal	30.3%	28.0%	41.7%
Prostate	9.2%	53.4%	37.4%
Lymphoma	34.7%	40.6%	24.7%
Lung	41.4%	15.2%	43.4%
Leukemia	47.1%	39.2%	13.6%
Ovary	41.5%	32.4%	26.1%
Brain	48.9%	24.3%	26.8%
Kidney	29.2%	42.9%	27.9%
Bladder	27.7%	47.3%	25.0%
Head and Neck	42.5%	27.8%	29.7%
Melanoma	13.2%	68.0%	18.8%
Uterus	28.4%	29.7%	41.9%
Pancreas	33.3%	5.2%	61.6%
Stomach	41.8%	12.8%	45.4%
Esophagus	47.0%	12.0%	41.0%
Cervix	44.3%	23.4%	32.2%
All Other Sites	26.7%	55.4%	17.9%
All Sites	30.3%	38.6%	31.1%

□

Medicare Payments During First Year After Cancer Diagnosis

Percentage of Medicare payments in the first year following diagnosis for cancer care by type of service in 2002

[Overview graph](#)

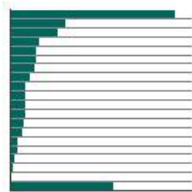


Cancer Site	Cancer Related Surgery	Chemotherapy	Radiation therapy	Other hospitalizations	Other services
Female Breast	24.6%	14.8%	11.0%	18.3%	31.3%
Lung	16.6%	20.4%	3.3%	33.6%	26.1%
Colorectal	53.1%	9.2%	0.9%	18.4%	18.4%
Prostate	11.8%	2.3%	14.4%	21.4%	50.1%

Lost Productivity Due to Cancer Diagnosis

Lost productivity due to cancer deaths in the United States among adults aged 20 years and older, 2005

[Overview graph](#)



Cancer Site	Present value of lifetime earnings (billion)
Lung and bronchus	\$36.1
Female breast	\$12.1
Colon and rectum	\$10.7
Pancreas	\$6.6
Brain and ONS	\$5.7
Leukemia	\$5.7
Non-Hodgkin lymphoma	\$5.5
Liver and intrahepatic bile duct	\$4.4
Kidney and renal pelvis	\$3.4
Head and neck	\$3.4
Prostate	\$3.3
Stomach	\$3.2
Melanoma of the skin	\$3.2
Ovary	\$2.8
Cervix uteri	\$1.8
Urinary bladder	\$1.8
Corpus and uterus	\$1.0
Hodgkin lymphoma	\$0.8
Testis	\$0.5
All other sites	\$22.5

Additional Information on the Financial Burden of Cancer Care For the public

- [Financial Toxicity \(Financial Distress\) and Cancer Treatment \(PDQ®\)](#). National Cancer Institute.

Scientific reports

- [Projections of the cost of cancer care in the United States: 2010–2020](#). Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. J Natl Cancer Inst 2011;103(2): 117–28.
- [Evaluation of trends in the cost of initial cancer treatment](#). Warren, JL, Yabroff KR, Meekins A, Topor M, Lamont E, Brown ML. J Natl Cancer Inst 2008; 100: 888-897.
- [Productivity costs of cancer mortality in the United States: 2000-2020](#). Bradley CJ, Yabroff KR, Dahman B, Feuer EJ, Mariotto A, Brown ML. J Natl Cancer Inst 2008; 100: 1763-70.

Survival

Last Updated:

February 2018

Introduction

Advances in the ways that cancer is diagnosed and treated have increased the number of people who live disease-free for long periods of time. This report looks at trends in 5-year survival rates for cancer, the time period traditionally associated with good prognosis. However, some people will experience a recurrence of their cancer after 5 years.

Measure

Five-year relative cancer survival: The proportion of patients surviving cancer 5 years after diagnosis calculated in the absence of other causes of death. This percentage is the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors.

Five-year cause specific survival: The proportion of patients surviving a specified cause of cancer death 5 years after diagnosis. Deaths from other causes are not considered cause-specific deaths.

While relative survival is the typical SEER measure, five-year cause specific survival is used to show survival rates by race/ethnicity since expected rates are not available for several of the race/ethnicity groups.

Healthy People 2020 Target

- Increase the proportion of cancer survivors who are living 5 years or longer after diagnosis to 71.7 percent.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

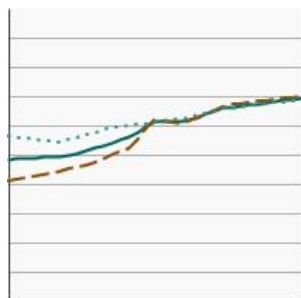
SEER Program, National Cancer Institute, 1975–2009 with follow-up through 2014.

Trends and Most Recent Estimates All Cancer Sites Combined

By Sex

5-year relative survival for all cancer sites combined by sex, 1975-2009

[Overview Graph](#)



[Detailed Trend Graphs](#)

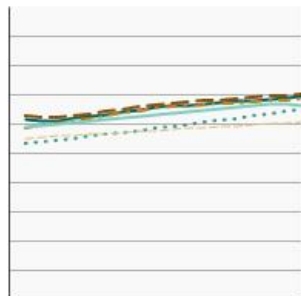
Most Recent Estimates (2009)

	Percent surviving	95% Confidence Interval
Both Sexes	69.3	69.0 - 69.7
Male	69.6	69.1 - 70.0
Female	69.1	68.6 - 69.5

By Race/Ethnicity

5-year cause-specific survival for all cancer sites combined by race/ethnicity, 1992-2009

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2009)

	Percent surviving	95% Confidence Interval
All Races	69.2	69.0 - 69.4
White	69.9	69.6 - 70.1
Black	64.3	63.5 - 65.1
Hispanic	68.3	67.6 - 69.0
Asian/Pacific Islander	66.2	65.4 - 67.0
American Indian/Alaska Native	61.6	58.5 - 64.5

Top Cancer Sites

Comparison of Top Cancer Sites

5-year relative survival for the most common cancers, 1975-2009

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2009)	
		Percent surviving	95% Confidence Interval
	<u>Colon and Rectum</u>	66.4	65.2 - 67.5
	<u>Lung and Bronchus</u>	19.6	18.8 - 20.3
	<u>Female Breast</u>	91.3	90.6 - 91.9
	<u>Prostate</u>	99.3	98.8 - 99.6

Colon and Rectum Cancer by Sex

5-year relative survival for colon and rectum cancer by sex, 1975-2009

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2009)	
		Percent surviving	95% Confidence Interval
	<u>Both Sexes</u>	66.4	65.2 - 67.5
	<u>Male</u>	66.6	65.0 - 68.1
	<u>Female</u>	66.2	64.5 - 67.8

Colon and Rectum Cancer by Race/Ethnicity

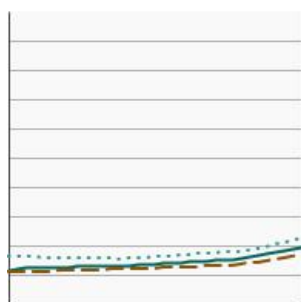
5-year cause-specific survival for colon and rectum cancer by race/ethnicity, 1992-2009

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2009)	
		Percent surviving	95% Confidence Interval
	<u>All Races</u>	66.3	65.5 - 67.1
	<u>White</u>	66.4	65.4 - 67.3
	<u>Black</u>	61.4	58.9 - 63.8
	<u>Hispanic</u>	65.7	63.2 - 68.0
	<u>Asian/Pacific Islander</u>	68.3	66.0 - 70.5
	<u>American Indian/Alaska Native</u>	64.6	55.8 - 72.1

Lung and Bronchus Cancer by Sex

5-year relative survival for lung and bronchus cancer by sex, 1975-2009

[Overview Graph](#)



[Detailed Trend Graphs](#)

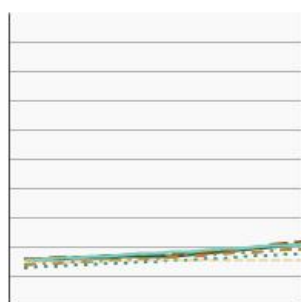
Most Recent Estimates (2009)

	Percent surviving	95% Confidence Interval
Both Sexes	19.6	18.8 - 20.3
Male	16.5	15.5 - 17.5
Female	22.9	21.8 - 24.1

Lung and Bronchus Cancer by Race/Ethnicity

5-year cause-specific survival for lung and bronchus cancer by race/ethnicity, 1992-2009

[Overview Graph](#)



[Detailed Trend Graphs](#)

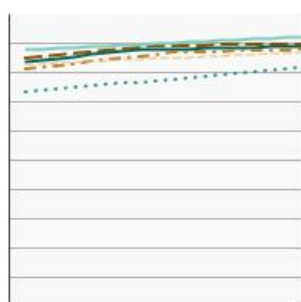
Most Recent Estimates (2009)

	Percent surviving	95% Confidence Interval
All Races	20.9	20.3 - 21.6
White	21.2	20.4 - 22.0
Black	19.8	17.9 - 21.8
Hispanic	18.8	16.4 - 21.3
Asian/Pacific Islander	20.0	17.9 - 22.1
American Indian/Alaska Native	19.4	12.1 - 28.0

Female Breast Cancer by Race/Ethnicity

5-year cause-specific survival for female breast cancer by race/ethnicity, 1992-2009

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2009)

	Percent surviving	95% Confidence Interval
All Races	89.1	88.7 - 89.5
White	89.7	89.3 - 90.2
Black	81.6	80.0 - 83.2
Hispanic	87.8	86.4 - 89.1
Asian/Pacific Islander	91.9	90.7 - 92.9
American Indian/Alaska Native	83.8	76.8 - 88.8

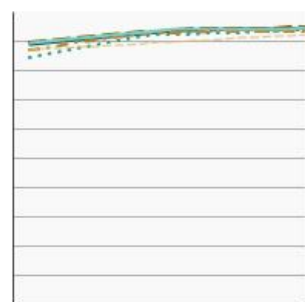
Prostate Cancer by Race/Ethnicity

5-year cause-specific survival for prostate cancer by race/ethnicity, 1992-2009

[Overview Graph](#)

Detailed Trend Graphs

Most Recent Estimates (2009)



	Percent surviving	95% Confidence Interval
All Races	94.4	94.1 - 94.7
White	94.6	94.2 - 94.9
Black	93.4	92.5 - 94.2
Hispanic	92.9	91.8 - 93.9
Asian/Pacific Islander	94.2	92.9 - 95.2
American Indian/Alaska Native	88.4	80.4 - 93.2

Additional Information on Survival For the public

- [Survivorship](#). National Cancer Institute..

For health professionals

- [For Health Care Professionals](#). National Cancer Institute..
- [Resources for Health Professionals](#). National Cancer Institute.

Scientific reports

- [Annual Report to the Nation on the Status of Cancer](#). National Cancer Institute.

Statistics

- [Cancer Facts & Figures 2017](#). American Cancer Society.
- [SEER Cancer Statistics Review](#). National Cancer Institute.
- [SEER Fast Stats: An interactive tool for access to SEER cancer statistics](#). Surveillance Research Program, National Cancer Institute.

Cancer Survivors and Smoking

Last Updated:

February 2018

Introduction

Despite their increased risk for chronic health conditions and premature death, many cancer survivors continue to smoke after their diagnosis. Young survivors (those younger than age 40) may be at particular risk for smoking. To enhance the length and health-related quality of their lives, efforts are needed to identify these individuals and provide them with evidence-based interventions to help them quit smoking and remain tobacco free.

As the population of cancer survivors increases and their expected time of survival lengthens, the health behaviors of these individuals is becoming an important focus of attention. Adoption or maintenance of healthy lifestyles after cancer has the potential to reduce both cancer- and non-cancer-related morbidity. In some cases, lifestyle choices such as smoking may also affect survival. Tracking these behaviors permits evaluation of how well cancer control efforts are working to reduce unnecessary disability and death among those with a history of cancer.

Measure

Rates of smoking among cancer survivors are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked whether they were a current smoker.

Healthy People 2020 Target

- There is no Healthy People 2020 target for smoking rates among cancer survivors, though it does include a national objective to increase the mental and physical health-related quality of life of cancer survivors. However, it is reasonable to set this at the goal determined for the general population, which is to decrease to 12 percent the proportion of people who smoke.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

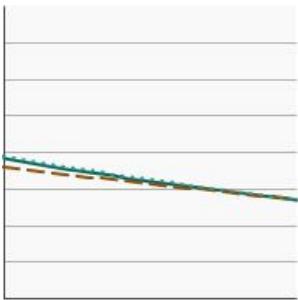
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2016.

