# Cancer Trends Progress Report

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**Suggested Citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, July 2021, http://progressreport.cancer.gov.

Online Summary of Trends in US Cancer Control Measures

New! Now updated with Healthy People 2030 Goals.

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 Division Director's Message to learn more about the report.

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Incidence, Stage at Diagnosis

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Trends in Cancer Treatment

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Financial Burden of Cancer Care, Cancer Survivorship

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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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Online Summary of Trends in US Cancer Control Measures

## About the Report

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



### Printable Version of Report

The content of this site is available in PDF format for printing. Please use the Custom Report (PDF) tool to choose and download the pages of interest.

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National Cancer Institute, NIH, DHHS, Bethesda, MD, July 2021, https://progressreport.cancer.gov.

Online Summary of Trends in US Cancer Control Measures

## 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 many types of cancer, including the four most common (lung, colorectal, 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 mortality from cancer reflects public health prevention and screening initiatives and improvements in the diagnosis and treatment of cancer.

Still, cancer remains a major public health problem that profoundly affects more than 1.7 million people diagnosed each year, as well as their families and friends.

- Cancer is 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 leukemia, myeloma (cancer of plasma cells), melanoma of the skin, thyroid, liver, oral cavity and pharynx, pancreas, uterus, kidney, and female breast, 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* is designed to help the nation review past efforts and plan future ones. The report can help the public better understand the nature of cancer, as well as the results of current 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 intakes, alcohol consumption, exposure to the sun and chemicals in the environment, HPV vaccination, tobacco policy and regulatory factors, smoking cessation, and genetic testing.
- Early Detection. Screening tests help find cancers early, which greatly increases the chances of successful treatment. 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 of these areas.
- Treatment. This section describes common treatment options and measures the rates at which people are undergoing treatments for certain cancers. 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 five years after their diagnosis, costs of cancer care, and health behaviors among survivors.
- End of Life. This section includes the rate of deaths (mortality) due to cancer and the estimated number of years of life lost due to cancer.

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

Many of the measures shown in this report are identical to those presented in Healthy People 2030, a comprehensive set of 10-year health objectives for the nation sponsored by the U.S. Department of Health and Human Services. Using identical measures enables us to show the nation's progress against cancer in relation to cancer-related Healthy People 2030 targets.

### How Data Are 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. Behavioral choices can greatly reduce the risk of many cancers, making prevention a key focus of the report.

Data in the *Cancer Trends Progress Report* come from a variety of sources with different collection techniques and reporting times, so time periods for the data may vary by section. The starting point or baseline year against which to measure how well the nation is progressing toward the Healthy People 2030 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.

 Suggested citation:

Cancer Trends Progress Report

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# Cancer Trends Progress Report

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# Division 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 one of the means by which we fulfill this responsibility. An online summary of trends in US cancer control measures, this web-based report provides up-to-date information on a wide range of topics across the cancer control continuum—from disease prevention to cancer-related mortality or survivorship—and data to help us track the successful implementation of research-based methods of early detection and risk reduction.

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.

As the report details, the nation is making important progress toward major cancer-related targets but losing some ground in others. Mortality trends are the best indicators of progress against cancer. 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. Nevertheless, mortality rates are increasing for some cancers, and important differences among subpopulations reflect both chronic and, for some groups, substantial health disparities. Along with mortality rates and other standard measures of cancer control, this report includes new and updated measures that address current issues like e-cigarettes, changes in screening recommendations, and the cost of cancer care. As new data emerges, we will update relevant graphs with the latest information. We look forward to continuing to improve this report as we add more measures that we think will be useful to readers.

Researchers and cancer control professionals can use the *Cancer Trends Progress Report* to stimulate 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 catalyst for action. 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 the application of scientific evidence on behalf of each of them. This report reflects our overarching mission: the support of 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

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# About



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## Methodology for Characterizing Trends

The *Cancer Trends Progress Report* features joinpoint statistical methodology to present a consistent characterization of population trends for factors related to the prevention, early detection, or treatment of cancer. Joinpoint 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 useful for identifying 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; and
- the annual percent change (APC) for each segment (a linear trend on a log scale implies a constant APC).

In addition, we the report authors used a 95-percent confidence interval around the APC to determine if the APC for each segment differed significantly from zero. Whenever possible, we calculated weighted regression lines (utilizing standard errors) 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, we used an unweighted regression.

With the results of these analyses, we characterized 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 ($-0.5 \leq APC \leq 0.5$), and the APC was not statistically significant, we characterized it as **STABLE**
- Changing more than 0.5% per year ($APC < -0.5$ or $APC > 0.5$), and the APC was not statistically significant, we characterized it as **NON-SIGNIFICANT CHANGE**
- Changing with a statistically significant $APC > 0$, we characterized it as **RISING**
- Changing with a statistically significant $APC < 0$, we characterized it as **FALLING**

While these categorizations are somewhat arbitrary, they do provide a consistent method to characterize trends across disparate measures. Additionally, the statistical significance and 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, we did not use Joinpoint. Instead, we calculated an APC between each consecutive data point, and we calculated the statistical significance of the APC 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), which is characterized in the same way as the APC. The AAPC is 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/ethnic groups or sex) 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 were 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 2030 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 cancer continuum - from prevention through end of life - and compares that progress to Healthy People 2030 goals set forth by the Department of Health and Human Services.

## Why is the report important?

The *Cancer Trends Progress Report* is currently the only report of its kind to present the most up-to-date information on trends in the nation's progress against cancer all in one place. 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 gather the information in this report through a collaborative effort.

## What is the main message of the report?

The nation has met or is making progress toward many major cancer-related Healthy People 2030 targets. However, we are losing ground in other important areas that demand attention. For more information, visit the Highlights section of the report.

## What is in the report?

The *Cancer Trends Progress Report* includes key measures in the areas of prevention, screening, diagnosis, treatment, life after cancer, and end of life. Progress against cancer is tracked over time and determined by the availability of data. This progress is measured in relation to certain cancer-related Healthy People 2030 targets.

The body of the report includes standardized information for each measure, including background, definition of measure, Healthy People targets, data source, trends and most recent estimates, related cancers, and additional references for each topic area. This information is also summarized in chart form in the Summary Tables section of the report, where special color-coded graphics 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 Joinpoint regression analysis. This statistical method illustrates real changes in direction instead of merely connecting one dot to another. The report shows whether trends are rising or falling and 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 bulleted summary of recent trends is presented 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. The report is also available in PDF format and may be downloaded and printed using the 'Custom Report (PDF)' tool.

## Where does the data come from?

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

## How are the data selected?

Measures are 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 include the relevance of what is 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 the usability by target audiences (e.g., ease of understanding and applicability). The report includes more measures for prevention than other sections because there are more trends data 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 2030 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 the time of report publication. Although dramatic advances have been made in the treatment of many cancers (breast and colorectal cancers are two of the featured sites in the report), 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, are not included because there simply is no consensus on how best to track those measures in a population at this time. As data and information become available, future editions of the report will include new measures (e.g., population-level measures like the one in this edition describing state smoke-free air laws).

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

The *Cancer Trends Progress Report* only presents data at the national level. For cancer data at the state and county level or behavioral risk factor data at the state level, go to NCI's State Cancer Profiles website.

## Who can use the report?

The report can help the public better understand the nature of cancer, as well as the results of current strategies to fight cancer. 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 report is updated annually, where data are available. Page notes display the date of the most recent update.

### What is the rationale for the report?

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

### 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 'Custom Report (PDF)' tool. Archived reports from previous releases since 2001 are available on the Recent Updates and Archive page.

### 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 or comments about the report to Progress Report Help.

## Acknowledgments

*NCI wishes to acknowledge the following Federal agencies for their data contributions:*

- 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
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- U.S. Environmental Protection Agency

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# Data Sources

## Americans for Nonsmokers' Rights Foundation

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:** Smokefree workplace rules and laws.

## Berkeley Mortality Database

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

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

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.

## National Center for Health Statistics (NCHS) Life-Tables

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

**Measures:** Years of life lost.

## 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 exposure, Arsenic, Benzene, Cadmium, Nitrate.

## 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, Indoor tanning, Sunburn, Genetic testing, 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 Immunization Surveys

The National Immunization Surveys (NIS) are a group of phone surveys used to monitor vaccination coverage among children 19–35 months and teens 13–17 years, and flu vaccinations for children 6 months–17 years. The surveys are sponsored and conducted by the National Center for Immunization and Respiratory Diseases (NCIRD) of the Centers for Disease Control and Prevention (CDC) and authorized by the Public Health Service Act [Sections 306].

**Measures:** HPV Immunization.

## 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 Youth Tobacco Survey

The National Youth Tobacco Survey (NYTS) was designed to provide national data on long-term, intermediate, and short-term indicators key to the design, implementation, and evaluation of comprehensive tobacco prevention and control programs. The NYTS also serves as a baseline for comparing progress toward meeting selected Healthy People 2020 goals for reducing tobacco use among youth.

**Measures:** Youth tobacco use.

## National Vital Statistics System

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, Mortality.

## 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 34.6 percent of the US population and compiles 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.

## State Tobacco Activities Tracking and Evaluation (STATE) System

The State Tobacco Activities Tracking and Evaluation (STATE) System is an electronic data warehouse containing up-to-date and historical state-level data on tobacco use prevention and control. The STATE System is designed to integrate many data sources to provide comprehensive summary data and facilitate research and consistent interpretation of the data. The STATE System was developed by the Centers for Disease Control and Prevention in the Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion.

**Measures:** Medicaid coverage of tobacco dependence.

## Tobacco Use Supplement to the Current Population Survey

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, Smokefree home rules, Smokefree workplace rules and laws.

## 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.

**Measures:** Financial burden of cancer care.

## Radon Vent Fan Manufacturers' Sales Data

**Measures:** Radon.

## Youth Risk Behavior Surveillance System

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 tobacco use, Indoor Tanning, Sunburn.

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# Highlights

## Last Updated:

July 2021

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 2030, a comprehensive set of 10-year health objectives sponsored by the U.S. Department of Health and Human Services.**

### Prevention

- Cigarette smoking prevalence among adults has declined steadily since we began monitoring trends in 1965. In 2019, 14.2% of adults aged 18 and older reported current cigarette smoking.
- Cigarette smoking prevalence among adolescents has declined since at least 2011, with 3.3% of middle and high school students in 2020 having smoked cigarettes in the past 30 days.
- Initiation of the use of cigarettes among adolescents and young adults aged 12 to 25 years has been falling. As of 2019, it was 2.6%.
- Cigarette smoking cessation among adults has risen since 2003. In 2018, 8.3% of adults who smoked successfully quit 6-12 months previously, approaching the Healthy People 2030 target of 10.2%. Since 2011, there has been an uptick in successful smoking cessation among those aged 18 to 24 years. However, some subgroups have a low percentage of recent smoking cessation success among adult smokers, such as non-Hispanic blacks and people with less than a high school education.
- Indoor tanning has decreased significantly among female 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 (2019) of the percentage of female adolescents in grades 9 through 12 who used an indoor tanning device in the past year is 5.7% (4.5% for both sexes).
- Recent trends for inorganic arsenic exposure have been decreasing since 2009/2010. Inorganic arsenic compounds are more toxic than organic arsenic compounds, and inorganic arsenic has been linked to bladder, lung, skin, prostate, liver and intrahepatic bile duct, and some kidney cancers. Inorganic arsenic compounds are found in industry, in building products (in some "pressure-treated" woods), and in arsenic-contaminated water and soil. 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.
- The percentage of adolescents aged 13 to 17 years who are up-to-date on recommended HPV vaccinations (based on the guidelines set forth by the Centers for Disease Control and Prevention's [CDC] Advisory Committee on Immunization Practices [ACIP]) has been increasing, and in 2019 was 56.8% for females and 51.8% for males.