Trends and Most Recent Estimates

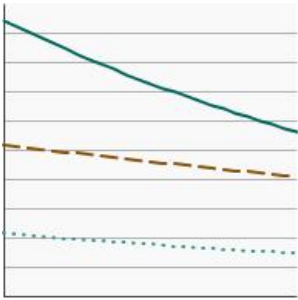
By Sex

Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by sex, 1992-2016

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2016)	
		Percent of cancer survivors	95% Confidence Interval
	<u>Both Sexes</u>	13.0	11.6 - 14.5
	<u>Male</u>	13.0	10.6 - 15.7
	<u>Female</u>	13.2	11.4 - 15.2

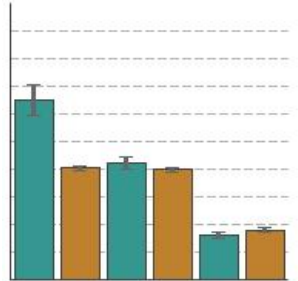
By Age

Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by age, 1992-2016

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2016)	
		Percent of cancer survivors	95% Confidence Interval
	<u>Ages 18-44</u>	26.6	19.9 - 34.5
	<u>Ages 45-64</u>	20.0	16.9 - 23.4
	<u>Ages 65 and older</u>	6.7	5.3 - 8.4

Compared to Remaining U.S. Population

Percentage of current smokers among cancer survivors and remaining U.S. population by age : 2007-2016

Overview graph	Age Group	Cancer Survivor		Remaining U.S. Population	
		Percent of population	95% Confidence Interval	Percent of population	95% Confidence Interval
	<u>Ages 18-44</u>	32.4	29.8 - 35.2	20.2	19.8 - 20.6
	<u>Ages 45-64</u>	21.2	20.1 - 22.3	19.9	19.5 - 20.3
	<u>Ages 65 and older</u>	8.0	7.4 - 8.6	9.0	8.6 - 9.4

Evidence-based Resources

Resources are available to assist cancer control planners, program staff, and researchers to design, implement, and evaluate evidence-based survivorship programs. Visit [Cancer Control P.L.A.N.E.T.- survivorship](#) for data on cancer incidence, research syntheses, cancer control plans, research-tested interventions, interactive communities of practice, and other resources.

Additional Information on Cancer Survivors and Smoking For health professionals

- [Tobacco Smoking Cessation in Adults, Including Pregnant Women: Behavioral and Pharmacotherapy Interventions \(September 2015\)](#). U.S. Preventive Services Task Force.

Scientific reports

- [Correlates of continued smoking versus cessation among survivors of smoking-related cancers](http://onlinelibrary.wiley.com/doi/10.1002/pon.3077/pdf)(<http://onlinelibrary.wiley.com/doi/10.1002/pon.3077/pdf>).

Berg CJ, Thomas AN, Mertens AC, Schauer GL, et al. *Psycho-Oncology* 2013;22:799–806.

- [Tobacco use and cessation for cancer survivors: an overview for clinicians.](#) Karam-Hage M, Cinciripini PM, Gritz ER. *CA Cancer J Clin.* 2014 Jul-Aug;64(4):272-90. doi: 10.3322/caac.21231. Review.
- [Cigarette smoking, comorbidity, and general health among survivors of adolescent and young adult cancer.](#) Kaul S, Veeranki SP, Rodriguez AM, Kuo YF. *Cancer.* 2016 Sep 15;122(18):2895-905.
- [Use of Electronic Cigarettes Among Cancer Survivors in the U.S.](#) Salloum RG, et al. *Am J Prev Med.* 2016 Nov;51(5):762-766.
- [Tobacco smoking and the risk of subsequent primary cancer among cancer survivors: a retrospective cohort study.](#) Tabuchi T, Ito Y, Ioka A, Nakayama T, et al. *Annals of Oncology* 2013; 24(1):2699–2704.

For smokers

- [Smokefree.gov.](#) National Cancer Institute.
- [SmokefreeTXT.](#) National Cancer Institute.
- [Smokefree Women\(<http://women.smokefree.gov>\).](#) National Cancer Institute.
- [Tobacco.](#) National Cancer Institute.

Cancer Survivors and Obesity

Last Updated:

February 2018

Introduction

Adopting or maintaining a healthy lifestyle after cancer has the potential to reduce both cancer- and non-cancer-related morbidity. Preventing excess body weight and obesity can enhance the length and health-related quality of life of cancer survivors, and it can reduce the risk of developing cancers that have been linked to excess body weight, including colorectal, breast (among women who have gone through menopause), uterine, esophageal, renal cell (kidney), and pancreatic cancer.

As the number of cancer survivors grows and expected survival time increases, the health behaviors of these individuals are becoming an important focus of attention. Examination of survivors and obesity is new to the Cancer Trends Progress Report this year.

Measure

Rates of obesity among cancer survivors are based on the self-reporting of individuals with a cancer history, who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI of 30 and over to be obese.

Healthy People 2020 Target

Although Healthy People 2020 has no target for obesity among cancer survivors, it does have nutrition and health status targets regarding obesity in the general population, including:

- Increase to 33.9 percent the proportion of adults who are at a healthy weight.
- Reduce to 30.5 percent the proportion of adults who are obese.
- Reduce the proportion of children and adolescents who are considered obese.

There is also a Healthy People 2020 objective to increase the mental and physical health-related quality of life of cancer survivors.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2016.

Trends and Most Recent Estimates

By Sex

Percentage of cancer survivors aged 20 years and older who were obese by sex, 1992-2016

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2016)	
		Percent of cancer survivors	95% Confidence Interval
	<u>Both Sexes</u>	31.1	29.0 - 33.3
	<u>Male</u>	29.9	26.6 - 33.4
	<u>Female</u>	32.0	29.2 - 34.9

Compared to Remaining U.S. Population

Comparison of cancer survivors and remaining U.S. population for percentage of adults aged 18 years and older who were obese, 2007-2016

Overview graph	Age Group	Cancer Survivor		Remaining U.S. Population	
		Percent of population	95% Confidence Interval	Percent of population	95% Confidence Interval
	<u>Ages 18 and older</u>	30.9	29.5 - 32.2	28.3	28.0 - 28.6

Evidence-based Resources

Resources are available to assist cancer control planners, program staff, and researchers to design, implement, and evaluate evidence-based survivorship programs. Visit [Cancer Control P.L.A.N.E.T.- survivorship](#) for data on cancer incidence, research syntheses, cancer control plans, research-tested interventions, interactive communities of practice, and other resources.

Additional Information on Cancer Survivors and Obesity For the public

- [Cancer Survivors Network](#). American Cancer Society.
- [Survivorship: During and After Treatment](#). American Cancer Society.
- [Take Control of Your Weight](#). American Cancer Society.
- [Division of Nutrition, Physical Activity, and Obesity](#). Centers for Disease Control and Prevention.
- [Overweight & Obesity](#). Centers for Disease Control and Prevention.
- [Physical Activity for a Healthy Weight](#). Centers for Disease Control and Prevention.
- [Body Mass Index Table](#). National Heart, Lung, and Blood Institute.
- [Treatedment](#). National Heart, Lung, and Blood Institute.
- [Journey Forward](http://www.journeyforward.org/)(<http://www.journeyforward.org/>).
- [Facing Forward: Life After Cancer Treatment](#). National Cancer Institute.
- [Health and Well-Being After Cancer](#). National Cancer Institute, Office of Cancer Survivorship.
- [Obesity and Cancer](#). National Cancer Institute.
- [Living Beyond Cancer](http://www.canceradvocacy.org/resources/cancer-survival-toolbox/special-topics/living-beyond-cancer/)(<http://www.canceradvocacy.org/resources/cancer-survival-toolbox/special-topics/living-beyond-cancer/>). National Coalition for Cancer Survivorship.

For health professionals

- [American Society of Clinical Oncology Obesity Initiative: Rationale, Progress, and Future Directions](#). Ligibel JA, Wollins J Clin Oncol. 2016 Dec 10;34(35):4256-4260.
- [Screening for and Management of Obesity in Adults \(June 2012\)](http://www.uspreventiveservicestaskforce.org/uspstf/uspsoebes.htm)(<http://www.uspreventiveservicestaskforce.org/uspstf/uspsoebes.htm>). U.S. Preventive Services Task Force.
- [Screening for Obesity in Children and Adolescents \(January 2010\)](http://www.uspreventiveservicestaskforce.org/uspstf/uspsochobes.htm)(<http://www.uspreventiveservicestaskforce.org/uspstf/uspsochobes.htm>). U.S. Preventive Services Task Force.

Scientific reports

- [Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010](#). Flegal KM, Carroll MD, Kit BK, and Ogden CL.

JAMA 2012;307(5):491–7.

- [The role of physical activity in cancer prevention, treatment, recovery, and survivorship.](#) Lemanne D, Cassileth B, Gubili J. *Oncology* 2013;27(6):580–5.
- [Obesity, physical activity, and breast cancer survival among older breast cancer survivors in the Cancer Prevention Study-II Nutrition Cohort.](#) Maliniak ML, et al. *Breast Cancer Res Treat.* 2017 Aug 31. doi: 10.1007/s10549-017-4470-7.
- [The Role of Obesity in Cancer Survival and Recurrence: Workshop Summary.](#) National Cancer Policy Forum, Board on Health Care Services, Institute of Medicine. Washington (DC): National Academies Press (US); 2012 Apr 3.
- [Results of the Exercise and Nutrition to Enhance Recovery and Good Health for You \(ENERGY\) Trial: A Behavioral Weight Loss Intervention in Overweight or Obese Breast Cancer Survivors.](#) Rock CL, et al. *J Clin Oncol.* 2015 Oct 1;33(28):3169-76.

Statistics

- [FastStats – Obesity and Overweight.](#) Centers for Disease Control and Prevention.

Cancer Survivors and Physical Activity

Last Updated:

February 2018

Introduction

As the number of cancer survivors grows and expected survival time increases, the health behaviors of these individuals is becoming an important focus of attention. Adoption or maintenance of healthy lifestyles after cancer has the potential to reduce both cancer- and non-cancer-related morbidity. Tracking these behaviors permits evaluation of how well cancer control efforts are working to reduce unnecessary disability and death among those with a history of cancer. To enhance the length and health-related quality of life of cancer survivors, efforts are needed to encourage adequate physical activity. Physical activity may reduce the risk of several types of cancer, including breast, colon, endometrium (lining of the uterus), and it may also lower a person's risk of other health problems such as heart disease, high blood pressure, diabetes, and osteoporosis (bone thinning). Being active may also help to prevent weight gain and obesity, which can reduce the risk of developing cancers that have been linked to excess body weight.

Measure

The percentage of cancer survivors reporting no physical activity are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked how often they perform light, moderate, or vigorous activity for at least 10 minutes.

Healthy People 2020 Target

- There is no Healthy People 2020 target for physical activity among cancer survivors, though it does include a national objective to increase the mental and physical health-related quality of life of cancer survivors. However, it is reasonable to set this at the goal determined for the general population, which is to reduce the proportion of adults who engage in no leisure time physical activity to 32.6%.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

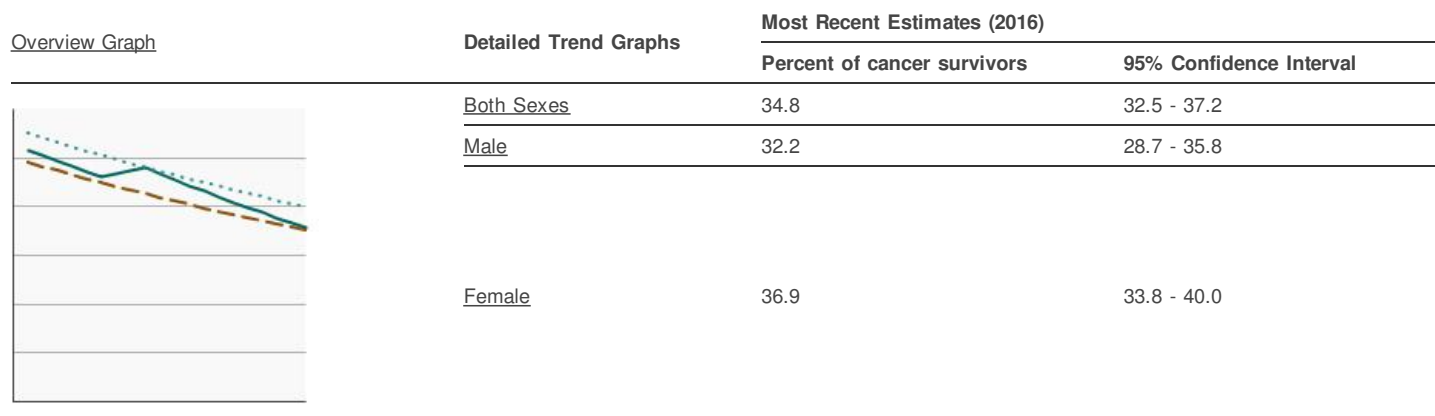
Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1997–2016.

Trends and Most Recent Estimates

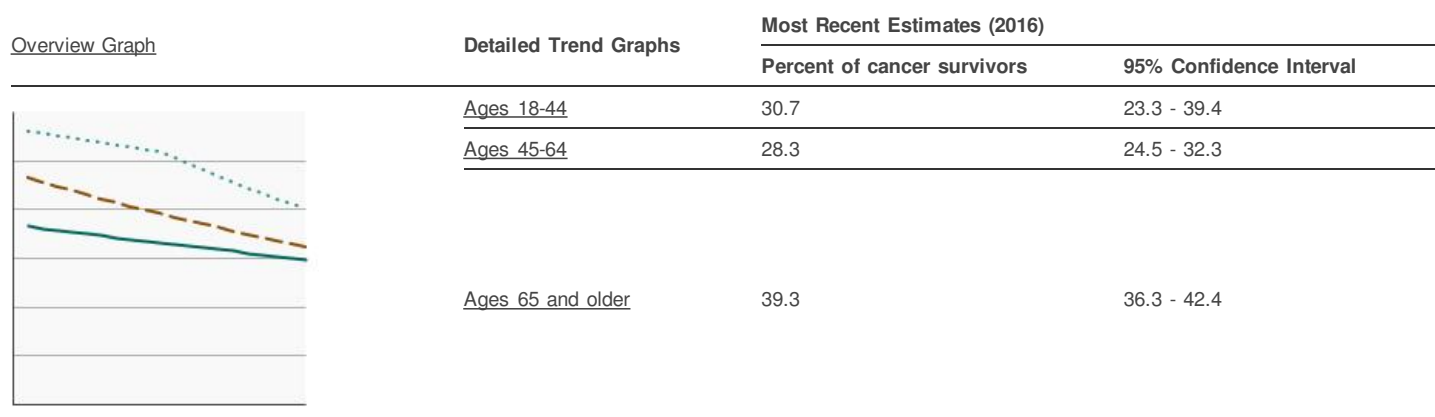
By Sex

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2016



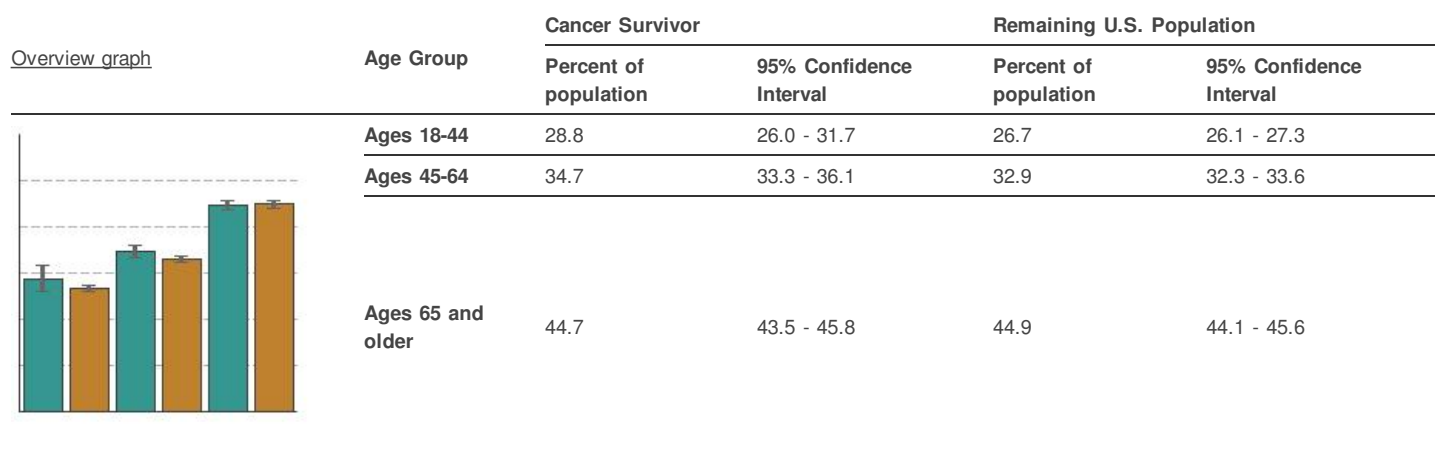
By Age

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by age, 1997-2016



Compared to Remaining U.S. Population

Comparison of cancer survivors and remaining U.S. population for percentage of adults aged 18 years and older reporting no physical activity in their leisure time by age : 2007-2016



Evidence-based Resources

Resources are available to assist cancer control planners, program staff, and researchers to design, implement, and evaluate evidence-based survivorship programs. Visit [Cancer Control P.L.A.N.E.T.- survivorship](#) for data on cancer incidence, research syntheses, cancer control plans, research-tested interventions, interactive communities of practice, and other resources.

Additional Information on Cancer Survivors and Physical Activity For the public

- [ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention](#). American Cancer Society.
- [Cancer Survivors Network](#). American Cancer Society.
- [Coping With Cancer](#). American Cancer Society.
- [Survivorship: During and After Treatment](#). American Cancer Society.

- [Journey Forward](http://www.journeyforward.org/)(<http://www.journeyforward.org/>).
- [Facing Forward: Life After Cancer Treatment](#). National Cancer Institute.
- [Health and Well-Being After Cancer](#). National Cancer Institute.
- [Physical Activity and Cancer](#). National Cancer Institute.
- [Living Beyond Cancer](http://www.canceradvocacy.org/resources/cancer-survival-toolbox/special-topics/living-beyond-cancer/)(<http://www.canceradvocacy.org/resources/cancer-survival-toolbox/special-topics/living-beyond-cancer/>). National Coalition for Cancer Survivorship.

Scientific reports

- [The dose-response effect of physical activity on cancer mortality: findings from 71 prospective cohort studies](#). Li T, et al. Br J Sports Med. 2016 Mar;50(6):339-45. doi: 10.1136/bjsports-2015-094927. Review.
- [Posttreatment trajectories of physical activity in breast cancer survivors](#). Lucas AR, Levine BJ, Avis NE. Cancer. 2017 Jul 15;123(14):2773-2780.
- [The effectiveness of exercise interventions for improving health-related quality of life from diagnosis through active cancer treatment](#). Mishra SI, Scherer RW, Snyder C, Geigle P, Gotay C. Oncol Nurs Forum. 2015 Jan;42(1):E33-53. doi: 10.1188/15.ONF.E33-E53. Review.
- [Results of the Exercise and Nutrition to Enhance Recovery and Good Health for You \(ENERGY\) Trial: A Behavioral Weight Loss Intervention in Overweight or Obese Breast Cancer Survivors](#). Rock CL, et al. J Clin Oncol. 2015 Oct 1;33(28):3169-76.

End of Life

The ultimate measure of our nation's success against cancer is how quickly and how far we can lower the death rate from this group of diseases. This report provides national data not only on cancer mortality by major sites, sex, and race/ethnicity, but also in terms of the years of life lost to cancer—a measure that emphasizes the tragedy of common cancers that strike people at a relatively young age.

The good news is that the rate of death from cancer in the United States continues to decline among both men and women, among all major racial and ethnic groups, and for the most common types of cancer. It is our job as a nation to maintain and accelerate this trend.

- [Mortality](#)
- [Person-Years of Life Lost](#)

Mortality

Last Updated:

February 2018

Introduction

The rate of death from cancer in the United States continues to decline among both men and women, among all major racial and ethnic groups, and for the most common types of cancer, including [lung](#), [colon](#), [breast](#), and [prostate](#) cancers. The [Annual Report to the Nation on the Status of Cancer](#)(<http://onlinelibrary.wiley.com/doi/10.1002/cncr.28509/abstract>), published in the journal *Cancer*, shows that the death rate from all cancers combined is continuing the decline that began in the early 1990s.

Still, in 2015 cancers of the female breast, prostate, lung, colon/rectum, and pancreas accounted for nearly one-half (47 percent) of all cancer deaths in the United States. Lung cancer alone claimed nearly 27 percent of lives lost to cancer.

Measure

The number of cancer deaths per 100,000 people per year, age-adjusted to a U.S. 2000 standard population.

Healthy People 2020 Target

- Reduce the overall cancer death rate to 161.4 cancer deaths per 100,000 people per year.
- Reduce the colorectal cancer death rate to 14.5 deaths per 100,000 people per year.
- Reduce the lung cancer death rate to 45.5 deaths per 100,000 people per year.
- Reduce the female breast cancer death rate to 20.7 deaths per 100,000 females per year.
- Reduce the prostate cancer death rate to 21.8 deaths per 100,000 males per year.
- Reduce the death rate from cancer of the uterine cervix to 2.2 deaths per 100,000 females per year.
- Reduce the oropharyngeal cancer death rate to 2.3 deaths per 100,000 people per year.
- Reduce the melanoma cancer death rate to 2.4 deaths per 100,000 people per year.

[Healthy People 2020](#) is a set of goals set forth by the Department of Health and Human Services.

Note: Goals are indicated as blue line on Detailed Trend Graphs.

Data Source

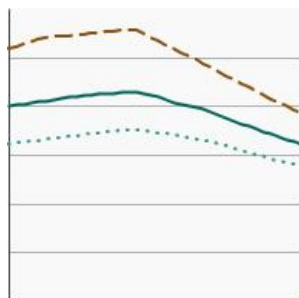
Centers for Disease Control and Prevention, National Center for Health Statistics, 1975–2014.

Trends and Most Recent Estimates All Cancer Sites Combined

By Sex

U.S. death rates for all cancers by sex, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

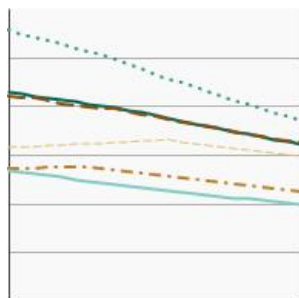
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Both Sexes	161.4	(160.9 - 161.8)
Male	193.1	(192.4 - 193.8)
Female	138.2	(137.7 - 138.7)

By Race/Ethnicity

U.S. death rates for all cancers by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2014)

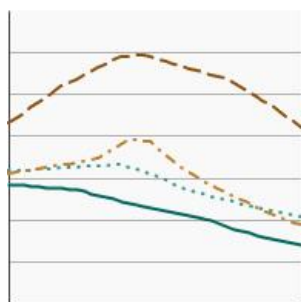
	Rate per 100,000	95% Confidence Interval
All Races	161.4	(160.9 - 161.8)
White	162.1	(161.6 - 162.6)
Black	185.8	(184.4 - 187.2)
Hispanic	112.4	(111.2 - 113.6)
Asian/Pacific Islander	98.6	(97.1 - 100.2)
American Indian/Alaska Native	146.6	(140.2 - 153.2)

Top Cancer Sites

Comparison of Top Cancer Sites

U.S. death rates for the most common cancers, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

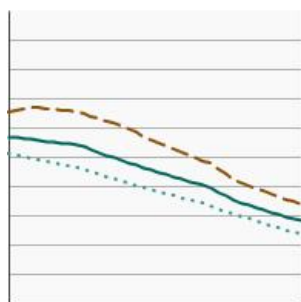
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Colon and Rectum	14.1	(14.0 - 14.3)
Lung and Bronchus	42.1	(41.9 - 42.3)
Female Breast	20.6	(20.4 - 20.8)
Prostate	19.0	(18.8 - 19.3)

Colon and Rectum Cancer by Sex

U.S. death rates for colon and rectum cancer by sex, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

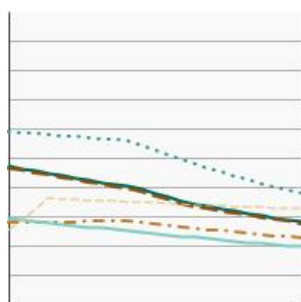
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Both Sexes	14.1	(14.0 - 14.3)
Male	16.9	(16.7 - 17.1)
Female	11.9	(11.8 - 12.1)

Colon and Rectum Cancer by Race/Ethnicity

U.S. death rates for colon and rectum cancer by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