### Early Detection

- The percentage of adults aged 50 to 75 years who are up-to-date with colorectal cancer screening (based on the 2016 U.S. Preventive Services Task Force recommendations) has been increasing, and in 2019 it was 67.1%.

### Diagnosis

- Lung cancer incidence rates (new cases) have continued to fall since at least 1991 among males, and since 2006 among females.
- Recent trends show a decline in the incidence of thyroid, urinary bladder, ovarian, and larynx cancers at 2% or more a year, with smaller but still statistically significant decreases in stomach and brain cancers, and Hodgkin and non-Hodgkin lymphoma.
- Trends for distant-stage colon cancer have been decreasing since 2004.
- Colorectal cancer incidence rates have been decreasing since 1998, however the rate of decline slowed starting in 2011. Since then the trend has flattened somewhat. 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.

### Treatment

- The proportion of females with early-stage breast cancer treated with breast-conserving surgery (BCS) with radiation has been rising slowly since 2009.
- Between 1990 and 2015, there was a significant increase in receipt of guideline chemotherapy treatment among patients aged 65 years and older with stage III colon cancer and stages II and III rectal cancer, with 57% receiving guideline therapy in 2015.

### Life After Cancer

- The proportion of adult cancer survivors who are current smokers continues to decline, with the greatest improvement seen among survivors aged 18 to 44 years.
- The percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time has been declining steadily since 2005. Likewise, the percentage of survivors who meet current Federal guidelines for aerobic and muscle-strengthening physical activity continues to rise.

### End of Life

- The rate of death from cancer continues to decline among both males and females in all major racial and ethnic groups.
- Mortality for three of the most common types of cancer (colorectal, female breast, and lung) continues to fall.
- Recent trends show a decline of 2% or more a year in mortality for ovarian and larynx cancers, non-Hodgkin and Hodgkin lymphomas, melanoma of the skin, and leukemia, with smaller but still statistically significant decreases for myeloma, esophagus, cervix uteri, kidney and renal pelvis, and stomach cancers.

## Areas of Concern

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

## Prevention

- Although the percentage of smokers making a quit attempt in the past year has been rising since 2005 and was 54.1% in 2018, it is still well below the Healthy People 2030 target of 65.7%.
- Progress has been made in reducing exposure to secondhand smoke among all populations, but non-Hispanic blacks still have higher rates of exposure than other racial/ethnic groups; those living at less than 200% of the federal poverty level still have higher rates of exposure than those living at 200% or greater than the federal poverty level; and those aged 25 years and older with a high school education or less still have higher rates than those with more education.
- Since 2014, e-cigarettes have been the most commonly used tobacco product by youth. In 2020, 19.6% of high school students and 4.7% of middle school students reported current use of e-cigarettes.
- Tobacco advertising and promotion are causally related to increased tobacco initiation and use. The U.S. Federal Trade Commission reports cigarette and smokeless tobacco advertising and promotion expenditures for the largest cigarette companies and major smokeless tobacco product manufacturers. In 2018, the combined annual expenditure for advertising and promotion (adjusted to 2018 dollars) was $8.4 billion for cigarettes and $658.5 million for smokeless tobacco products —amounting to about $24.8 million every day.
- Although more than 70.8% of adults reported practicing sun-protective behaviors in 2015, more than 35.3% reported having had one or more sunburns in the past 12 months. An even higher rate of sunburn (57.2% in 2017) was reported among teens. Sunburn is a primary modifiable risk factor for melanoma skin cancer, and the rate has changed very little from 2000-2015 for adults and between 2015-2017 among teens. While non-Hispanic whites were more likely to experience sunburn than other racial/ethnic groups, sunburn occurs more often among those aged 18 to 24 years (46.0% in 2015) than among those aged 25 years and older (33.7%). Within groups the rate has remained relatively steady.
- Sun sensitivity occurs in all racial/ethnic groups. Sun-sensitive adults, who are at greatest risk for melanoma, continue to report slightly higher tanning bed use and higher sunburn incidence than those without sun sensitivity (51.7% for sun-sensitive individuals versus 17.7% among those who are not sun- sensitive in 2017).
- Although sunbathing and tanning are strongly associated with sunburn, recent data indicate that most sunburns occur in contexts unrelated to intentional tanning. Results suggest the need to promote multiple forms of sun protection tailored to specific contexts, especially when engaged in physical activity and when spending time near the water.
- Per capital alcohol consumption, which can increase the risk of some cancers, has risen slightly since the mid-1990s.
- Excess weight or obesity, physical inactivity, and poor nutrition are preventable conditions that are associated with elevated cancer risk. Obesity prevalence continues to increase, with 42.4% of adults estimated to be obese and an additional 31.2% overweight. Despite modest increases over time, only 25.4% of adults report meeting federal guidelines for aerobic and muscle-strengthening physical activity. Rates among low-income and low-education groups of any race were well below the Healthy People 2030 target of 28.4%. Overall diet quality has not improved for years; Americans are not meeting recommendations for intake of fruits and vegetables, which have been linked to prevention of several cancer types.

## Early Detection

- The Cancer Trends Progress Report includes rates of triennial Pap testing since 1987. To accommodate the addition of HPV testing as a recommended approach to cervical cancer screening, the current report tracks the percentage of females who were up-to-date with current cervical cancer screening recommendations. In 2019, 73.5% of females aged 21 to 65 years were up-to-date with respect to their cervical screening recommendations, which is below the Healthy People 2030 target of 84.3%.
- Since 2010, uptake of lung cancer screening with chest computed tomography (CT) has been fairly stable —but limited. The U.S. Preventive Services Task Force (USPSTF) first recommended low-dose radiation CT screening for lung cancer in 2013 for adults aged 55 to 80 years who had a 30 pack-year smoking history or more and who currently smoked or had quit within the past 15 years. In 2015, 4.5% of individuals who met the 2013 USPSTF criteria had a CT scan to check for lung cancer within the past year. In March 2021, the USPSTF published revised guidelines and now recommends annual low-dose radiation CT (LDCT) screening for lung cancer in adults aged 50 to 80 years who have a 20 pack-year smoking history or more and who currently smoke or have quit within the past 15 years.

## Diagnosis

- The incidence of several cancers, including leukemia, melanoma of the skin, oral cavity and pharynx, testis, pancreas, and esophageal adenocarcinoma cancers, has been increasing annually.
- Although age-specific trends in incidence and mortality are not generally covered in this report, it should be noted that incidence trends of colorectal cancer for those aged under 50 years have been rising and are of enough concern that some guideline setting organizations either have, or are considering, lowering the age to initiate screening.

## Treatment

- The proportion of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer receiving any chemotherapy has not been rising since 2005.

## Life After Diagnosis

- Even for patients with health insurance, out-of-pocket costs for cancer care often pose a significant financial burden. Estimates of national expenditures for cancer care in 2020 for the top five most costly cancer sites were $29.8, $24.3, $23.8, $22.3, and $18.6 billion for female breast, colorectal, lung, and prostate cancers and non-Hodgkin lymphoma, respectively. As the U.S. 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.
- The proportion of adult cancer survivors who are obese has been rising and is now 33%. 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.

## End of Life

- Recent trends in the death rates for several cancers, including thyroid, liver and intrahepatic bile duct, brain and other nervous system, oral

cavity and pharynx, and corpus uteri (endometrial) 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 either progress or an area of concern.**

### Early Detection

- Prostate cancer: After a long decline, the incidence rates for prostate cancer started rising in 2014, and death rates flattened out starting in 2013. Prostate cancer incidence rates are very sensitive to changes in PSA screening rates and subsequent referral for biopsy. In 2012 the U.S. Preventive Services Task Force (USPSTF) recommended against prostate cancer screening. In 2018, the task force changed its recommendations. Prostate cancer testing rates in the past year fell rather dramatically from 2010 to 2013 (from 46.1% to 38.2%), probably as a result of the 2012 USPSTF guidelines, but have been fairly stable since then. Mortality rates are a function of many factors, including changes in screening rates and advances in treatment. While PSA screening may reduce mortality for some patients, it must be balanced against a significant number of patients who are diagnosed with disease that is relatively indolent and may not have progressed prior to the person eventually dying of other unrelated causes.

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# Trends at a Glance

### Last Updated:

July 2021

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 2030 target (where one exists), see the Summary Tables by topic.

Legend:

green - headed in the right direction

red - headed in the wrong direction

purple - indeterminate

Cancer Trends Progress Report - Trends at a Glance

| Measure | Desired Direction | Recent Trend | Recent Trend Time Period |
|---|---|---|---|
| **Prevention** | | | |

[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).

| Measure | Desired Direction | Recent Trend | Recent Trend Time Period |
|---|---|---|---|
| **Tobacco Use Initiation (Ages 12-17)** | | | |
| **All Tobacco Products** | Falling | Falling | 2015-2019 |
| **Cigarettes** | Falling | Falling | 2015-2019 |
| **Smokeless Tobacco** | Falling | Falling | 2015-2019 |
| **Cigars** | Falling | Falling | 2015-2019 |
| **Youth Tobacco Use** | | | |
| **All Tobacco** | Falling | Non-Significant Change | 2016-2020 |
| **Cigarettes** | Falling | Falling | 2016-2020 |
| **E-Cigarettes** | Falling | Rising | 2016-2020 |
| **Smokeless Tobacco** | Falling | Falling | 2016-2020 |
| **Cigars** | Falling | Falling | 2016-2020 |
| **Adult Tobacco Use** | | | |
| **Cigarettes** | Falling | Falling | 2015-2019 |
| **Smokeless Tobacco** | Falling | Non-Significant Change | 2015-2018 |
| **Cigars** | Falling | Stable | 2015-2019 |
| **E-Cigarettes** | Falling | Rising | 2015-2019 |
| **Quitting Smoking** | | | |
| **Attempted to quit smoking** | Rising | Rising | 2014-2018 |
| **Successfully quit smoking** | Rising | Rising | 2014-2018 |
| **Clinicians' Advice to Quit Smoking** | Rising | Rising | 2014-2019 |
| **Fruit and Vegetable Consumption** | | | |
| **Fruit and Vegetables Combined** | Rising | Non-Significant Change | 2013-2018 |
| **Fruit** | Rising | Falling | 2013-2018 |
| **Vegetables** | Rising | Stable | 2013-2018 |
| **Red Meat and Processed Meat Consumption** | Falling | Rising | 2013-2018 |
| **Fat Consumption (Saturated fat)** | Falling | Non-Significant Change | 2013-2018 |
| **Alcohol Consumption** | Falling | Rising | 2014-2018 |
| **Physical Activity** | | | |
| **No physical activity in leisure time** | Falling | Falling | 2014-2018 |
| **Meet physical activity guidelines** | Rising | Rising | 2014-2018 |
| **Weight** | | | |

[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).