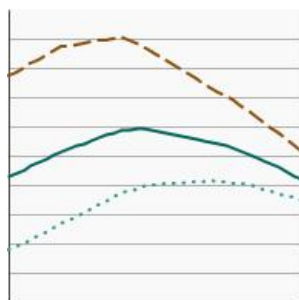
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	14.1	(14.0 - 14.3)
White	13.9	(13.7 - 14.0)
Black	18.5	(18.0 - 18.9)
Hispanic	11.1	(10.7 - 11.5)
Asian/Pacific Islander	9.6	(9.1 - 10.1)
American Indian/Alaska Native	15.3	(13.3 - 17.5)

Lung and Bronchus Cancer by Sex

U.S. death rates for lung and bronchus cancer by sex, 1975-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

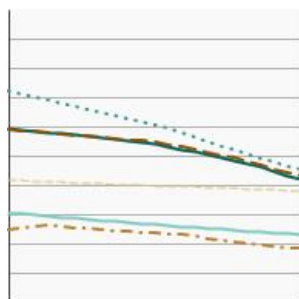
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Both Sexes	42.1	(41.9 - 42.3)
Male	51.7	(51.4 - 52.1)
Female	34.7	(34.5 - 35.0)

Lung and Bronchus Cancer by Race/Ethnicity

U.S. death rates for lung and bronchus cancer by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

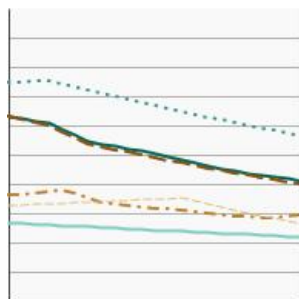
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	42.1	(41.9 - 42.3)
White	43.0	(42.7 - 43.2)
Black	44.5	(43.8 - 45.2)
Hispanic	18.3	(17.8 - 18.8)
Asian/Pacific Islander	22.6	(21.9 - 23.4)
American Indian/Alaska Native	35.7	(32.5 - 39.0)

Female Breast Cancer by Race/Ethnicity

U.S. death rates for female breast cancer by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

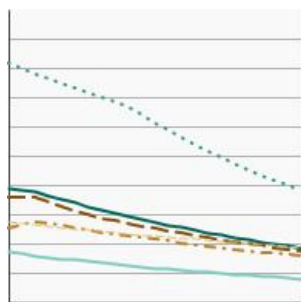
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	20.6	(20.4 - 20.8)
White	20.1	(19.9 - 20.4)
Black	28.1	(27.4 - 28.8)
Hispanic	14.6	(14.0 - 15.1)
Asian/Pacific Islander	11.5	(10.9 - 12.2)
American Indian/Alaska Native	13.3	(10.9 - 16.1)

Prostate Cancer by Race/Ethnicity

U.S. death rates for prostate cancer by race/ethnicity, 1992-2014

[Overview Graph](#)



[Detailed Trend Graphs](#)

Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	19.0	(18.8 - 19.3)
White	17.9	(17.6 - 18.1)
Black	37.5	(36.3 - 38.6)
Hispanic	15.2	(14.5 - 16.0)
Asian/Pacific Islander	8.3	(7.6 - 9.0)
American Indian/Alaska Native	19.8	(15.9 - 24.2)

□

Additional Cancer Sites with Healthy People 2020 Targets

Comparison of Sites

U.S. death rates for additional cancer sites with Healthy People 2020 reduction goals, 1975-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Rate per 100,000	95% Confidence Interval
	<u>Cervix Uteri</u>	2.3	(2.2 - 2.3)
	<u>Melanoma of the Skin</u>	2.6	(2.5 - 2.6)
	<u>Oral Cavity and Pharynx</u>	2.5	(2.5 - 2.6)

Cervix Uteri by Race/Ethnicity

U.S. death rates for cervix uteri cancer by race/ethnicity, 1992-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Rate per 100,000	95% Confidence Interval
	<u>All Races</u>	2.3	(2.2 - 2.3)
	<u>White</u>	2.1	(2.1 - 2.2)
	<u>Black</u>	3.6	(3.3 - 3.8)
	<u>Hispanic</u>	2.6	(2.4 - 2.8)
	<u>Asian/Pacific Islander</u>	1.5	(1.3 - 1.8)
	<u>American Indian/Alaska Native</u>	2.3	(1.5 - 3.5)

Oral Cavity and Pharynx by Sex

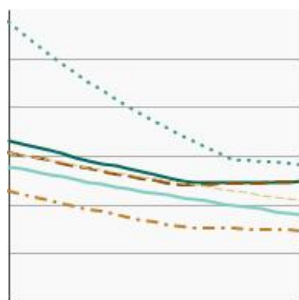
U.S. death rates for oral cavity and pharynx cancer by sex, 1975-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Rate per 100,000	95% Confidence Interval
	<u>Both Sexes</u>	2.5	(2.5 - 2.6)
	<u>Male</u>	4.0	(3.9 - 4.1)
	<u>Female</u>	1.3	(1.2 - 1.3)

Oral Cavity and Pharynx by Race/Ethnicity

U.S. death rates for oral cavity and pharynx cancer by race/ethnicity, 1992-2014

[Overview Graph](#)



Detailed Trend Graphs

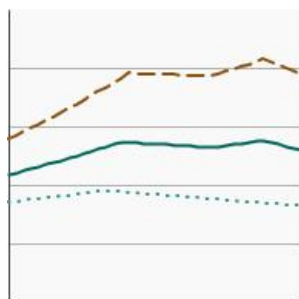
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	2.5	(2.5 - 2.6)
White	2.5	(2.5 - 2.6)
Black	2.8	(2.6 - 3.0)
Hispanic	1.5	(1.3 - 1.6)
Asian/Pacific Islander	1.9	(1.7 - 2.1)
American Indian/Alaska Native	2.4	(1.6 - 3.3)

Melanoma of the Skin by Sex

U.S. death rates for melanoma of the skin by sex, 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

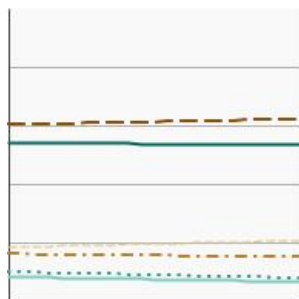
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
Both Sexes	2.6	(2.5 - 2.6)
Male	3.8	(3.7 - 3.9)
Female	1.6	(1.5 - 1.6)

Melanoma of the Skin by Race/Ethnicity

U.S. death rates for melanoma of the skin by race/ethnicity, 1992-2014

[Overview Graph](#)



Detailed Trend Graphs

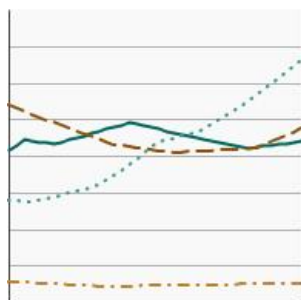
Most Recent Estimates (2014)

	Rate per 100,000	95% Confidence Interval
All Races	2.6	(2.5 - 2.6)
White	3.0	(2.9 - 3.1)
Black	0.4	(0.3 - 0.5)
Hispanic	0.8	(0.7 - 0.9)
Asian/Pacific Islander	0.4	(0.3 - 0.5)
American Indian/Alaska Native	0.8	(0.4 - 1.4)

Selected Cancer Sites with Increasing Trends

U.S. death rates for selected cancer sites that are increasing annually[^], 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

[Brain and Other Nervous System](#)

[Corpus and Uterus, NOS](#)

[Liver and Intrahepatic Bile Duct](#)

[Thyroid](#)

Most Recent Estimates (2014)

Rate per 100,000 **95% Confidence Interval**

4.4 (4.4 - 4.5)

4.7 (4.6 - 4.8)

6.5 (6.4 - 6.6)

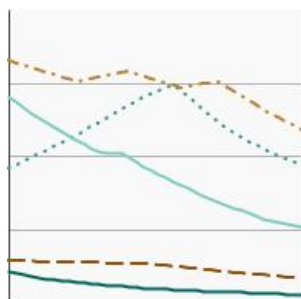
0.5 (0.5 - 0.5)

Selected Cancer Sites with Decreasing Trends

Decreasing Greater than 1% Annually

U.S. death rates for selected cancer sites that are decreasing by 1% per year or greater[^], 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

[Hodgkin Lymphoma](#)

[Larynx](#)

[Non-Hodgkin Lymphoma](#)

[Ovary](#)

[Stomach](#)

Most Recent Estimates (2014)

Rate per 100,000 **95% Confidence Interval**

0.3 (0.3 - 0.3)

1.0 (1.0 - 1.0)

5.6 (5.6 - 5.7)

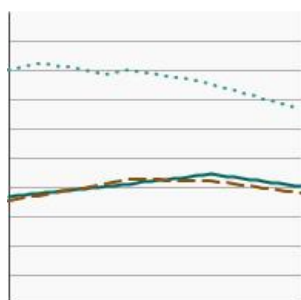
7.0 (6.9 - 7.2)

3.1 (3.1 - 3.2)

Decreasing Less than 1% Annually

U.S. death rates for selected cancer sites that are decreasing by less than 1% per year[^], 1975-2014

[Overview Graph](#)



Detailed Trend Graphs

[Esophagus](#)

[Kidney and Renal Pelvis](#)

[Leukemia](#)

Most Recent Estimates (2014)

Rate per 100,000 **95% Confidence Interval**

4.0 (3.9 - 4.1)

3.8 (3.7 - 3.8)

6.6 (6.5 - 6.7)

Additional Information on Mortality For the public

- [Advance Directives](#). American Cancer Society.
- [Hospice Care](#). American Cancer Society.
- [Nearing the End of Life](#). American Cancer Society.
- [Advanced Cancer](#). National Cancer Institute.
- [End-of-Life Care for People Who Have Cancer](#). National Cancer Institute.
- [Hospice Care](#). National Cancer Institute.

For health professionals

- [Planning the Transition to End-of-Life Care in Advanced Care \(PDQ®\)](#). National Cancer Institute.
- [Resources for Health Professionals](#). National Cancer Institute.

Scientific reports

- [Annual Report to the Nation on the Status of Cancer](#). National Cancer Institute.

Statistics

- [Cancer Facts & Figures 2017](#). American Cancer Society.
- [Colorectal Cancer Mortality Projection](#). Cancer Intervention Surveillance Network.
- [Deaths: Final Data for 2010](#). U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics National Vital Statistics System, 2013;61(4).
- [National Vital Statistics System – Mortality Data](#). National Center for Health Statistics, Centers for Disease Control and Prevention.
- [State Cancer Profiles](#). National Cancer Institute.
- [SEER Cancer Statistics Review](#). National Cancer Institute.
- [SEER Fast Stats: An interactive tool for access to SEER cancer statistics](#). Surveillance Research Program, National Cancer Institute.

Person-Years of Life Lost

Last Updated:

February 2018

Introduction

Death rates alone do not provide a complete picture of the burden that deaths impose on the population. Another useful measure that may add a different dimension is person-years of life lost (PYLL)—the years of life lost because of early death from a particular cause or disease. PYLL caused by cancer helps to describe the extent to which life is cut short by cancer.

Measure

Person-Years of Life Lost is measured as the difference between the actual age stemming from the disease/cause and the expected age of death due to a particular disease or cause. Specifically, this measure is estimated by linking life table data to each death of a person of a given age and sex. The life table permits a determination of the number of additional years an average person of that age, race, and sex would have been expected to live.

Average Years of Life Lost represents Person-Years of Life Lost divided by the number of people who lost their lives.

Healthy People 2020 Target

There is no Healthy People 2020 target for this measure.

Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

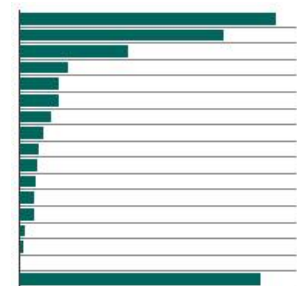
Centers for Disease Control and Prevention, National Center for Health Statistics, 2014.