| Measure | Desired Direction | Recent Trend | Recent Trend Time Period |
|---|---|---|---|
| **Healthy Weight** | Rising | Falling | 2013-2018 |
| **Overweight** | Falling | Falling | 2013-2018 |
| **Obese** | Falling | Rising | 2013-2018 |
| **Sun-Protective Behavior** | | | |
| **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 |
| **Indoor Tanning** | | | |
| **Adolescents** | Falling | Falling | 2015-2019 |
| **Adults** | Falling | Falling | 2010-2015 |
| **Sunburn** | | | |
| **Adolescents** | Falling | Non-Significant Change | 2015-2017 |
| **Adults** | Falling | Falling | 2010-2015 |
| **HPV Vaccination** (Up-to-date on HPV vaccination) | | | |
| **Females, Ages 13-15** | Rising | Rising | 2015-2019 |
| **Males, Ages 13-15** | Rising | Rising | 2015-2019 |
| **Genetic Testing** (Received Genetic Counseling) | Rising | Non-Significant Change | 2010-2015 |
| **Tobacco Company Marketing Expenditures** | | | |
| **Cigarettes** | Falling | Falling | 2014-2018 |
| **Smokeless tobacco** | Falling | Non-Significant Change | 2014-2018 |
| **Medicaid Coverage of Tobacco Dependency Treatments** | Rising | Rising | 2006-2010 |
| **Secondhand Smoke Exposure** | Falling | Falling | 2013-2018 |
| **Smokefree Home Rules** | Rising | Rising | 2014-2019 |
| **Smokefree Workplace Rules and Laws** | | | |
| **Smokefree workplace** | Rising | Non-Significant Change | 2014-2019 |
| **Indoor air laws for workplaces** | Rising | Rising | 2015-2019 |
| **Indoor air laws for restaurants** | Rising | Non-Significant Change | 2015-2019 |
| **Indoor air laws for bars** | Rising | Non-Significant Change | 2015-2019 |

[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).

| Measure | Desired Direction | Recent Trend | Recent Trend Time Period |
|---|---|---|---|
| **Arsenic Exposure** | Falling | Non-Significant Change | 2011-2016 |
| **Benzene Exposure** | Falling | Non-Significant Change | 2013-2018 |
| **Cadmium Exposure** | Falling | Falling | 2013-2018 |
| **Nitrate Exposure** | Falling | Non-Significant Change | 2009-2014 |
| **Radon** | Rising | Rising | 2009-2013 |
| **Early Detection** | | | |
| **Breast Cancer Screening** | Rising | Stable | 2015-2019 |
| **Cervical Cancer Screening** | Rising | Falling | 2015-2019 |
| **Colorectal Cancer Screening** | | | |
| **Guideline screening** | Rising | Rising | 2015-2019 |
| **Home FOBT** | Indeterminate[1] | Non-Significant Change | 2015-2019 |
| **Sigmoidoscopy/colonoscopy** | Rising | Rising | 2015-2019 |
| **Lung Cancer Screening** | Rising | Non-Significant Change | 2010-2015 |
| **Prostate Cancer Screening** | Indeterminate[1] | Stable | 2013-2018 |
| **Diagnosis** | | | |
| **Incidence** | | | |
| **All cancer sites combined** | Falling | Stable | 2014-2018 |
| **Colon and rectum** | Falling | Falling | 2014-2018 |
| **Lung and bronchus** | Falling | Falling | 2014-2018 |
| **Female breast** | Indeterminate[1] | Rising | 2014-2018 |
| **Prostate** | Falling | Rising | 2014-2018 |
| **Cervix uteri** | Falling | Rising | 2014-2018 |
| **Stage at Diagnosis** | | | |
| **Late stage breast cancer** | Falling | Falling | 2013-2017 |
| **Distant stage colon cancer** | Falling | Falling | 2013-2017 |
| **Distant stage rectum cancer** | Falling | Rising | 2013-2017 |
| **Distant stage cervix cancer** | Falling | Stable | 2013-2017 |
| **Distant stage lung cancer** | Falling | Falling | 2013-2017 |
| **Distant stage prostate cancer** | Falling | Rising | 2013-2017 |
| **Treatment** | | | |

[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).

| Measure | Desired Direction | Recent Trend | Recent Trend Time Period |
|---|---|---|---|
| **Bladder Cancer Treatment (Intravesical therapy for disease Ta G1-2)** | Rising | Non-Significant Change | 2003-2009 |
| **Breast Cancer Treatment (Breast conserving surgery with radiation)** | Indeterminate[1] | Stable | 2013-2017 |
| **Colorectal Cancer Treatment (Guideline therapy)** | Rising | Rising | 2010-2015 |
| **Kidney Cancer Treatment (Partial nephrectomy)** | Rising | Non-Significant Change | 2013-2017 |
| **Lung Cancer Treatment (Chemotherapy)** | Rising | Stable | 2010-2015 |
| **Ovarian Cancer Treatment (Chemotherapy)** | | | |
| **Stage I/II Diagnoses** | Rising | Rising | 2002-2011 |
| **Stage III/IV Diagnoses** | Rising | Rising | 2002-2011 |
| **Prostate Cancer Treatment (Hormonal therapy)** | Indeterminate[1] | Falling | 2002-2008 |
| **Life After Cancer** | | | |
| **Survival** | | | |
| **All cancer sites combined** | Rising | Stable | 2009-2013 |
| **Colon and rectum** | Rising | Stable | 2009-2013 |
| **Lung and bronchus** | Rising | Rising | 2009-2013 |
| **Female breast** | Rising | Rising | 2009-2013 |
| **Prostate** | Rising | Falling | 2009-2013 |
| **Cancer Survivors and Smoking** | Falling | Falling | 2015-2019 |
| **Cancer Survivors and Physical Activity** | Falling | Falling | 2014-2018 |
| **Cancer Survivors and Weight** | Falling | Falling | 2015-2019 |
| **End of Life** | | | |
| **Mortality** | | | |
| **All cancer sites combined** | Falling | Falling | 2014-2018 |
| **Colon and rectum** | Falling | Falling | 2014-2018 |
| **Lung and bronchus** | Falling | Falling | 2014-2018 |
| **Female breast** | Falling | Falling | 2014-2018 |
| **Prostate** | Falling | Stable | 2014-2018 |
| **Cervix uteri** | Falling | Rising | 2014-2018 |
| **Oral cavity and pharynx** | Falling | Rising | 2014-2018 |

[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).

| Measure | Desired Direction | Recent Trend | Recent Trend Time Period |
|---|---|---|---|
| **Melanoma of the skin** | Falling | Rising | 2014-2018 |
| **Thyroid** | Falling | Rising | 2014-2018 |

[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).

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# Recent Updates and Archive

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### 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 | Data Up To Date As Of |
|---|---|---|
| **Prevention** | | |
| **Tobacco Use Initiation** | 2019 | July 2021 |
| **Youth Tobacco Use** | 2020 | July 2021 |
| **Adult Tobacco Use** | 2019 | July 2021 |
| **Quitting Smoking** | 2018 | July 2021 |
| **Clinicians' Advice to Quit Smoking** | 2019 | July 2021 |
| **Fruit and Vegetable Consumption** | 2018 | July 2021 |
| **Red Meat Consumption** | 2018 | July 2021 |
| **Fat Consumption** | 2018 | July 2021 |
| **Alcohol Consumption** | 2018 | July 2021 |
| **Physical Activity** | 2018 | July 2021 |
| **Weight** | 2018 | July 2021 |
| **Sun Protective Behavior** | 2015 | July 2021 |
| **Indoor tanning** | 2019 | July 2021 |
| **Sunburn** | 2017 | July 2021 |

| Measure | Year of Most Recent Estimate | Data Up To Date As Of |
|---|---|---|
| HPV Vaccination | 2019 | July 2021 |
| Genetic Testing | 2015 | July 2021 |
| Tobacco Company Marketing Expenditures | 2018 | July 2021 |
| Medicaid Coverage of Tobacco Dependency Treatments | 2019 | July 2021 |
| Secondhand Smoke Exposure | 2018 | July 2021 |
| Smoke-free Home Rules | 2019 | July 2021 |
| Smoke-free Workplace Rules and Laws | | |
| Smoke-free Workplace Rules | 2019 | July 2021 |
| Indoor Air Laws | 2019 | July 2021 |
| Arsenic Exposure | 2016 | July 2021 |
| Benzene Exposure | 2018 | July 2021 |
| Cadmium Exposure | 2018 | July 2021 |
| Nitrate Exposure | 2014 | July 2021 |
| Radon Exposure | 2013 | July 2021 |
| Early Detection | | |
| Breast Cancer Screening | 2019 | July 2021 |
| Cervical Cancer Screening | 2019 | July 2021 |
| Colorectal Cancer Screening | 2019 | July 2021 |
| Lung Cancer Screening | 2015 | July 2021 |
| Prostate Cancer Screening | 2018 | July 2021 |
| Diagnosis | | |
| Incidence | 2018 | July 2021 |
| Stage at Diagnosis | 2018 | July 2021 |
| Treatment | | |
| Bladder Cancer Treatment | 2009 | July 2021 |
| Breast Cancer Treatment | 2017 | July 2021 |
| Colorectal Cancer Treatment | 2015 | July 2021 |
| Kidney Cancer Treatment | 2017 | July 2021 |
| Lung Cancer Treatment | 2015 | July 2021 |
| Ovarian Cancer Treatment | 2011 | July 2021 |
| Prostate Cancer Treatment | 2008 | July 2021 |
| Life After Cancer | | |
| Financial Burden of Cancer Care | 2020 | July 2021 |
| Survival | 2013 | July 2021 |
| Cancer Survivors and Smoking | 2019 | July 2021 |
| Cancer Survivors and Physical Activity | 2018 | July 2021 |
| Cancer Survivors and Weight | 2019 | July 2021 |
| End of Life | | |
| Mortality | 2018 | July 2021 |
| Person-Years of Life Lost | 2018 | July 2021 |

## 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 |
|---|---|
| 7/01/2021 | The July 2021 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.<br><br>Where applicable, all measures have been updated to reflect the Healthy People 2030 targets . |

| Date | Revision |
|---|---|
| 11/09/2020 | The November 2020 Update to the Cancer Trends Progress Report was released. The Incidence, Stage at Diagnosis and Survival measure pages were updated to reflect SEER Incidence data through 2017. The Mortality and Years of Life Lost measure pages were updated to reflect NCHS mortality estimates through 2018. |
| 3/31/2020 | The March 2020 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.<br><br>New measures this year include E-cigarettes on the Youth Tobacco Use page and Colorectal Cancer on the Genetic Testing page. |
| 9/5/2019 | Graphs for e-cigarette usage among high school students were added to the Youth Tobacco Use measure page. The new graphs are based on data through 2018 from the National Youth Tobacco Survey. |
| 4/24/2019 | The graphs for **Cost of Cancer Care by Cancer SIte** and **Cost of Cancer Care by Cancer Site and Phase of Care** on the Financial Burden of Cancer Care measure page were incorrectly labelled as '*in billions of dollars*'. These graphs and associated tables have been updated to have the correct label of '*in millions of dollars*'. |
| 2/28/2019 | The February 2019 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.<br><br>New measures this year include Processed Meat Consumption, Genetic Testing, Long Term Trends in Adult Cigarette Use, Inorganic Arsenic Exposure, UV Exposure and Sun-Protective Behaviors By Sun Sensitivity, and Healthy Weight/Overweight estimates for Cancer Survivors |
| 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.<br><br>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 | • The Incidence, Stage at Diagnosis, and Survival measures were updated to include the SEER November 2014 release.<br>• The Mortality and Person-Years of Life Lost measures were updated to include U.S. mortality estimates through 2012.<br>• Graphs highlighting additional by-groups were added for the Arsenic, Benzene, Cadmium and Nitrate measures.<br>• The cost of cancer care graphs in the Financial Burden of Cancer Care measure were updated to 2015.<br>• 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 - November 2020 Update (PDF, 6.6MB)
- Cancer Trends Progress Report - March 2020 Update (PDF, 6.2MB)
- Cancer Trends Progress Report - September 2019 Update (PDF, 6.0MB)
- Cancer Trends Progress Report - February 2018 Update (PDF, 5.8MB)
- 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)

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## 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 four major groups of risk factors: behavioral, environmental, policy/regulatory, and genetic testing.