Trends and Most Recent Estimates
Person-years of Life Lost

All Causes of Death, All Races, Both Sexes

Person-years of life lost in 2014 due to major causes of death, total U.S., all races, both sexes

[Overview graph](#)

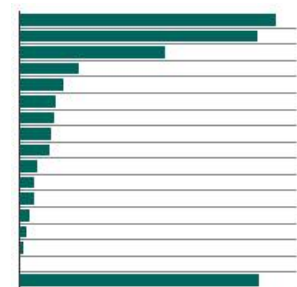


Cause of death	Years of life lost (in thousands)
Malignant Neoplasms	9,305
Heart Disease	7,392
Accidents	3,958
Chronic Lung Disease	1,784
Cerebrovascular	1,459
Suicide & Self-Inflicted Injury	1,451
Diabetes Mellitus	1,164
Cirrhosis	871
Homicide	736
Pneumonia & Influenza	669
Alzheimers Disease	602
Nephritis & Nephrosis	574
Septicemia	564
HIV	205
Aortic Aneurysm & Dissection	139
Atherosclerosis	54
All Other Causes	8,695

All Causes of Death, All Races, Males

Person-years of life lost in 2014 due to major causes of death, total U.S., all races, males

[Overview graph](#)

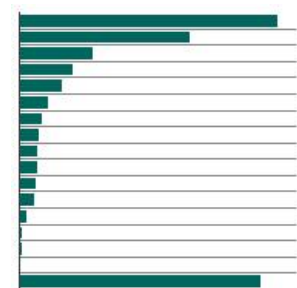


Cause of death	Years of life lost (in thousands)
Malignant Neoplasms	4,627
Heart Disease	4,314
Accidents	2,630
Suicide & Self-Inflicted Injury	1,092
Chronic Lung Disease	818
Cerebrovascular	669
Diabetes Mellitus	639
Homicide	583
Cirrhosis	548
Pneumonia & Influenza	331
Nephritis & Nephrosis	291
Septicemia	265
Alzheimers Disease	185
HIV	144
Aortic Aneurysm & Dissection	89
Atherosclerosis	26
All Other Causes	4,334

All Causes of Death, All Races, Females

Person-years of life lost in 2014 due to major causes of death, total U.S., all races, females

[Overview graph](#)

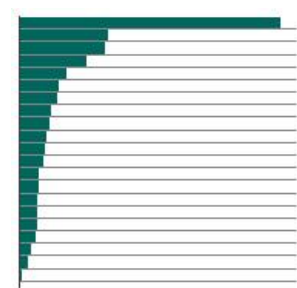


Cause of death	Years of life lost (in thousands)
Malignant Neoplasms	4,678
Heart Disease	3,078
Accidents	1,328
Chronic Lung Disease	966
Cerebrovascular	790
Diabetes Mellitus	525
Alzheimers Disease	418
Suicide & Self-Inflicted Injury	359
Pneumonia & Influenza	339
Cirrhosis	323
Septicemia	298
Nephritis & Nephrosis	283
Homicide	152
HIV	61
Aortic Aneurysm & Dissection	50
Atherosclerosis	28
All Other Causes	4,361

Cancer, All Races, Both Sexes

Person-years of life lost in 2014 due to cancer, total U.S., all races, both sexes

[Overview graph](#)

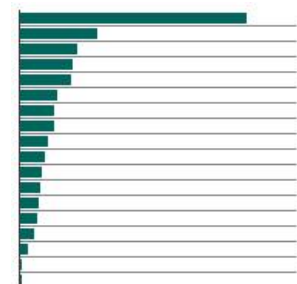


Cause of death	Years of life lost (in thousands)
Lung & Bronchus	2,365
Colon & Rectum	804
Breast (Female)	778
Pancreas	611
Liver & IBD	424
Leukemia	368
Brain & ONS	349
Non-Hodgkin Lymphoma	286
Prostate	284
Ovary	252
Esophagus	242
Kidney & Renal Pelvis	216
Stomach	185
Urinary Bladder	179
Corpus & Uterus, NOS	170
Myeloma	163
Oral Cavity & Pharynx	162
Melanoma of the Skin	159
Cervix Uteri	109
Childhood Ages (0-14)	88
Hodgkin Lymphoma	24
Testis	15

Cancer, All Races, Males

Person-years of life lost in 2014 due to cancer, total U.S., all races, males

[Overview graph](#)



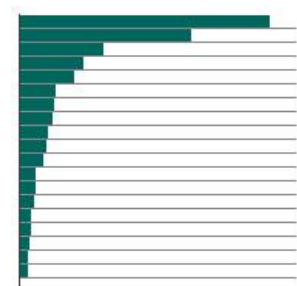
Cause of death	Years of life lost (in thousands)
Lung & Bronchus	1,232
Colon & Rectum	425
Pancreas	316
Liver & IBD	290
Prostate	284
Leukemia	206
Esophagus	194
Brain & ONS	193
Non-Hodgkin Lymphoma	159
Kidney & Renal Pelvis	144
Urinary Bladder	125
Oral Cavity & Pharynx	118
Stomach	109
Melanoma of the Skin	100
Myeloma	87
Childhood Ages (0-14)	48
Testis	15
Hodgkin Lymphoma	14

□

Cancer, All Races, Females

Person-years of life lost in 2014 due to cancer, total U.S., all races, females

[Overview graph](#)



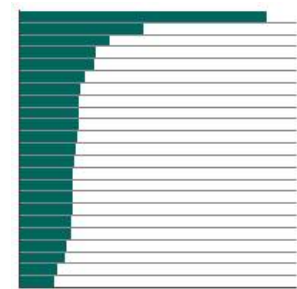
Cause of death	Years of life lost (in thousands)
Lung & Bronchus	1,133
Breast (Female)	778
Colon & Rectum	379
Pancreas	295
Ovary	252
Corpus & Uterus, NOS	170
Leukemia	162
Brain & ONS	156
Liver & IBD	134
Non-Hodgkin Lymphoma	127
Cervix Uteri	109
Myeloma	76
Stomach	76
Kidney & Renal Pelvis	72
Melanoma of the Skin	59
Urinary Bladder	54
Esophagus	47
Oral Cavity & Pharynx	44
Childhood Ages (0-14)	40
Hodgkin Lymphoma	10

□

Average Years of Life Lost

Average-years of life lost in 2014 due to cancer, total U.S., all races, both sexes

[Overview graph](#)



Cause of death	Years of life lost
Childhood Ages (0-14)	71.7
Testis	36.0
Cervix Uteri	26.4
Hodgkin Lymphoma	22.2
Brain & ONS	21.8
Breast (Female)	18.9
Ovary	17.7
Corpus & Uterus, NOS	17.5
Oral Cavity & Pharynx	17.2
Liver & IBD	17.2
Melanoma of the Skin	17.0
Stomach	16.3
Esophagus	16.2
All Sites Combined	15.7
Leukemia	15.6
Colon & Rectum	15.6
Kidney & Renal Pelvis	15.5
Lung & Bronchus	15.2
Pancreas	15.1
Non-Hodgkin Lymphoma	14.0
Myeloma	13.5
Urinary Bladder	11.3
Prostate	10.0

Additional Information on Person-Years of Life Lost For health professionals

- [For Health Care Professionals](#). National Cancer Institute.
- [Resources for Health Professionals](#). National Cancer Institute.

Scientific reports

- [Annual Report to the Nation on the Status of Cancer](#). National Cancer Institute.

Statistics

- [SEER Cancer Statistics Review](#). National Cancer Institute.
- [United States Life Tables, 2011](#). U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics National Vital Statistics System, 2015:64(11)

Summary Tables

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:

1. Is the trend moving in the desired direction?

- A graph shows the trend direction for the measure. The desired trend direction is shown above the graph.
- Each line in the graph is coded by color to indicate whether the trend is:

green - headed in the right direction

red - headed in the wrong direction

black - stable or non-significant change (NSC)

purple - indeterminate

blue - Healthy People 2020 target

2. How does the nation's progress compare to the Healthy People 2020 target?

Not all measures have an associated Healthy People 2020 target. When there is a target for a specific measure, it is shown by a solid blue horizontal line labeled "Healthy People 2020 target".

The example graph demonstrates the Adult Smoking trend, which is heading in the right direction (green line) toward the Healthy People 2020 target (solid blue horizontal line).

Available Summary Tables Prevention

- [Tobacco Use](#)
- [Smoking Cessation](#)
- [Diet](#)
- [Weight and Physical Activity](#)
- [UV Exposure and Sun Protective Practices](#)

- [HPV Immunization](#)
- [Tobacco Policy/Regulatory Factors](#)
- [Secondhand Smoke](#)
- [Chemical and Environmental Exposures](#)

Early Detection

- [Breast, Cervical, and Colorectal Cancer Screening](#)

Diagnosis

- [Incidence and Stage at Diagnosis](#)

Treatment

- [Bladder, Breast, Colorectal](#)
- [Kidney, Lung, Ovarian, Prostate](#)

Life After Cancer

- [Financial Burden of Cancer Care](#)
- [Survival, Smoking, Obesity, and Physical Activity](#)






End of Life

- [Mortality and Person-Years of Life Lost](#)

Prevention Summary Tables

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:

1. **Is the trend moving in the desired direction?**
2. **How does the nation's progress compare to the Healthy People 2020 target?**






- [Tobacco Use](#)
- [Smoking Cessation](#)
- [Diet](#)
- [Weight and Physical Activity](#)
- [UV Exposure and Sun Protective Practices](#)

- [Tobacco Policy/Regulatory Factors](#)
- [HPV Immunization](#)
- [Secondhand Smoke](#)
- [Chemical Exposures](#)

Tobacco Use - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

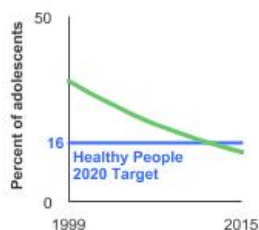
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Youth Tobacco Use

Measure Name	Youth Tobacco Use
Year Range	1999-2015
Measure	The percentage of high school students (grades 9–12) who reported use of cigarettes, cigars, or smokeless tobacco on at least 1 day during the 30 days before the survey.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling

Summary Graph

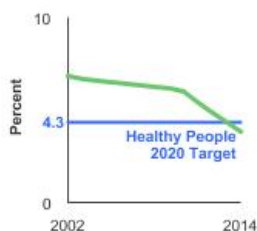


Trends and Most Recent Estimates	Among high school students in 2015, 10.8% were current cigarette smokers, 7.3% were current users of smokeless tobacco, 10.3% were current cigar smokers (including little cigars). 18.6% were current users of cigarettes, cigars, or smokeless tobacco.
Healthy People 2020 Target	Decrease the proportion of high school students who currently: smoke cigarettes to 16.0%; use smokeless tobacco to 6.9%; smoke cigars to 8.0%; use cigarettes, cigars, or smokeless tobacco to 21.0%.
More Information	Youth Tobacco Use

Measure Name: Tobacco Use Initiation

Measure Name	Tobacco Use Initiation
Year Range	2002-2014
Measure	The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated cigarette smoking during the past 12 months. The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated cigar smoking during the past 12 months. The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated smokeless tobacco use during the past 12 months.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2010-2014
Desired Direction	Falling

Summary Graph



Trends and Most Recent Estimates	In 2014, 3.8% of children and adolescents aged 12 to 17 initiated cigarette smoking in the past year.
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Healthy People 2020 Target

Reduce the initiation of the use of cigarettes among children and adolescents aged 12 to 17 years to 4.3%.

More Information [Tobacco Use Initiation](#)

Measure Name: Adult Tobacco Use

Measure Name **Adult Tobacco Use**

Year Range 1991-2016

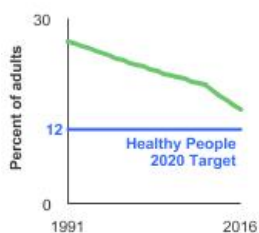
Measure
Cigarettes: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigarette smokers.
Smokeless tobacco: Percentage of adults aged 18 years and older who, at the time of the interview, were smokeless tobacco users.
Cigars: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigar smokers.

Recent Summary Trend Falling

Recent Summary Trend Year Range 2012-2016

Desired Direction Falling

Summary Graph



Trends and Most Recent Estimates In 2016, 15.7% of adults aged 18 and older were current cigarette smokers (males - 17.7%, females - 13.7%).






Healthy People 2020 Target Reduce to 12.0% the proportion of adult current cigarette smokers.