### 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 and Processed Meat Consumption
- Fat Consumption

- Alcohol Consumption
- Physical Activity
- Weight

#### UV Exposure and Sun-Protective Behavior

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

#### HPV Vaccination

A number of cancers that affect men and women can be prevented through vaccination against human papillomavirus (HPV) and effective screening. HPV can cause cancers of the penis, in men; of the cervix, vagina and vulva, in women; and in the anus and back of the throat, for women and men.

- HPV Vaccination

### Genetic Testing

Genetic test results can help guide a person's future medical care as specific genetic mutations may increase a person’s chance of developing cancer.

- Genetic Testing

### 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 Dependency Treatments

### 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 2030.

#### Secondhand Smoke

Secondhand 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

- Smokefree Home Rules
- Smokefree 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

# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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    - Radon
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## 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

## Prevention

## Prevention



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# Tobacco Use Initiation

## Data Up to Date as of:

July 2021

## Background

Because cigarette smoking typically begins during adolescence, tobacco use is often described as a “pediatric disease.” 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 linked to persistent smoking in adulthood and the many adverse health effects caused by smoking.

Understanding trends in youth initiation of tobacco products – including cigarettes, electronic cigarettes, cigars, and smokeless tobacco – enables policy makers to target prevention resources more effectively. Effective strategies to reduce youth initiation of tobacco use include federal regulation of tobacco products; significant increases in tobacco prices, including excise taxes; smokefree air laws; restrictions on tobacco advertising and promotion; restricting the availability of tobacco products to youth; mass-media public education campaigns; and full implementation of comprehensive state and community tobacco control programs. On December 20, 2019, the President signed legislation to amend the Federal Food, Drug, and Cosmetic Act, and raise the federal minimum age of sale of tobacco products from 18 to 21 years.

## Measure

The percentage of individuals among those aged 12 to 25 years who said they had initiated cigarette smoking during the past 12 months.

The percentage of individuals among those aged 12 to 25 years who said they had initiated cigar smoking during the past 12 months.

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

Note: Initiation measures included a numerator of the number of adolescents and young adults aged 12 to 25 years who used the specified tobacco product for the first time in the past 12 months and a denominator of the number of adolescents and young adults aged 12 to 25 years who did not use the specified tobacco product in their lifetime or who used the specified tobacco product for the first time in the past 12 months.

Note: Cigars include premium cigars, little filtered cigars, and cigarillos.

Note: E-cigarettes are not included in the tobacco-related questions of the National Household Survey on Drug Use and Health that is used for the data source of these measures.

## Healthy People 2030 Target

- Eliminate the initiation of the use of cigarettes among adolescents and young adults.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

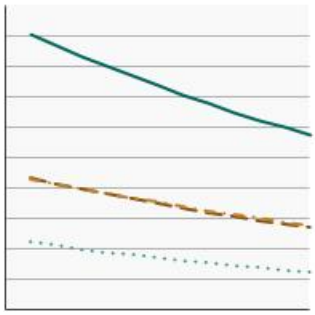
**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

## Data Source

Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health, 2002-2019.

## Trends and Most Recent Estimates
### By Type of Tobacco Product, Excluding E-cigarettes

Initiation of the use of cigarettes, cigars, or smokeless tobacco among adolescents and young adults aged 12-25 years by type of tobacco product, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
|  | All Tobacco Products | 5.7 | 5.4 - 6.1 |
| | Cigarettes | 2.6 | 2.3 - 2.8 |
| | Smokeless Tobacco | 1.3 | 1.1 - 1.5 |
| | Cigars | 2.7 | 2.5 - 3.0 |

### Cigarettes, Cigars and Smokeless Tobacco
### By Sex

Initiation of the use of cigarettes, cigars, or smokeless tobacco among adolescents and young adults aged 12-25 years by sex, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | Both Sexes | 5.7 | 5.4 - 6.1 |
| | Male | 6.7 | 6.2 - 7.2 |
| | Female | 4.8 | 4.3 - 5.2 |

### By Race/Ethnicity

Initiation of the use of cigarettes, cigars, or smokeless tobacco among adolescents and young adults aged 12-25 years by race/ethnicity, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | All Races | 5.7 | 5.4 - 6.1 |
| | Non-Hispanic White | 6.9 | 6.4 - 7.4 |
| | Non-Hispanic Black | 3.6 | 3.0 - 4.3 |
| | Hispanic | 5.0 | 4.3 - 5.8 |

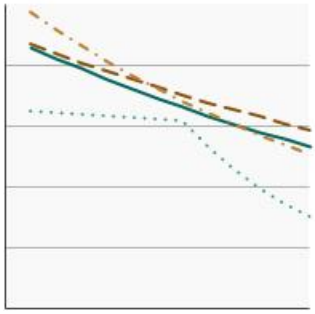
## Cigarettes
### By Sex

Initiation of the use of cigarettes among adolescents and young adults aged 12-25 years by sex, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | Both Sexes | 2.6 | 2.3 - 2.8 |
| | Male | 2.8 | 2.5 - 3.2 |
| | Female | 2.3 | 2.0 - 2.6 |

### By Race/Ethnicity

Initiation of the use of cigarettes among adolescents and young adults aged 12-25 years by race/ethnicity, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
|  | All Races | 2.6 | 2.3 - 2.8 |
| | Non-Hispanic White | 3.0 | 2.7 - 3.4 |
| | Non-Hispanic Black | 1.5 | 1.1 - 2.0 |
| | Hispanic | 2.3 | 1.9 - 2.9 |

## Smokeless Tobacco
### By Sex

Initiation of the use of smokeless tobacco among adolescents and young adults aged 12-25 years, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | Both Sexes | 1.3 | 1.1 - 1.5 |
| | Male | 1.7 | 1.5 - 1.9 |
| | Female | 0.9 | 0.7 - 1.1 |

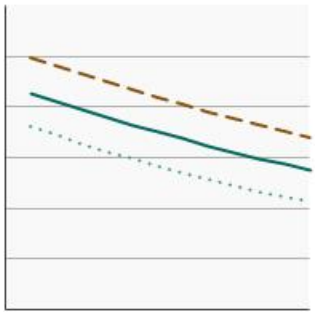
### By Race/Ethnicity

Initiation of the use of smokeless tobacco among adolescents and young adults aged 12-25 years by race/ethnicity, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | All Races | 1.3 | 1.1 - 1.5 |
| | Non-Hispanic White | 1.6 | 1.4 - 1.9 |
| | Non-Hispanic Black | 0.5 | 0.3 - 0.9 |
| | Hispanic | 1.2 | 0.9 - 1.6 |

## Cigars
### By Sex

Initiation of the use of cigars among adolescents and young adults aged 12-25 years, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
|  | Both Sexes | 2.7 | 2.5 - 3.0 |
| | Male | 3.4 | 3.0 - 3.8 |
| | Female | 2.0 | 1.8 - 2.3 |

### By Race/Ethnicity

Initiation of the use of cigars among adolescents and young adults aged 12-25 years by race/ethnicity, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | All Races | 2.7 | 2.5 - 3.0 |
| | Non-Hispanic White | 3.3 | 3.0 - 3.7 |
| | Non-Hispanic Black | 2.0 | 1.6 - 2.5 |
| | Hispanic | 2.1 | 1.6 - 2.6 |

### Cancers Related to 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

The Cancer Control P.L.A.N.E.T. web portal contains tobacco control resources that support collaboration, identify evidence-based approaches, and list evidence-based cancer control programs.

### Additional Information on Tobacco Use Initiation

# Youth Tobacco Use

## Data Up to Date as of:

July 2021

## Background

Cigarette smoking is the leading preventable cause of disease, disability, and death in the United States. Smoking causes cancers of the lung, esophagus, larynx, mouth, throat, kidney, bladder, liver, pancreas, stomach, cervix, colon and rectum, anus, as well as acute myeloid leukemia. Tobacco use is initiated and established primarily during adolescence (defined as ages 10-19): nearly 90 percent of adult cigarette smokers in the U.S. first tried cigarettes by age 18, and 98 percent first tried cigarettes by age 26. Each day in the U.S., around 1,600 youth aged 18 or younger smoke their first cigarette and another 200 become daily cigarette smokers.

E-cigarettes (also known as vapes or Electronic Nicotine Delivery Systems [ENDS]) are battery-powered devices that convert a liquid ("e-liquid") into an aerosol. E-liquids typically contain nicotine, flavorings, vegetable glycerin, propylene glycol, and other chemicals. Besides nicotine, e-cigarette aerosol may contain heavy metals, volatile organic compounds, and fine and ultrafine particles that can be inhaled deeply into the lungs by both users and bystanders. Nicotine use among youth increases the risk of lifelong tobacco addiction and can also increase the risk for future addiction to other drugs. In August 2016, the FDA finalized a rule extending its regulatory authority to all tobacco products, including e-cigarettes, cigars, and hookah and pipe tobacco.

Teen cigarette smoking prevalence peaked around 1996/1997 but has been declining since. However, a substantial portion of youth use other tobacco products, including e-cigarettes, cigars, smokeless tobacco, and hookah. Youth use of more than one tobacco product (dual use) is also common. Since 2014, e-cigarettes have been the most commonly used tobacco product among youth. In 2020, more than 4.5 million U.S. youth, including 1 in 4 high school students and 1 in 20 middle school students, were current users of e-cigarettes.

There are many factors associated with youth tobacco use, including social, environmental, cognitive, and genetic influences. In addition, Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General , published by the Centers for Disease Control and Prevention in 2012, concluded that tobacco advertising, promotion, and depictions of smoking in movies are causally related to youth tobacco use. Initiation of smoking during adolescence is linked to persistent smoking during adult life and the many adverse health effects caused by smoking. Understanding trends in youth initiation of tobacco products – including cigarettes, e-cigarettes, cigars, and smokeless tobacco – enables policy makers to target prevention resources more effectively. Effective strategies to reduce youth initiation of tobacco use include effective federal regulation of tobacco products; significant increases in tobacco prices, including excise taxes; smokefree air laws; restrictions on tobacco advertising and promotion; restricting the availability of tobacco products to youth; mass-media public education campaigns; and full implementation of comprehensive state and community tobacco control programs. On December 20, 2019, the President signed legislation to amend the Federal Food, Drug, and Cosmetic Act, and raise the federal minimum age of sale of tobacco products from 18 to 21 years.

## Measure

The percentage of middle and high school students (grades 6–12) who reported use of cigarettes, cigars, smokeless tobacco, or e-cigarettes on at least 1 day during the 30 days before the survey.