More Information [Adult Tobacco Use](#)

Smoking Cessation - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

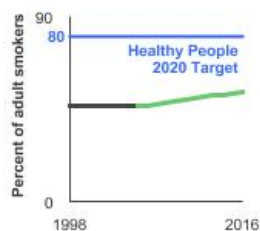
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Quitting Smoking

Measure Name	Quitting Smoking
Year Range	1998-2016
Measure	Attempt to quit: The percentage of adult smokers aged 18 years and older who attempted smoking cessation within the past 12 months. The attempt-to-quit measure includes both current smokers who smoke every day or some days and who, at the time of the survey, had quit smoking for at least 1 day during the past 12 months, as well as recent former smokers, who quit smoking less than 1 year ago.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2012-2016
Desired Direction	Rising

Summary Graph

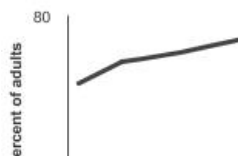


Trends and Most Recent Estimates	In 2016, 53.4% of adult smokers attempted to quit smoking within the past year.
Healthy People 2020 Target	Increase to 80.0% the proportion of adult everyday smokers ages 18 and older, who stopped smoking for a day or longer because they were trying to quit.
More Information	Quitting Smoking

Measure Name: Clinicians' Advice to Quit Smoking

Measure Name	Clinicians' Advice to Quit Smoking
Year Range	1992-2015
Measure	The percentage of adult smokers (aged 18 years and older) who have seen a physician or dentist in the past 12 months and report that the physician or dentist advised them to quit smoking.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2010-2015
Desired Direction	Rising

Summary Graph










Trends and Most Recent Estimates	In 2014 to 2015, 70.0% of adult smokers who had seen a physician during the past 12 months reported being advised by that doctor to quit smoking.
Healthy People 2020 Target	The Healthy People 2020 target for physicians' advice to quit smoking in office-based ambulatory care settings is 21.1 percent of visits. The target for ordered or provided tobacco counseling during hospital visits is 24.9 percent of visits.
More Information	Clinicians' Advice to Quit Smoking

Diet - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

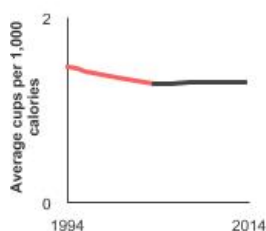
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Fruit and Vegetable Consumption

Measure Name	Fruit and Vegetable Consumption
Year Range	1994-2014
Measure	Average daily cup equivalents per 1,000 calories of fruits and vegetables for people aged 2 years and older. This measure includes fruits and vegetables from all sources.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2009-2014
Desired Direction	Rising

Summary Graph

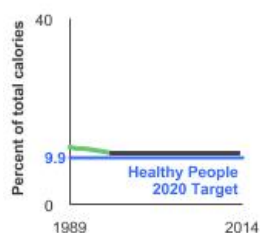


Trends and Most Recent Estimates	From 2013 to 2014, people aged 2 years and older consumed, on average, 0.5 cup equivalents of fruits per 1,000 calories and 0.7 cup equivalents of vegetables per 1,000 calories (including 0.1 cup equivalents of dark green and orange vegetables and legumes per 1,000 calories).
Healthy People 2020 Target	0.9 cup equivalents of fruits per 1,000 calories. 1.2 cup equivalents of vegetables per 1,000 calories, with at least 0.55 cup equivalents of dark green or orange vegetables or legumes per 1,000 calories.
More Information	Fruit and Vegetable Consumption

Measure Name: Fat Consumption

Measure Name	Fat Consumption
Year Range	1989-2014
Measure	Intakes of total fat, and of the major fatty acids - saturated, monounsaturated, and polyunsaturated - as a percentage of total calories.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2009-2014
Desired Direction	Falling

Summary Graph



Trends and Most Recent Estimates	From 2013 to 2014, total fat made up 33.9% of the calories people consumed, saturated fatty acids accounted for 11.1% of calories, monounsaturated, 11.6%, and polyunsaturated, 7.9%.
---	---

Healthy People 2020 Target 9.9% percent saturated fatty acids. (Healthy People 2020 includes targets for saturated fat and solid fat.)

More Information [Fat Consumption](#)

Measure Name: Red Meat Consumption

Measure Name Red Meat Consumption

Year Range 1994-2014

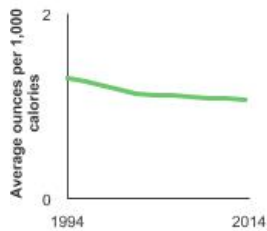
Measure Average daily ounce equivalents of red meat for people aged 2 years and older. Red meat includes beef, lamb, and pork from all sources and does not include processed poultry.

Recent Summary Trend Falling

Recent Summary Trend Year Range 2009-2014

Desired Direction Falling

Summary Graph



Trends and Most Recent Estimates From 2013 to 2014, people aged 2 years and older consumed, on average, 1.1 ounces of red meat per 1,000 calories.

Healthy People 2020 Target There is no Healthy People target for red meat consumption.

More Information [Red Meat Consumption](#)

Measure Name: Alcohol Consumption

Measure Name Alcohol Consumption

Year Range 1990-2015

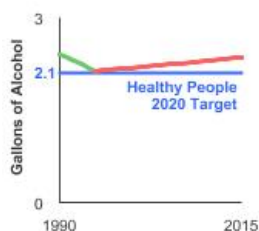
Measure Per capita alcohol consumption: The estimated number of gallons of pure alcohol consumed per person (aged 14 years and older), per year. This measure accounts for the varying alcohol content of wine, beer, and liquor. People as young as 14 are included because a large number of adolescents begin drinking at an early age.

Recent Summary Trend Rising

Recent Summary Trend Year Range 2011-2015

Desired Direction Falling

Summary Graph



Trends and Most Recent Estimates In 2015, per capita alcohol consumption was 2.3 gallons for all beverages, including beer, wine, and liquor.






Healthy People 2020 Target Reduce annual per capita alcohol consumption to 2.1 gallons.

More Information [Alcohol Consumption](#)

Weight and Physical Activity - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Weight

Measure Name Weight

Year Range 1971-2016

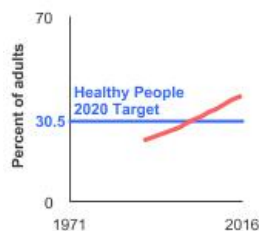
Measure The percentage of adults aged 20 years and older who are at a healthy weight, overweight, or obese. These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI within the range of 18.5 to 24.9 to be healthy, a BMI between 25 and 29.9 to be overweight, and a BMI of 30 and over to be obese.

Recent Summary Trend Rising

Recent Summary Trend Year Range 2011-2016

Desired Direction Falling

Summary Graph



Trends and

Most Recent Estimates During 2015 to 2016, 27.2% percent of adults aged 20 years and older were at a healthy weight, 31.8% percent were overweight, and 39.5% percent were obese.

Healthy People 2020 Target Increase to 33.9% percent the proportion of adults who are at a healthy weight and decrease to 30.5% percent the proportion of obese adults.

More Information [Weight](#)

Measure Name: Physical Activity

Measure Name Physical Activity

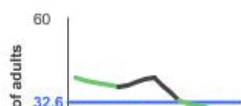
Year Range 1997-2016

Measure Percentage of adults aged 18 years and older who reported no leisure-time physical activity during the past month and percentage of adults who meet both the aerobic and muscle-strengthening guidelines.

Recent Summary Trend Falling

Recent Summary Trend Year Range 2012-2016

Desired Direction Falling



Summary Graph



Trends and Most Recent Estimates

In 2016, 26.9% of adults 18 and older reported no physical activity in their leisure time.

Healthy People 2020 Target

Reduce to 32.6% the proportion of adults who engage in no leisure-time physical activity.






More Information

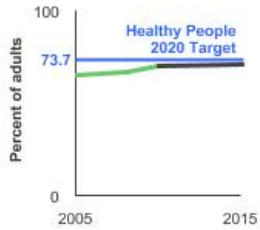
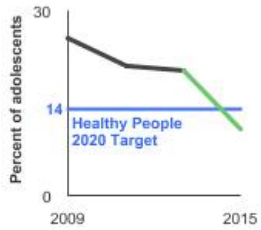
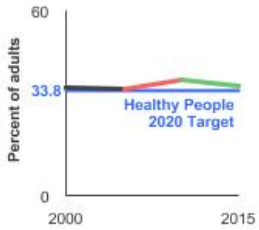
[Physical Activity](#)

UV Exposure and Sun-Protective Behavior - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:






	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name	Sun-Protective Behavior	Indoor Tanning	Sunburn
Year Range	2005-2015	2009-2015	2000-2015
Measure	The percentage of adults aged 18 years and older who reported that they usually or always practice at least one of three sun-protective behaviors - using sunscreen, wearing protective clothing (a long-sleeve shirt, and/or wide brimmed hat shading the face, ears, and neck, and/or long pants/long skirt), or seeking shade when going outside on a sunny day for more than an hour.	The percentage of high school students (grades 9-12) who reported use of an indoor tanning device such as a sunlamp, sunbed, or tanning booth (not counting getting a spray-on tan) one or more times during the 12 months before the survey. The percentage of adults aged 18 years and older who have used an indoor tanning device one or more times during the past 12 months. Although NHIS-CCS also collected this data for adults in 2005 and 2008, the methodology used then likely resulted in overestimates and so that data was not included here.	The percentage of high school students (grades 9-12) who reported having been sunburned in the past 12 months. The percentage of adults aged 18 years and older who reported having been sunburned in the past 12 months.
Recent Summary Trend	Stable	Falling	Falling
Recent Summary Trend Year Range	2010-2015	2011-2015	2010-2015
Desired Direction	Rising	Falling	Falling
Summary Graph			
Trends and Most Recent Estimates	In 2015, 70.8% of adults said they usually or always protect themselves from the sun by practicing at least one of three sun protection behaviors.	In 2015, 10.6% of female adolescents used an indoor tanning device within the past year.	In 2015, 35.3% of adults aged 18 years and older were sunburned in the past year.
Healthy People 2020 Target	Increase to 73.7% the proportion of adults who are very likely to use sunscreen with an SPF of 15 or higher, wear protective clothing, or seek shade.	Reduce to 14.0% the proportion of adolescents in grades 9 through 12 who report using artificial sources of ultraviolet light for tanning.	Reduce to 33.8% the proportion of adults aged 18 years and older who report sunburn.
More Information	Sun-Protective Behavior	Indoor Tanning	Sunburn
Last Updated	January 2017	January 2017	January 2017

Tobacco Policy/Regulatory Factors - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

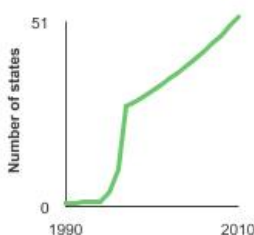
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Medicaid Coverage of Tobacco Dependency Treatments

Measure Name	Medicaid Coverage of Tobacco Dependency Treatments
Year Range	1990-2010
Measure	The number of states that provide coverage under Medicaid for any evidence-based tobacco dependence treatment (pharmacotherapy or counseling), either to their entire Medicaid population or to only pregnant women. The number of states that provide coverage under Medicaid for individual or group tobacco cessation counseling. The number of states that provide coverage under Medicaid for tobacco cessation medications.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2006-2010
Desired Direction	Rising

Summary Graph

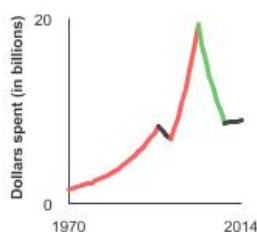


Trends and Most Recent Estimates	In 2010, all 51 Medicaid programs provided coverage for at least one tobacco-dependence treatment for at least some segment of their Medicaid eligible population.
Healthy People 2020 Target	There is no Healthy People 2020 target for Medicaid coverage of tobacco dependence treatments.
More Information	Medicaid Coverage of Tobacco Dependency Treatments

Measure Name: Tobacco Company Marketing Expenditures

Measure Name	Tobacco Company Marketing Expenditures
Year Range	1970-2014
Measure	Combined cigarette annual advertising and promotional expenditures by the five largest U.S. cigarette manufacturers, adjusted, as reported by manufacturers to the U.S. Federal Trade Commission. Combined smokeless tobacco annual advertising and promotional expenditures by the five parent companies of the major manufacturers of smokeless tobacco products in the U.S., adjusted, as reported by manufacturers to the U.S. Federal Trade Commission.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2010-2014
Desired Direction	Falling

Summary Graph








Trends and Most Recent Estimates	In 2014, adjusted combined annual expenditures for cigarette advertising and promotion was 8.5 billion.
Healthy People 2020 Target	There is no Healthy People 2020 target for tobacco company marketing expenditures.
More Information	Tobacco Company Marketing Expenditures

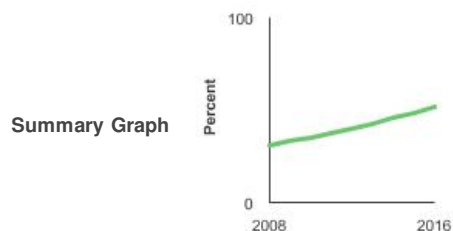
HPV Immunization - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name	HPV Immunization
Year Range	2008-2016
Measure	The percentage of adolescents who received 1+ dose, 2+ doses or 3+ doses of a HPV vaccine.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2012-2016
Desired Direction	Rising