## Healthy People 2030 Target

- Reduce to 11.3 percent the proportion of adolescents in grades 6–12 who used tobacco products (cigarettes, e-cigarettes, cigars, smokeless tobacco, hookah, pipe tobacco, and/or bidis) in the past 30 days.
- Reduce to 10.5 percent the proportion of adolescents in grades 6-12 who used e-cigarettes in the past 30 days.
- Reduce to 3.4 percent the proportion of adolescents in grades 6–12 who smoked cigarettes in the past 30 days.
- Reduce to 3 percent the proportion of adolescents in grades 6–12 who smoked cigars in the past 30 days.
- Reduce to 2.3 percent the proportion of adolescents in grades 6–12 who used smokeless tobacco products (chewing tobacco or snuff) in the past 30 days.

Healthy People 2030 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 Youth Tobacco Survey (NYTS), 2011–2020.

## Trends and Most Recent Estimates
### By Type of Tobacco Product
Percentage of adolescents in grades 6 to 12 who were current tobacco product users by type of tobacco product, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Tobacco | 15.9 | 13.9 - 18.1 |
| | Cigarettes | 3.3 | 2.6 - 4.2 |
| | E-Cigarettes | 13.1 | 11.2 - 15.1 |
| | Smokeless Tobacco | 2.3 | 1.8 - 3.0 |
| | Cigars | 3.5 | 2.9 - 4.3 |

### All Tobacco Products
### By Sex
Percentage of adolescents in grades 6 to 12 who were current tobacco product users by sex, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Both Sexes | 15.9 | 13.9 - 18.1 |
| | Male | 16.3 | 14.1 - 18.8 |
| | Female | 15.6 | 13.5 - 17.9 |

### By Race/Ethnicity
Percentage of adolescents in grades 6 to 12 who were current tobacco product users by race/ethnicity, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Races | 15.9 | 13.9 - 18.1 |
| | Non-Hispanic White | 17.5 | 15.1 - 20.3 |
| | Non-Hispanic Black | 12.9 | 10.9 - 15.2 |
| | Hispanic | 16.7 | 14.0 - 19.8 |

### By Current Grade Level
Percentage of adolescents in grades 6 to 12 who were current tobacco product users by grade level, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Middle School (Grades 6-8) | 6.4 | 5.2 - 7.8 |
| | High School (Grades 9-12) | 23.3 | 20.8 - 26.0 |

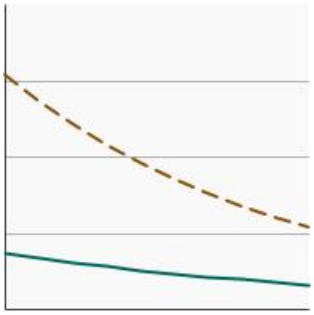
## Cigarettes
### By Sex
Percentage of adolescents in grades 6 to 12 who were current cigarette users by sex, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Both Sexes | 3.3 | 2.6 - 4.2 |
| | Male | 3.6 | 2.7 - 4.7 |
| | Female | 3.1 | 2.4 - 4.0 |

### By Race/Ethnicity
Percentage of adolescents in grades 6 to 12 who were current cigarette users by race/ethnicity, 2011-2020

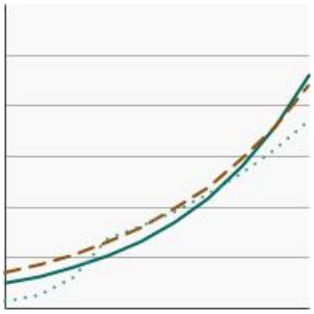
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Races | 3.3 | 2.6 - 4.2 |
| | Non-Hispanic White | 3.7 | 2.8 - 4.8 |
| | Non-Hispanic Black | 2.5 | 1.7 - 3.7 |
| | Hispanic | 3.6 | 2.6 - 4.9 |

### By Current Grade Level
Percentage of adolescents in grades 6 to 12 who were current cigarette users by grade level, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Middle School (Grades 6-8) | 1.6 | 1.2 - 2.3 |
| | High School (Grades 9-12) | 4.6 | 3.6 - 6.0 |

## E-Cigarettes
### By Sex

Percentage of adolescents in grades 6 to 12 who were current e-cigarette users by sex, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Both Sexes | 13.1 | 11.2 - 15.1 |
| | Male | 13.4 | 11.5 - 15.6 |
| | Female | 12.8 | 10.8 - 15.0 |

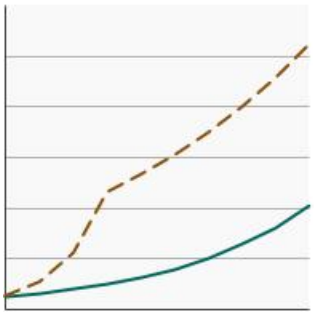
### By Race/Ethnicity

Percentage of adolescents in grades 6 to 12 who were current e-cigarette users by race/ethnicity, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Races | 13.1 | 11.2 - 15.1 |
| | Non-Hispanic White | 15.5 | 13.4 - 17.9 |
| | Non-Hispanic Black | 6.2 | 4.6 - 8.4 |
| | Hispanic | 13.7 | 11.1 - 16.8 |

### By Current Grade Level

Percentage of adolescents in grades 6 to 12 who were current e-cigarette users by grade level, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Middle School (Grades 6-8) | 4.7 | 3.6 - 6.0 |
| | High School (Grades 9-12) | 19.6 | 17.2 - 22.2 |

## Smokeless Tobacco
### By Sex

Percentage of adolescents in grades 6 to 12 who were current smokeless tobacco users by sex, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Both Sexes | 2.3 | 1.8 - 3.0 |
| | Male | 3.3 | 2.5 - 4.4 |
| | Female | 1.3 | 0.9 - 1.7 |

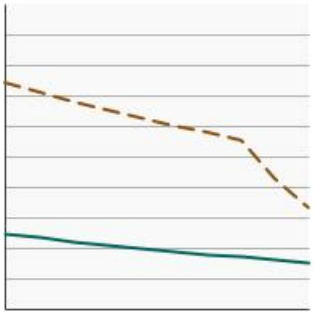
### By Race/Ethnicity

Percentage of adolescents in grades 6 to 12 who were current smokeless tobacco users by race/ethnicity, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Races | 2.3 | 1.8 - 3.0 |
| | Non-Hispanic White | 3.0 | 2.3 - 4.0 |
| | Non-Hispanic Black | 1.2 | 0.6 - 2.3 |
| | Hispanic | 1.7 | 1.3 - 2.2 |

### By Current Grade Level

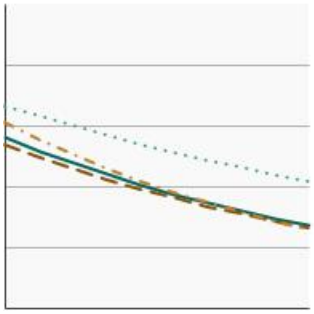
Percentage of adolescents in grades 6 to 12 who were current smokeless tobacco users by grade level, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Middle School (Grades 6-8) | 1.2 | 0.9 - 1.7 |
| | High School (Grades 9-12) | 3.1 | 2.3 - 4.2 |

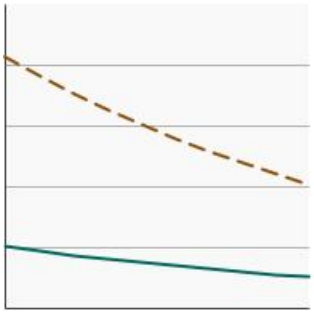
## Cigars
### By Sex
Percentage of adolescents in grades 6 to 12 who were current cigar users by sex, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Both Sexes | 3.5 | 2.9 - 4.3 |
| | Male | 3.7 | 3.0 - 4.5 |
| | Female | 3.4 | 2.7 - 4.4 |

### By Race/Ethnicity
Percentage of adolescents in grades 6 to 12 who were current cigar users by race/ethnicity, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | All Races | 3.5 | 2.9 - 4.3 |
| | Non-Hispanic White | 2.8 | 2.1 - 3.7 |
| | Non-Hispanic Black | 6.6 | 5.3 - 8.1 |
| | Hispanic | 4.0 | 2.9 - 5.4 |

### By Current Grade Level
Percentage of adolescents in grades 6 to 12 who were current cigar users by grade level, 2011-2020

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Middle School (Grades 6-8) | 1.5 | 1.1 - 2.0 |
| | High School (Grades 9-12) | 5.0 | 4.1 - 6.2 |

### Cancers Related to 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

The Cancer Control P.L.A.N.E.T. web portal contains tobacco control resources that support collaboration, identify evidence-based approaches, and list evidence-based cancer control programs.

### Additional Information on Youth Tobacco Use

# Cancer Trends Progress Report

## NCI Banner

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Online Summary of Trends in US Cancer Control Measures

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- Early Detection
- Diagnosis
- Treatment
- Life After Cancer
- End of Life
- Summary Tables

## Main Menu

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  - Cancer Survivors and Weight
- End of Life

# Adult Tobacco Use

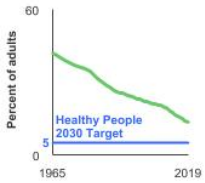
### Data Up to Date as of:

July 2021

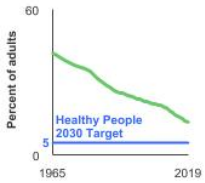
### On This Page:



In 2019, 14.2% of adults aged 18 and older were current cigarette smokers.




See Graph Details




## Background

The prevalence of adult cigarette smoking in the U.S. has steadily declined since the first Surgeon General's Report on the harms of smoking was published in 1964, when smoking prevalence was 42 percent. While the prevalence of daily smoking has dropped over time, nondaily smoking has remained relatively stable. Many studies show that there is no safe level of smoking. For example, individuals who smoke even a few cigarettes per month over their lifetime are at a higher risk of smoking-related death than never smokers, according to the Dose-Response Association of Low-Intensity and Nondaily Smoking With Mortality in the United States article, published in the journal JAMA Network Open.

Besides cigarettes, other tobacco products are also used by U.S. adults. In 2019, the NHIS reported that 8.7 million adults (3.7%) smoked cigars, 5.9 million adults (2.5%) used smokeless tobacco and 10.9 million (4.8%) used e-cigarettes.

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. Cigar smoking in the U.S. has recently been characterized by increasing product diversity, and marketing of these products has been targeted to specific population groups, including urban African Americans, which has contributed to an increase in prevalence of their use among adolescents and young adults.

Like cigarette smoke, cigar smoke contains 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 also increases the risk for lung diseases, such as emphysema and chronic bronchitis, which can be risk factors for lung cancer.

Smokeless tobacco is also known as chewing tobacco, spit 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.

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.

E-cigarettes (also known as vapes or Electronic Nicotine Delivery Systems) are battery-powered devices that convert a liquid ("e-liquid") into an aerosol. E-liquids typically contain nicotine, flavorings, vegetable glycerin, propylene glycol and other chemicals. Besides nicotine, e-cigarette aerosol may contain heavy metals, volatile organic compounds, and fine and ultrafine particles that can be inhaled deeply into the lungs by both users and by-standers.