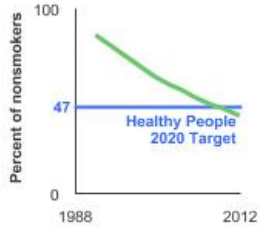
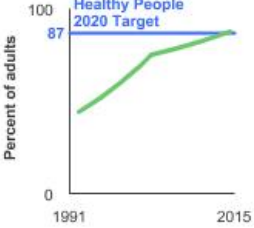
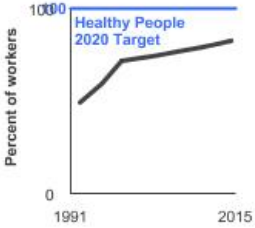
Trends and Most Recent Estimates	In 2016, 50.4% of females aged 13-15 years had received 2+ doses of the HPV vaccine.
Healthy People 2020 Target	There is currently no Healthy People 2020 target for 2+ doses of the HPV vaccination. For 3 doses of the vaccination, the goal is: Increase the vaccination coverage level of 3 doses of human papillomavirus (HPV) vaccine for females aged 13 to 15 years to 80.00%
More Information	HPV Immunization
Last Updated	February 2018

Secondhand Smoke - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:






	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name	Secondhand Smoke Exposure	Smoke-free Home Rules	Smoke-free Workplace Rules and Laws
Year Range	1988-2012	1992-2015	1992-2015
Measure	The percentage of nonsmokers exposed to secondhand smoke. (The percentage of nonsmokers aged 3 years and older with a serum cotinine level greater than 0.05 ng/mL and less than or equal to 10 ng/mL.)	The percentage of respondents reporting a smoke-free home.	The percentage of indoor workers reporting a smoke-free work environment. The percentage of the population protected by local and state smoke-free indoor air laws covering workplaces, restaurants, and bars. This measure draws on data collected and analyzed by the Americans for Nonsmokers' Rights Foundation. Use of this information allows the National Cancer Institute (NCI) to include both local and state laws in its assessments.
Recent Summary Trend	Falling	Rising	Non-Significant Change
Recent Summary Trend Year Range	2007-2012	2010-2015	2010-2015
Desired Direction	Falling	Rising	Rising
Summary Graph			
Trends and Most Recent Estimates	From 2011 to 2012, the estimate of children aged 3 to 11 years currently exposed to SHS is 40.6% (children ages 12-17 - 31.2%, nonsmokers ages 18 and older - 23.0%).	In 2014 to 2015, of adults aged 18 years and older reported a smoke-free home environment.	In 2014 to 2015, of adults aged 18 years and older reported a smoke-free work environment.
Healthy People 2020 Target	Reduce the proportion of children aged 3-11 years who are regularly exposed to tobacco smoke 47.0%. Reduce exposure for children aged 12-17 years to 41.0%. Reduce exposure for nonsmokers aged 18 years and older to 33.8%.	Increase the proportion of smoke-free homes to 87.0%.	Increase the proportion of persons covered by indoor worksite policies that prohibit smoking to 100%.
More Information	Secondhand Smoke Exposure	Smoke-free Home Rules	Smoke-free Workplace Rules and Laws
Last Updated	January 2017	February 2018	February 2018

Chemical Exposures - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

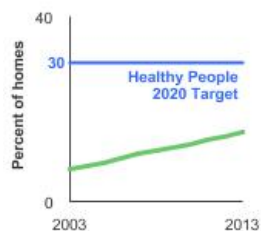
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Radon

Measure Name	Radon
Year Range	2003-2013
Measure	The proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure. This measure is expressed as a percentage. It is calculated for each year by dividing the cumulative number of single family dwellings (SFD) with an operating mitigation system by the number of SFDs estimated to have a radon level $\geq 4\text{pCi/L}$, which is EPA's action level.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2009-2013
Desired Direction	Rising

Summary Graph

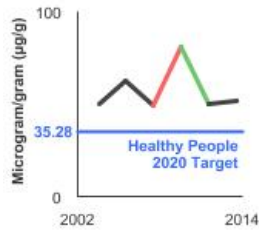


Trends and Most Recent Estimates	In 2013, 15.0% homes at risk for radon exposure had an operating radon mitigation system.
Healthy People 2020 Target	Increase the percent of at-risk homes with an operating radon mitigation system to 30.0%.
More Information	Radon

Measure Name: Arsenic

Measure Name	Arsenic
Year Range	2003-2014
Measure	We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [Citation]
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2009-2014
Desired Direction	Falling

Summary Graph



Trends and

Most Recent Estimates In 2013 to 2014, the 95th percentile for urinary (creatinine corrected) concentration of arsenic among persons aged 6 years and older was 52.0 µg/g of creatinine.

Healthy People 2020 Target Reduce exposure to arsenic in the population, as measured by blood and urine concentrations of the substance or its metabolites, to 35.28 µg/g of creatinine.

More Information [Arsenic](#)

Measure Name: Cadmium

Measure Name Cadmium

Year Range 1999-2014

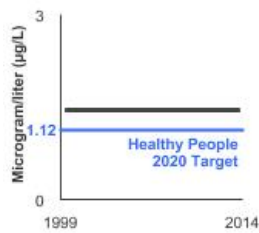
Measure We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

Recent Summary Trend Stable

Recent Summary Trend Year Range 2009-2014

Desired Direction Falling

Summary Graph



Trends and

Most Recent Estimates In 2013 to 2014, the 95th percentile for blood concentration of cadmium among persons aged 1 year and older was 1.2 µg/L.

Healthy People 2020 Target Reduce exposure to cadmium in the population, as measured by blood and urine concentrations of the substance or its metabolites, to 1.12 µg/L.

More Information [Cadmium](#)

Measure Name: Nitrate

Measure Name Nitrate

Year Range 2001-2014

Measure We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

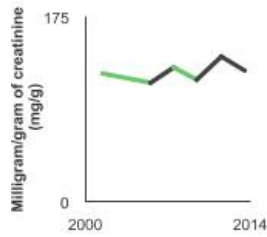
Recent Summary Non-Significant Change

Trend

Recent Summary
Trend Year Range 2009-2014

Desired Direction Falling

Summary Graph



Trends and

Most Recent Estimates In 2013.5, the 95th percentile for urinary (creatinine corrected) concentration of nitrate among persons aged 6 years and older was 123.3 mg/g of creatinine.

Healthy People 2020 Target There is no Healthy People 2020 target for nitrate exposure.

More Information [Nitrate](#)

Measure Name: Benzene

Measure Name Benzene

Year Range 2001-2006

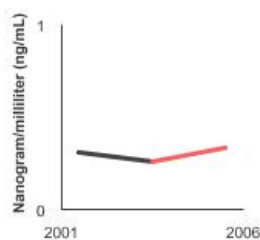
Measure We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [\[Citation\]](#)

Recent Summary Trend Non-Significant Change

Recent Summary Trend Year Range 2001-2006

Desired Direction Falling

Summary Graph



Trends and

Most Recent Estimates In 2005 to 2006, the the 95th percentile for blood (lipid-adjusted) concentration of benzene among persons aged 20 years and older was 0.3 ng/mL.






Healthy People 2020 Target There is no Healthy People 2020 target for benzene exposure.

More Information [Benzene](#)

Breast, Cervical, and Colorectal Cancers - Early Detection Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

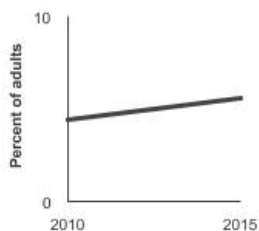
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Lung Cancer Screening

Measure Name	Lung Cancer Screening
Year Range	2010-2015
Measure	The percentage of men and women who reported having a chest CT to check for lung cancer in the 12 months prior to interview. Percentages are shown by race/ethnicity, income, and education level, and are restricted to respondents aged 55 to 80 years old who smoked at least 30 pack-years, and if former smokers, who quit within the past 15 years.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2010-2015
Desired Direction	Rising

Summary Graph



Trends and Most Recent Estimates In 2015, 5.5% of adults aged 55-80 years who are at risk for lung cancer due to smoking had a CT scan to check for lung cancer within the past year.

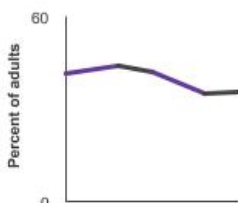
Healthy People 2020 Target There is no Healthy People 2020 target for lung cancer screening.

More Information [Lung Cancer Screening](#)

Measure Name: Prostate Cancer Screening

Measure Name	Prostate Cancer Screening
Year Range	2005-2015
Measure	The percentage of men aged 50 and older who reported having had a prostate-specific antigen (PSA) test within the past year, by race/ethnicity, income, and education level.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2010-2015
Desired Direction	Rising

Summary Graph



Trends and Most Recent Estimates In 2015, 35.7% of men aged 50 years and older had a PSA test within the past year.

Healthy People 2020 Target There is no Healthy People 2020 target for receiving prostate cancer screening.

More Information [Prostate Cancer Screening](#)

Measure Name: Cervical Cancer Screening

Measure Name Cervical Cancer Screening

Year Range 1987-2015

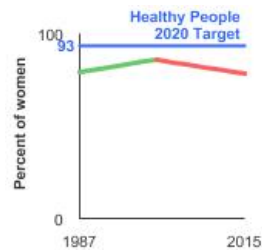
Measure The percentage of women aged 21 to 65 years who reported they had a Pap test within the past 3 years, by race/ethnicity, income, and education level, .

Recent Summary Trend Falling

Recent Summary Trend Year Range 2010-2015

Desired Direction Rising

Summary Graph



Trends and Most Recent Estimates In 2015, 78.7% of women aged 21-65 had a pap smear test within the past 3 years

Healthy People 2020 Target Increase the proportion of women who receive a cervical cancer screening based on the most recent guidelines to 93.0%

More Information [Cervical Cancer Screening](#)

Measure Name: Breast Cancer Screening

Measure Name Breast Cancer Screening

Year Range 1987-2015

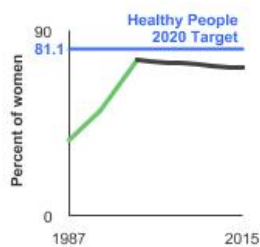
Measure The percentage of women aged 50 to 74 years who reported having had a mammogram within the past 2 years, by race/ethnicity, income, and education level, .

Recent Summary Trend Stable

Recent Summary Trend Year Range 2010-2015

Desired Direction Rising

Summary Graph



Trends and Most Recent Estimates In 2015, 71.6% of women aged 50-74 years had a mammogram within the past 2 years.

Healthy People 2020 Target Increase the proportion of women who receive a breast cancer screening based on the most recent guidelines to 81.1%

More Information [Breast Cancer Screening](#)

Measure Name: Colorectal Cancer Screening

Measure Name Colorectal Cancer Screening

Year Range 2000-2015

Measure

- **FOBT:** The percentage of adults aged 50 to 75 years who reported that they had a fecal occult blood test (FOBT) within the past year, by sex, racial/ethnic group, poverty/income, and education. For the 2000 National Health Interview Survey (NHIS), respondents were asked about both home- and office-based FOBTs; starting in 2003, respondents were asked only about home-based FOBTs. For the National Cancer Institute | Cancer Trends Progress Report | <http://progressreport.cancer.gov> | 12 February 2018

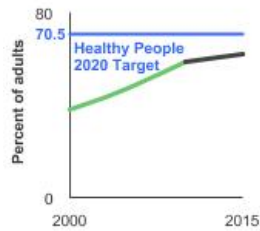
2015 NHIS respondents were asked about both FOBT and FIT.

Recent Summary Trend Non-Significant Change

Recent Summary Trend Year Range 2010-2015

Desired Direction Rising

Summary Graph



Trends and

Most Recent Estimates In 2015, 62.9% of adults aged 50-75 had received a home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years.






Healthy People 2020 Target Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines to 70.5%

More Information [Colorectal Cancer Screening](#)

Incidence and Stage at Diagnosis - Diagnosis Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

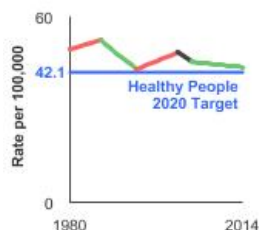
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Stage at Diagnosis

Measure Name	Stage at Diagnosis
Year Range	1980-2014
Measure	Late-stage diagnosis rate: The number of new cancer cases diagnosed at a distant stage, per 100,000 people per year for cancers of the prostate, colon, rectum, and cervix uteri. Late stage is defined as regional and distant stage diagnoses, per 100,000 women per year for cancer of the female breast. Late stage is defined as AJCC 6th edition Stage III and Stage IV diagnoses, per 100,000 people per year for cancers of the lung and bronchus.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2010-2014
Desired Direction	Falling

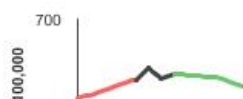
Summary Graph



Trends and Most Recent Estimates	In 2014, the rate of new regional and distant stage breast cancer cases was 43.4 per 100,000 females.
Healthy People 2020 Target	Reduce new regional and distant stage female breast cancer cases to 42.1 per 100,000 females.
More Information	Stage at Diagnosis

Measure Name: Incidence

Measure Name	Incidence
Year Range	1975-2014
Measure	Incidence rate: the observed number of new cancer cases per 100,000 people per year, adjusted for cancer case reporting delays and based on data from approximately 10 percent of the U.S. population. Delay adjustment: a method of estimating delayed reporting of incident cases and then adjusting rates to account for this delay.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2010-2014
Desired Direction	Falling



Summary Graph



Trends and Most Recent Estimates

In 2014, the rate of new cases of all cancers combined was 446.9 per 100,000 people per year.