E-cigarette use among adults may potentially reduce the health risks associated with conventional cigarette smoking if users switch completely to e-cigarettes. However, a large percentage of U.S. adults who use e-cigarettes also smoke conventional cigarettes and are at continued risk for exposure to their toxic and carcinogenic compounds, and subsequent smoking-related morbidity and mortality. More concerningly, almost a quarter of those who use e-cigarettes report never having smoked, and the majority of this group is 18-24 years old. As noted above, overall, 4.8 percent of U.S. adults (10.9 million people) were current e-cigarette users in 2019. E-cigarette use was higher among men than women (5.7% vs. 3.8%), among young adults (aged 18-24) than adults overall (9.2% vs. 4.1%), and among those who identify as lesbian, gay, or bisexual vs. heterosexual/straight (11.5% vs. 4.2%).

In 2019, the U.S. experienced an outbreak of e-cigarette and vaping associated lung injury (EVALI). As of February 18, 2020, a total of 2,807 EVALI cases or deaths were reported to the Centers for Disease Control and Prevention (CDC). The U.S. Food and Drug Administration (FDA), CDC, and state health authorities have determined that tetrahydrocannabinol (THC)-containing e-cigarette, or vaping, products are linked to most EVALI cases. Vitamin E acetate is strongly linked to the EVALI outbreak; however, evidence is not sufficient to rule out the contribution on other chemicals of concern.

Cigarette smoking is the leading preventable cause of disease, disability, and death in the United States. Smoking causes cancers of the lung, esophagus, larynx, mouth, throat, kidney, bladder, liver, pancreas, stomach, cervix, colon and rectum, anus, as well as acute myeloid leukemia. Altogether it causes approximately 30 percent of all U.S. cancer deaths each year. The American Cancer Society estimates that in 2021, almost 182,571 of the estimated 608,570 cancer-related deaths will be caused by cigarette smoking.

Presently, the COVID-19 pandemic poses a major threat to public health in the U.S. and across the world. Current and former cigarette smoking can increase an individual's risk of severe illness from COVID-19. To reduce the chance of severe illness, current smokers should quit, and former and never smokers should refrain from using cigarettes.

## Measure

**Any tobacco product:** Percentage of adults aged 18 years and older who, at the time of the interview, currently used cigarettes; cigars, cigarillos, filtered little cigars; regular pipes, water pipes, hookah; e-cigarettes; and/or smokeless tobacco products.

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

**Combustible tobacco products:** Percentage of adults aged 18 years and older who, at the time of the interview, currently used cigarettes; cigars, cigarillos, filtered little cigars; and/or regular pipes, water pipes, or hookah.

## Healthy People 2030 Target

- Reduce to 16.2 percent the proportion of adults who are current users of any tobacco product.
- Reduce to 5 percent the proportion of adults who are current cigarette smokers.
- Reduce to 5 percent the proportion of adults who are combustible tobacco product users.

Healthy People 2030 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.

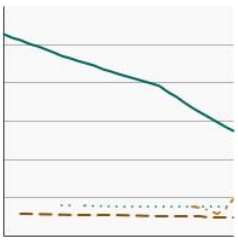
## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1965–2019.

## Trends and Most Recent Estimates

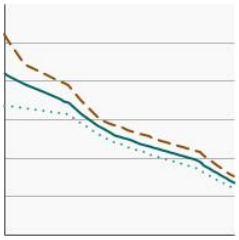
### By Type of Tobacco Product

Percentage of adults aged 18 years and older who were current tobacco product users by type of tobacco product used, 1991-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Cigarettes | 14.2 | 13.7 - 14.8 |
| | Smokeless Tobacco | 2.5 | 2.3 - 2.8 |
| | Cigars | 3.7 | 3.4 - 4.0 |
| | E-Cigarettes | 4.8 | 4.4 - 5.1 |

### Cigarettes, Long Term Trends (1965+)

Percentage of adults aged 18 years and older who were current cigarette smokers by sex, 1965-2019

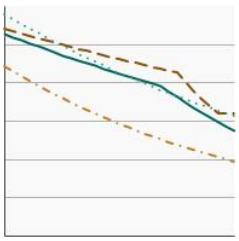
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 14.2 | 13.7 - 14.8 |
| | Male | 15.5 | 14.7 - 16.3 |
| | Female | 13.0 | 12.3 - 13.7 |

### Cigarettes

Expand Section + Collapse Section -

**By Race/Ethnicity**

Percentage of adults aged 18 years and older who were current cigarette smokers by race/ethnicity, 1991-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 14.2 | 13.7 - 14.8 |
| | Non-Hispanic White | 16.1 | 15.5 - 16.9 |
| | Non-Hispanic Black | 14.9 | 13.5 - 16.5 |
| | Hispanic | 8.8 | 7.8 - 9.9 |

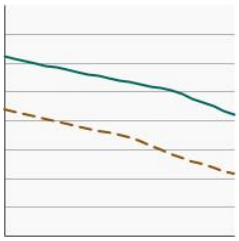
**By Age**

Percentage of adults aged 18 years and older who were current cigarette smokers by age, 1991-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 7.9 | 6.7 - 9.3 |
| | Ages 25+ | 15.1 | 14.5 - 15.7 |

**By Poverty Income Level**

Percentage of adults aged 18 years and older who were current cigarette smokers by poverty income level, 1997-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | <200% of federal poverty level | 21.9 | 20.7 - 23.2 |
| | >=200% of federal poverty level | 11.2 | 10.6 - 11.8 |

**By Education Level**

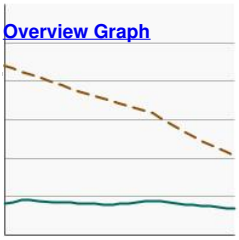
Percentage of adults aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 23.9 | 21.5 - 26.5 |
| | High School | 22.0 | 20.8 - 23.4 |
| | Greater than High School | 10.8 | 10.2 - 11.4 |

**By Smoking Frequency**

Percentage of adults aged 18 years and older who were current cigarette smokers by smoking frequency, 1991-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Nondaily Smoker | 3.3 | 3.0 - 3.5 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Daily Smoker | 11.0 | 10.5 - 11.5 |

**Smokeless Tobacco**

Expand Section + | Collapse Section -

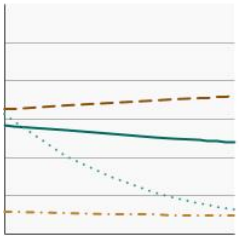
**By Sex**

Percentage of adults aged 18 years and older who were current smokeless tobacco users by sex, 1993-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 2.5 | 2.3 - 2.8 |
| | Male | 4.8 | 4.3 - 5.3 |
| | Female | 0.3 | 0.2 - 0.4 |

**By Race/Ethnicity**

Percentage of adults aged 18 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 2.5 | 2.3 - 2.8 |
| | Non-Hispanic White | 3.7 | 3.3 - 4.1 |
| | Non-Hispanic Black | 0.5 | 0.3 - 0.8 |
| | Hispanic | 0.5 | 0.3 - 0.8 |

**By Age**

Percentage of adults aged 18 years and older who were current smokeless tobacco users by age, 1993-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 2.2 | 1.5 - 3.1 |
| | Ages 25+ | 2.5 | 2.3 - 2.8 |

**By Poverty Income Level**

Percentage of adults aged 18 years and older who were current smokeless tobacco users by poverty income level, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | <200% of federal poverty level | 2.2 | 1.8 - 2.6 |
| | >=200% of federal poverty level | 2.7 | 2.4 - 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, 1993-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 2.9 | 2.1 - 3.9 |
| | High School | 3.8 | 3.3 - 4.5 |
| | Greater than High School | 1.9 | 1.7 - 2.1 |

**Cigars**

Expand Section + Collapse Section -

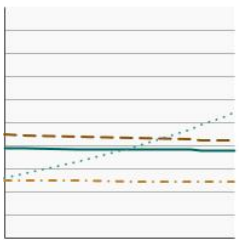
**By Sex**

Percentage of adults aged 18 years and older who were current cigar smokers by sex, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 3.7 | 3.4 - 4.0 |
| | Male | 6.4 | 5.8 - 6.9 |
| | Female | 1.2 | 1.0 - 1.4 |

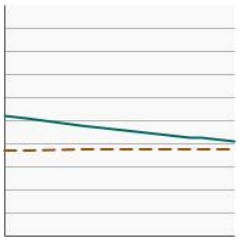
**By Race/Ethnicity**

Percentage of adults aged 18 years and older who were current cigar smokers by race/ethnicity, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 3.7 | 3.4 - 4.0 |
| | Non-Hispanic White | 4.1 | 3.7 - 4.5 |
| | Non-Hispanic Black | 4.5 | 3.7 - 5.5 |
| | Hispanic | 2.8 | 2.3 - 3.6 |

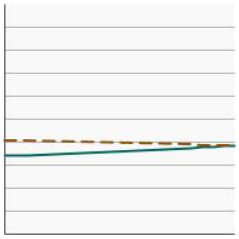
**By Age**

Percentage of adults aged 18 years and older who were current cigar smokers by age, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Ages 18-24 | 3.7 | 2.9 - 4.8 |
| | Ages 25+ | 3.7 | 3.4 - 4.0 |

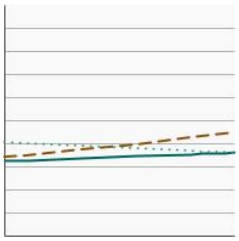
**By Poverty Income Level**

Percentage of adults aged 18 years and older who were current cigar smokers by poverty income level, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | <200% of federal poverty level | 3.5 | 3.0 - 4.1 |
| | >=200% of federal poverty level | 3.8 | 3.4 - 4.2 |

**By Education Level**

Percentage of adults aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2019

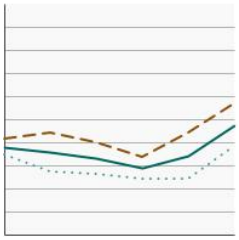
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Less than High School | 3.2 | 2.2 - 4.7 |
| | High School | 4.1 | 3.5 - 4.9 |
| | Greater than High School | 3.6 | 3.3 - 4.0 |

**E-Cigarettes**

Expand Section + Collapse Section -

**By Sex**

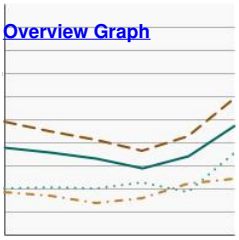
Percentage of adults aged 18 years and older who were current e-cigarette users by sex, 2014-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 4.8 | 4.4 - 5.1 |
| | Male | 5.7 | 5.2 - 6.2 |
| | Female | 3.8 | 3.4 - 4.3 |

**By Race/Ethnicity**

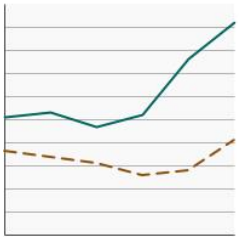
Percentage of adults aged 18 years and older who were current e-cigarette users by race/ethnicity, 2014-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 4.8 | 4.4 - 5.1 |
| | Non-Hispanic White | 5.9 | 5.4 - 6.4 |
| | Non-Hispanic Black | 3.5 | 2.7 - 4.5 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Hispanic | 2.4 | 2.0 - 3.0 |

By Age

Percentage of adults aged 18 years and older who were current e-cigarette users by age, 2014-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Ages 18-24 | 9.2 | 7.9 - 10.8 |
| | Ages 25+ | 4.1 | 3.8 - 4.4 |

## Cancers Related to 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

The Cancer Control P.L.A.N.E.T. web portal contains tobacco control resources that support collaboration, identify evidence-based approaches, and list evidence-based cancer control programs.

## Additional Information on Adult Tobacco Use

### General Public Resources

- Tobacco. National Cancer Institute.
- Tobacco and Cancer. American Cancer Society.
- Smoking and Tobacco Use. Centers for Disease Control and Prevention.
- Smoking and Increased Risk of Severe Illness from COVID-19. Centers for Disease Control and Prevention.
- Tobacco Products. U.S. Food and Drug Administration.

#### Quitting Resources

- Cigarette Smoking: Health Risks and How to Quit (PDQ®)–Patient Version. National Cancer Institute.
- Smokefree.gov. National Cancer Institute.
- Where To Get Help When You Decide To Quit Smoking. National Cancer Institute.
- How to Quit Smoking or Smokeless Tobacco. American Cancer Society.
- What You Need To Know About Quitting Smoking: Advice from the Surgeon General. Centers for Disease Control and Prevention.
- North American Quitline Consortium.

### Public Health Resources

- Cigarette Smoking: Health Risks and How to Quit (PDQ®)–Health Professional Version. National Cancer Institute.

- Treating Tobacco Use and Dependence: 2008 Update – Clinical Practice Guidelines. Agency for Healthcare Research and Quality.
- Best Practices for Comprehensive Tobacco Control Programs—2014. Centers for Disease Control and Prevention.
- Smoking and Tobacco Use – Healthcare Provider Resources. Centers for Disease Control and Prevention.
- Smoking Cessation – The Role of Healthcare Professionals and Health Systems. Centers for Disease Control and Prevention.
- Surgeon General's Reports on Smoking and Tobacco Use. Centers for Disease Control and Prevention.
- Tobacco Use. Million Hearts.
- Tobacco Smoking Cessation in Adults, Including Pregnant Women: Behavioral and Pharmacotherapy Interventions. U.S. Preventive Services Task Force.

**Scientific Reports**

- Tobacco Product Use Among Adults — United States, 2019. Cornelius ME, Wang TW, Jamal A, Loretan CG, Neff LJ. MMWR 2020;69(46);1736–1742.
- State-specific patterns of cigarette smoking, smokeless tobacco use, and e-cigarette use among adults—United States, 2016. Hu SS, Homa DM, Wang T et al. Prev Chronic Dis 2019;16:180362.
- Association of long-term, low-intensity smoking with all-cause and cause-specific mortality in the National Institutes of Health-AARP Diet and Health Study. Inoue-Choi M, Liao LM, Reyes-Guzman C et al. JAMA Intern Med. 2017;177(1):87-95.
- Dose-Response Association of Low-Intensity and Nondaily Smoking With Mortality in the United States. Inoue-Choi M, Christensen CH, Rostron BL, et al. JAMA Netw Open. 2020; 3(6):e206436.
- Demographic Characteristics, Cigarette Smoking, and e-Cigarette Use Among US Adults. Mayer M, Reyes-Guzman C, Grana R, et al. 2020; 3(10):e2020694.
- Not Quite the Rule, But No Longer the Exception: Multiple Tobacco Product Use and Implications for Treatment, Research, and Regulation. Pacek LR, Villanti AC, Mcclernon FJ. 2020;22(11):2114-2117.

**Statistics**

- 2018-2019 Tobacco Use Supplement to the Current Population Survey (TUS-CPS) Initial Release. National Cancer Institute.
- State Cancer Profiles. National Cancer Institute.
- Cancer Facts and Figures. American Cancer Society.
- Behavioral Risk Factor Surveillance System Prevalence and Trends Data, 2012. Centers for Disease Control and Prevention.
- Current Cigarette Smoking Among Adults in the United States. Centers for Disease Control and Prevention.
- Reports and Detailed Tables From the 2016 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration.

### Year Range

1965-2019

### Recent Summary Trend Year Range

2015-2019

### Recent Summary Trend

Falling

### Desired Direction

Falling

## Prevention

- Tobacco Use
  - Tobacco Use Initiation
  - Youth Tobacco Use
  - Adult Tobacco Use
- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
  - Fruit and Vegetable Consumption
  - Red Meat and Processed Meat Consumption
  - Fat Consumption
  - Alcohol Consumption
  - Physical Activity
  - Weight
- UV Exposure and Sun-Protective Behavior
  - Sun-Protective Behavior
  - Indoor Tanning
  - Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Policy/Regulatory Factors
  - Tobacco Company Marketing Expenditures
  - Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke
  - Secondhand Smoke Exposure
  - Smokefree Home Rules
  - Smokefree Workplace Rules and Laws
- Chemical and Environmental Exposures
  - Arsenic
  - Benzene
  - Cadmium
  - Nitrate
  - Radon

## Prevention

- Tobacco Use Initiation
- Youth Tobacco Use
- Adult Tobacco Use
- Quitting Smoking
- Clinicians' Advice to Quit Smoking
- Fruit and Vegetable Consumption
- Red Meat Consumption
- Fat Consumption
- Alcohol Consumption
- Physical Activity
- Weight
- Sun Protective Practices
- Indoor Tanning
- Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke Exposure
- Smoke-free Home and Work Environment
- Arsenic
- Benzene
- Cadmium
- Nitrate
- Indoor Air Laws

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## About

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- U.S. Department of Health and Human Services
- National Institutes of Health
- National Cancer Institute
- USA.gov

NIH... Turning Discovery Into Health

# Cancer Trends Progress Report

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## Tools

Custom Report (PDF)
Dictionary

Online Summary of Trends in US Cancer Control Measures

## Main Menu

## Prevention

## Main Menu

## Prevention

# 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

## About



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# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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## Main Menu

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    - Adult Tobacco Use
  - Smoking Cessation
    - Quitting Smoking
    - Clinicians' Advice to Quit Smoking
  - Diet, Physical Activity, and Weight
    - Fruit and Vegetable Consumption
    - Red Meat and Processed Meat Consumption
    - Fat Consumption
    - Alcohol Consumption
    - Physical Activity
    - Weight
  - UV Exposure and Sun-Protective Behavior
    - Sun-Protective Behavior
    - Indoor Tanning
    - Sunburn
  - HPV Vaccination
  - Genetic Testing
  - Tobacco Policy/Regulatory Factors
    - Tobacco Company Marketing Expenditures
    - Medicaid Coverage of Tobacco Dependence Treatments
  - Secondhand Smoke
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    - Smokefree Home Rules
    - Smokefree Workplace Rules and Laws
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    - Cadmium
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- Life After Diagnosis
  - Financial Burden of Cancer Care
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- End of Life
  - Mortality

# Quitting Smoking

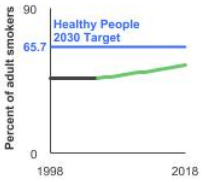
### Data Up to Date as of:

July 2021

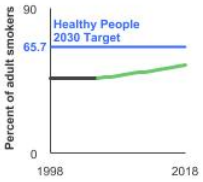
### On This Page:



In 2018, 54.1% of adult smokers attempted to quit smoking within the past year.




See Graph Details




### Background

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 caused by smoking, coronary heart disease, stroke, and chronic lung disease. For example, 10-15 years after quitting, the risk of lung cancer decreases to about one-half 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 many 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.

A number of strategies can increase the likelihood of successful smoking cessation, including comprehensive, barrier-free, and widely promoted access to insurance coverage for smoking cessation treatment, and the use of FDA approved smoking cessation medications together with behavioral counseling to support quit attempts. Behavioral counseling and support can be delivered using individual or group counseling, or by quitlines, web and internet, or text-messaging platforms. Cessation rates can also be improved by raising the price of tobacco products, adopting comprehensive smokefree policies, implementing anti-tobacco mass media campaigns, requiring pictorial health warnings on tobacco products, and maintaining comprehensive statewide tobacco control programs.

### 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 or equal to 1 year ago.

**Successful quitting:** The percentage of recent smoking cessation success for adult smokers (aged 18 years and older) includes recent former smokers who quit 6-12 months prior to the survey interview among those who met any of the three conditions:

1. Former smokers who had quit smoking 6-12 months prior to the survey interview.
2. Former smokers who had quit smoking less than 6 months prior to the survey interview.
3. Current smokers at the time of the survey interview who initiated smoking at least 2 years prior to the survey interview.

### Healthy People 2030 Target

- Increase to 65.7 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 10.2 percent the proportion of adult smokers (aged 18 years and older) who successfully quit smoking.

Healthy People 2030 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 1998-2018.

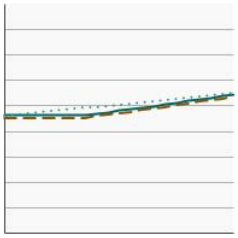
## Trends and Most Recent Estimates

### Attempted to Quit Smoking

Expand Section + | Collapse Section -

#### By Sex

Percentage of smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by sex, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adult smokers | 95% Confidence Interval |
|  | Both Sexes | 54.1 | 52.1 - 56.1 |
| | Male | 53.7 | 51.1 - 56.3 |
| | Female | 54.6 | 51.5 - 57.7 |

#### By Race/Ethnicity

Percentage of smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by race/ethnicity, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adult smokers | 95% Confidence Interval |
| | All Races | 54.1 | 52.1 - 56.1 |
| | Non-Hispanic White | 51.9 | 49.7 - 54.1 |
| | Non-Hispanic Black | 61.7 | 56.0 - 67.1 |
| | Hispanic | 59.0 | 52.3 - 65.4 |

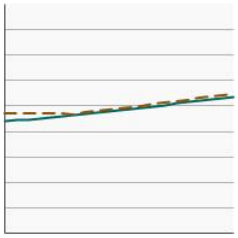
#### By Age

Percentage of smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adult smokers | 95% Confidence Interval |
| | Ages 18-24 | 68.3 | 58.7 - 76.5 |
| | Ages 25 and older | 51.9 | 49.9 - 54.0 |

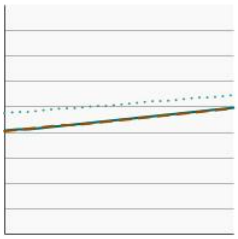
#### By Poverty Income Level

Percentage of smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by poverty income level, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adult smokers | 95% Confidence Interval |
|  | <200% of federal poverty level | 55.0 | 52.1 - 58.0 |
| | >=200% of federal poverty level | 53.6 | 50.8 - 56.3 |

#### By Education Level

Percentage of 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, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Percent of adult smokers | 95% Confidence Interval |
|---|---|---|---|
|  | Less than High School | 50.1 | 45.3 - 54.9 |
| | High School | 48.8 | 45.5 - 52.1 |
| | Greater than High School | 54.9 | 52.0 - 57.7 |

**Successfully Quit Smoking**

Expand Section + Collapse Section -

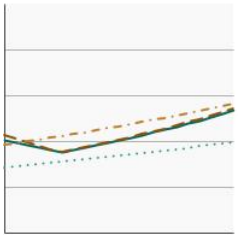
**By Sex**

Percentage of recent smoking cessation success among smokers aged 18 years and older by sex, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Percent of adult smokers | 95% Confidence Interval |
|---|---|---|---|
| | Both Sexes | 8.3 | 7.1 - 9.7 |
| | Male | 9.0 | 7.3 - 11.0 |
| | Female | 7.4 | 5.9 - 9.2 |

**By Race/Ethnicity**

Percentage of recent smoking cessation success among smokers aged 18 years and older by race/ethnicity, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Percent of adult smokers | 95% Confidence Interval |
|---|---|---|---|
|  | All Races | 8.3 | 7.1 - 9.7 |
| | Non-Hispanic White | 9.0 | 7.5 - 10.7 |
| | Non-Hispanic Black | 4.7 | 3.0 - 7.4 |
| | Hispanic | 6.6 | 4.0 - 10.9 |

**By Age**

Percentage of recent smoking cessation success among smokers aged 18 years and older by age, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Percent of adult smokers | 95% Confidence Interval |
|---|---|---|---|
| | Ages 18-24 | 18.9 | 11.1 - 30.3 |
| | Ages 25 and older | 6.9 | 5.9 - 8.0 |

**By Poverty Income Level**

Percentage of recent smoking cessation success among smokers aged 18 years and older by poverty income level, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Percent of adult smokers | 95% Confidence Interval |
|---|---|---|---|

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adult smokers | 95% Confidence Interval |
| | <200% of federal poverty level | 5.9 | 4.7 - 7.5 |
| | >=200% of federal poverty level | 10.0 | 8.2 - 12.2 |

#### By Education Level

Percentage of recent smoking cessation success among smokers aged 25 years and older by highest level of education obtained, 1998-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adult smokers | 95% Confidence Interval |
| | Less than High School | 3.1 | 1.8 - 5.4 |
| | High School | 6.3 | 4.8 - 8.2 |
| | Greater than High School | 8.5 | 7.1 - 10.2 |

## Evidence-based Resources

Evidence-based intervention programs are available on the Evidence-Based Cancer Control Programs (EBCCP) website that promote smoking cessation and provide guidance to quit.