Healthy People 2020 Target

There is no Healthy People 2020 target for cancer incidence.






More Information

[Incidence](#)

Treatment Summary Tables

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:






1. **Is the trend moving in the desired direction?**
2. **How does the nation's progress compare to the Healthy People 2020 target?**

- [Bladder, Breast, Colorectal](#)
- [Kidney, Lung, Ovarian, Prostate](#)

Bladder, Breast, and Colorectal Cancer- Treatment Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

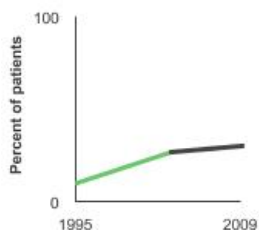
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Bladder Cancer Treatment

Measure Name	Bladder Cancer Treatment
Year Range	1995-2009
Measure	Percentage of individuals receiving intravesical therapy in non-muscle invasive bladder cancer.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2003-2009
Desired Direction	Rising

Summary Graph

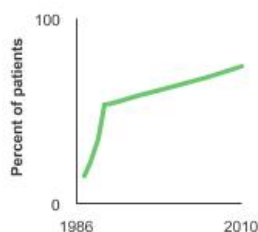


Trends and Most Recent Estimates	In 2009, 29.7% of patients with non-muscle invasive disease received intravesical therapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including bladder cancer treatment.
More Information	Bladder Cancer Treatment

Measure Name: Colorectal Cancer Treatment

Measure Name	Colorectal Cancer Treatment
Year Range	1987-2010
Measure	Percent of individuals, aged 20 years and older, diagnosed with stage III colon cancer who received chemotherapy or diagnosed with stage II or stage III rectal cancer who received chemotherapy with or without radiotherapy.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2005-2010
Desired Direction	Rising

Summary Graph



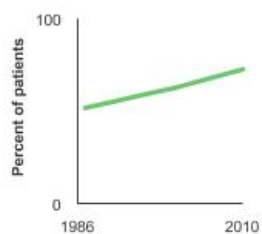
Trends and Most Recent Estimates	In 2010, 68.9% of stage III colon and stage II and III rectal patients received adjuvant chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including colorectal cancer treatment.
More Information	Colorectal Cancer Treatment

Measure Name: Breast Cancer Treatment

Measure Name	Breast Cancer Treatment
Year Range	1987-2010

Measure	Percentage of women aged 20 and older, diagnosed with early stage breast cancer (less than stage IIIA), receiving breast-conserving surgery and radiation treatment. Percentage of women aged 20 and older, diagnosed with node-positive, stage I–IIIA breast cancer, receiving multi-agent chemotherapy.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2010-2
Desired Direction	Rising

Summary Graph








Trends and Most Recent Estimates	In 2010, 65.2% of women diagnosed with node positive breast cancer, received multi-agent chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including breast cancer treatment.
More Information	Breast Cancer Treatment

Kidney, Lung, Ovarian, and Prostate Cancer - Treatment Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

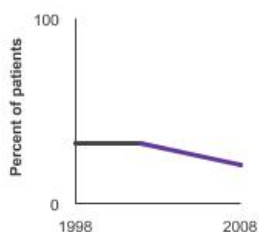
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Prostate Cancer Treatment

Measure Name	Prostate Cancer Treatment
Year Range	1998-2008
Measure	Hormonal therapy following the diagnosis of prostate cancer.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2002-2008
Desired Direction	Rising

Summary Graph

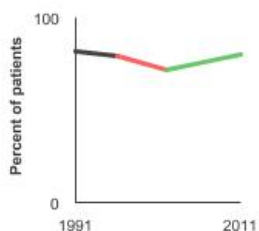


Trends and Most Recent Estimates	In 2008, 21.1% of localized/regional prostate cancer patients aged 40 years and older were given hormonal therapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including prostate cancer treatment.
More Information	Prostate Cancer Treatment

Measure Name: Ovarian Cancer Treatment

Measure Name	Ovarian Cancer Treatment
Year Range	1991-2011
Measure	Percentage of individuals diagnosed with ovarian cancer who received chemotherapy by stage of diagnosis.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2002-2011
Desired Direction	Rising

Summary Graph



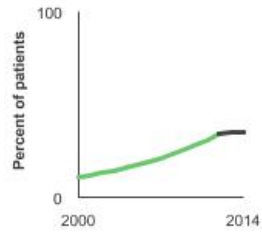
Trends and Most Recent Estimates	In 2011, 79.9% of stage III or IV ovarian cancer patients received chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including ovarian cancer treatment.
More Information	Ovarian Cancer Treatment

Measure Name: Kidney Cancer Treatment

Measure Name	Kidney Cancer Treatment
Year Range	2000-2014
Measure	Partial nephrectomy or complete nephrectomy in patients with localized/regional kidney cancer.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2010-2014

Desired Direction Rising

Summary Graph



Trends and Most Recent Estimates In 2014, 35.1% of patients diagnosed with localized/regional kidney cancer received a partial nephrectomy.

Healthy People 2020 Target There are no Healthy People 2020 targets for cancer treatment, including kidney cancer treatment.

More Information [Kidney Cancer Treatment](#)

Measure Name: Lung Cancer Treatment

Measure Name Lung Cancer Treatment

Year Range 1996-2010

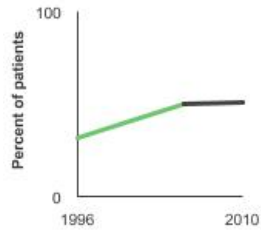
Measure Chemotherapy following the diagnosis of non-small cell lung cancer stages IIIB or IV.

Recent Summary Trend Stable

Recent Summary Trend Year Range 2005-2010

Desired Direction Rising

Summary Graph



Trends and Most Recent Estimates In 2010, 51.1% of stage IIIB or IV non-small cell lung cancer patients aged 20 years and older received chemotherapy.






Healthy People 2020 Target There are no Healthy People 2020 targets for cancer treatment, including lung cancer treatment.

More Information [Lung Cancer Treatment](#)

Life After Cancer Summary Tables

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:






1. **Is the trend moving in the desired direction?**
2. **How does the nation's progress compare to the Healthy People 2020 target?**

- [Financial Burden of Cancer Care](#)
- [Survival, Smoking, Obesity, and Physical Activity](#)

Financial Burden of Cancer Care - Life After Cancer Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:






	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name	Financial Burden of Cancer Care
Year Range	2015
Measure	Estimates of national expenditures for cancer care.
Recent Summary Trend	n/a
Recent Summary Trend Year Range	No trend data are available for the financial burden of cancer care.
Desired Direction	Falling
Summary Graph	No trend data are available for financial burden of cancer care
Trends and Most Recent Estimates	In 2015, national cancer care expenditures were an estimated \$147.5 billion.
Healthy People 2020 Target	There is no Healthy People 2020 target for the financial burden of cancer care.
More Information	Financial Burden of Cancer Care
Last Updated	February 2018

Survival, Smoking, Physical Activity, and Obesity - Life After Cancer Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

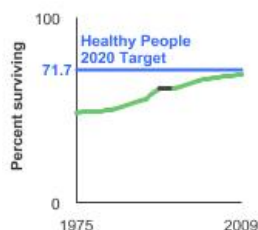
Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

Measure Name: Survival

Measure Name	Survival
Year Range	1975-2009
Measure	<p>Five-year relative cancer survival: The proportion of patients surviving cancer 5 years after diagnosis calculated in the absence of other causes of death. This percentage is the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors.</p> <p>Five-year cause specific survival: The proportion of patients surviving a specified cause of cancer death 5 years after diagnosis. Deaths from other causes are not considered cause-specific deaths.</p>
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2005-2009
Desired Direction	Rising

Summary Graph

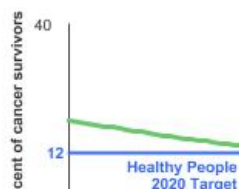


Trends and Most Recent Estimates	For cancers diagnosed in 2009, the 5-year relative survival rate was 69.3%.
Healthy People 2020 Target	Increase to 71.7% the proportion of cancer survivors who are living five years or longer after diagnosis.
More Information	Survival

Measure Name: Cancer Survivors and Smoking

Measure Name	Cancer Survivors and Smoking
Year Range	1992-2016
Measure	Rates of smoking among cancer survivors are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked whether they were a current smoker.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2012-2016
Desired Direction	Falling

Summary Graph





Trends and Most Recent Estimates

In 2016, 13.0% of cancer survivors aged 18 and older were current cigarette smokers.

Healthy People 2020 Target

Reduce to 12.0% the proportion of adult current cigarette smokers.

More Information [Cancer Survivors and Smoking](#)

Measure Name: Cancer Survivors and Physical Activity

Measure Name **Cancer Survivors and Physical Activity**

Year Range 1997-2016

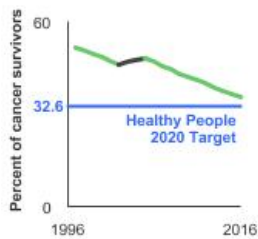
Measure The percentage of cancer survivors reporting no physical activity are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked how often they perform light, moderate, or vigorous activity for at least 10 minutes.

Recent Summary Trend Falling

Recent Summary Trend Year Range 2012-2016

Desired Direction Falling

Summary Graph



Trends and Most Recent Estimates

In 2016, 34.8% of cancer survivors 18 and older reported no physical activity in their leisure time.

Healthy People 2020 Target

Reduce to 32.6% the proportion of adults who engage in no leisure-time physical activity.

More Information [Cancer Survivors and Physical Activity](#)

Measure Name: Cancer Survivors and Obesity

Measure Name **Cancer Survivors and Obesity**

Year Range 1992-2016

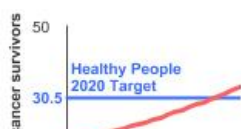
Measure Rates of obesity among cancer survivors are based on the self-reporting of individuals with a cancer history, who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI of 30 and over to be obese.

Recent Summary Trend Rising

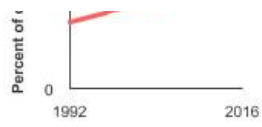
Recent Summary Trend Year Range 2012-2016

Desired Direction Falling

Summary



Graph



Trends and

Most Recent Estimates From 2016, 31.1% percent of cancer survivors aged 20 years and older were obese.

Healthy

People Decrease to 30.5% percent the proportion of obese adults.






2020 Target

More Information [Cancer Survivors and Obesity](#)

Mortality and Person-Years of Life Lost - End of Life Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

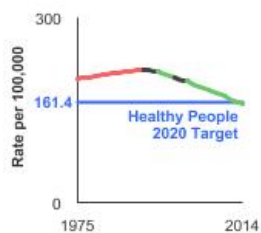
Measure Name: Person-Years of Life Lost

Measure Name	Person-Years of Life Lost
Year Range	2012
Measure	The difference between the actual age stemming from the disease/cause and the expected age of death.
Recent Summary Trend	n/a
Recent Summary Trend Year Range	No trend data are available for person-years of life lost.
Desired Direction	Falling
Summary Graph	No trend data are available for person-years of life lost
Trends and Most Recent Estimates	In 2012, cancer deaths were responsible for 9.2 million person-years of life lost and on average 15.7 years of life lost per person who died of cancer.
Healthy People 2020 Target	There is no Healthy People 2020 target for person-years of life lost.
More Information	Person-Years of Life Lost

Measure Name: Mortality

Measure Name	Mortality
Year Range	1975-2014
Measure	The number of cancer deaths per 100,000 people per year, age-adjusted to a U.S. 2000 standard population.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2010-2014
Desired Direction	Falling

Summary Graph



Trends and Most Recent Estimates	In 2014, the death rate for all cancers combined was 161.4 per 100,000 people per year.
Healthy People 2020 Target	Reduce the overall cancer death rate to 161.4 cancer deaths per 100,000 people per year.
More Information	Mortality