## Additional Information on Quitting Smoking

### General Public Resources

- Tobacco. National Cancer Institute.
- How to Quit Using Tobacco. American Cancer Society.
- U.S. Department of Health and Human Services. Smoking Cessation: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2020.
- Public Health Education. U.S. Food and Drug Administration.

#### Quitting Smoking Resources

- Smokefree.gov. National Cancer Institute.
- Cigarette Smoking: Health Risks and How to Quit (PDQ®)–Patient Version. National Cancer Institute.
- How to Quit Using Tobacco. American Cancer Society.
- North American Quitline Consortium. North American Quitline Consortium.
- Tips From Former Smokers-Media Campaign. Centers for Disease Control and Prevention.

### Public Health Resources

- Interventions for Tobacco Smoking Cessation in Adults, Including Pregnant Persons. U.S. Preventive Services Task Force.
- Surgeon General's Reports on Smoking and Tobacco Use. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- Best Practices for Comprehensive Tobacco Control Programs – 2014. Centers for Disease Control and Prevention.
- Smoking & Tobacco Use – Quit Smoking. Centers for Disease Control and Prevention.
- A Socioecological Approach to Addressing Tobacco-Related Health Disparities. U.S. National Cancer Institute. National Cancer Institute Tobacco Control Monograph 22. NIH Publication No. 17-CA-8035A. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; 2017.
- The Economics of Tobacco and Tobacco Control. U.S. National Cancer Institute and World Health Organization. National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; and Geneva, CH: World Health Organization; 2016.

### Scientific Reports

- Prevalence and determinants of cigarette smoking relapse among US adult smokers: a longitudinal study. Alboksmaty A, Agaku IT, Odani S, Filippidis FT. BMJ Open. 2019;9(11):e031676.
- Quitting smoking among adults – United States, 2000–2015. Babb S, Malarcher A, Schauer G, et al. MMWR 2017;65(52):1457–64.
- Potential Impact of Cessation Interventions at the Point of Lung Cancer Screening on Lung Cancer and Overall Mortality in the United States. Cao P, Jeon J, Levy DT, et al. J Thorac Oncol. 2020;15(7):1160-9.
- Anti-Smoking Media Campaigns and Disparities in Smoking Cessation in the United States, 2001-2015. Colston DC, Cho B, Thrasher JF, et al. Am J Health Promot. 2021 Jan 8:890117120985818.
- Tobacco Product Use and Cessation Indicators Among Adults - United States, 2018. Creamer MR, Wang TW, Babb S, et al. MMWR Morb Mortal Wkly Rep. 2019;68(45):1013-1019.
- State Tobacco Excise Taxation, Comprehensive Smoke-free Air Laws, and Tobacco Control Appropriations as Predictors of Smoking Cessation Success in the United States. Dahne J, Nahhas GJ, Wahlquist AE, Cummings KM, Carpenter MJ. J Public Health Manag Pract. 2020;26(5):E1-E4.
- Effects of motivation phase intervention components on quit attempts in smokers unwilling to quit: A factorial experiment. Engle JL, Mermelstein R, Baker TB, et al. Drug Alcohol Depend. 2019;197:149-157.
- Smoking Cessation Behaviors Among Older U.S. Adults. Henley SJ, Asman K, Momin B, et al. Prev Med Rep. 2019;16:100978.
- The Relationship of E-Cigarette Use to Cigarette Quit Attempts and Cessation: Insights from a Large, Nationally Representative U.S. Survey. Levy D, Yuan Z, Luo Y, et al. Nicotine Tob Res. 2018 Jul;20(8):931-939.
- Relapse Prevention Interventions for Smoking Cessation. Livingstone-Banks J, Norris E, Hartmann-Boyce J, et al. Cochrane Database Syst Rev. 2019;2019(10).
- Tobacco and Cannabis Co-Use: Drug Substitution, Quit Interest, and Cessation Preferences. McClure EA, Tomko RL, Salazar CA, et al. Exp Clin

Psychopharmacol. 2019;27(3):265-275.
- Integrated Treatment for Smoking Cessation, Anxiety, and Depressed Mood in People Living With HIV: A Randomized Controlled Trial. O'Cleirigh C, Zvolensky MJ, Smits JAJ, et al. J Acquir Immune Defic Syndr. 2018;79(2):261-268.
- Heterogeneity in Past-Year Smoking, Current Tobacco Use, and Smoking Cessation Behaviors Among Light and/or Non-Daily Smokers. Omole T, McNeel T, Choi K. Tob Induc Dis. 2020;18:74.
- Assessment of Trends in Cigarette Smoking Cessation After Cancer Diagnosis Among US Adults, 2000 to 2017. Talluri R, Fokom Domgue J, Gritz ER, Shete S. JAMA Netw Open. 2020;3(8):e2012164.
- Income disparities in smoking cessation and the diffusion of smoke-free homes among U.S. smokers: Results from two longitudinal surveys. Vijayaraghavan M, Benmarhnia T, Pierce JP, et al. PLoS One. 2018;13(7):e0201467.
- Associations between marijuana use and tobacco cessation outcomes in young adults. Vogel EA, Rubinstein ML, Prochaska JJ, Ramo DE. J Subst Abuse Treat. 2018;94:69-73.
- Characteristics and Correlates of Recent Successful Cessation Among Adult Cigarette Smokers, United States, 2018. Walton K, Wang TW, Prutzman Y, Jamal A, Babb SD. Prev Chronic Dis. 2020;17:E154.
- State-Specific Prevalence of Quit Attempts Among Adult Cigarette Smokers - United States, 2011- 2017. Walton K, Wang TW, Schauer GL, et al. MMWR Morb Mortal Wkly Rep. 2019;68(28):621-626.
- State-Specific Cessation Behaviors Among Adult Cigarette Smokers - United States, 2014-2015. Wang TW, Walton K, Jamal A, et al. Prev Chronic Dis. 2019;16:E26.
- E-cigarette use and associated changes in population smoking cessation: evidence from US current population survey. Zhu SH, Zhuang YL, Wong S, et al. BMJ. 2017 Jul; 358:j3262.

**Statistics**

- The Tobacco Use Supplement to the Current Population Survey. National Cancer Institute.
- The National Health Interview Survey Cancer Control Supplements. National Center for Health Statistics, co-sponsored by the National Cancer institute/DCCPS and the Centers for Disease Control and Prevention/OSH and DCPC.
- Population Assessment of Tobacco and Health (PATH) Study Series. National Institute on Drug Abuse, National Institutes of Health, and the Center for Tobacco Products, Food and Drug Administration.

### Year Range

1998-2018

### Recent Summary Trend Year Range

2014-2018

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Clinicians' Advice to Quit Smoking

### Recent Summary Trend

Rising

### Desired Direction

Rising

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# Clinicians' Advice to Quit Smoking

## Data Up to Date as of:

July 2021

## Background

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 is ready 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. 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. Many individual pharmacies and one national pharmacy chain have decided not to sell tobacco products, recognizing that the sale of tobacco products is not compatible with their important role in health care.

## Measure

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

## Healthy People 2030 Target

- Increase to 66.6 percent the proportion of adult smokers who receive advice to quit from a health professional.

The Healthy People 2030 (HP2030) goals are targeted at all health professionals. 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. Therefore, the data presented in this report cannot be directly compared to the HP2030 objectives.

Healthy People 2030 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.

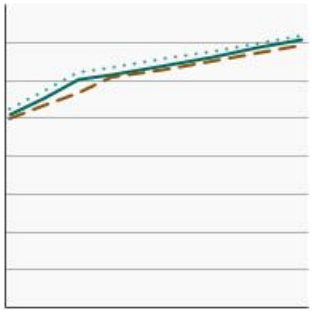
## Data Source

The Tobacco Use Supplement to the Current Population Survey, National Cancer Institute, 1992–2019.

## Trends and Most Recent Estimates

### 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, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 69.5 | 68.3 - 70.8 |
| | Male | 67.9 | 66.1 - 69.6 |
| | Female | 71.2 | 69.4 - 72.8 |

### 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, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 69.5 | 68.3 - 70.8 |
| | Non-Hispanic White | 71.0 | 69.4 - 72.5 |
| | Non-Hispanic Black | 67.3 | 63.5 - 70.9 |
| | Hispanic | 60.9 | 56.5 - 65.2 |

### 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, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 55.9 | 48.8 - 62.8 |
| | Ages 25+ | 71.5 | 70.4 - 72.7 |

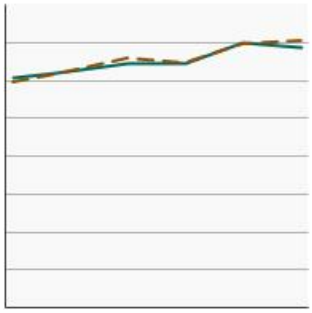
### By Sex and Age

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, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Males, ages 18-24 | 54.0 | 43.4 - 64.3 |
| | Males, ages 25+ | 70.2 | 68.5 - 71.8 |
| | Females, ages 18-24 | 58.0 | 48.1 - 67.4 |
| | Females, ages 25+ | 72.9 | 71.3 - 74.4 |

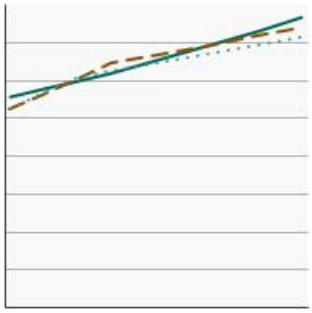
### By Poverty Income Level

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, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | < 200% of the federal poverty level | 68.5 | 66.6 - 70.3 |
| | >= 200% of the federal poverty level | 70.5 | 68.4 - 72.4 |

### 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, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Less than High School | 71.6 | 68.3 - 74.7 |
| | High School | 72.1 | 70.3 - 73.8 |
| | Greater than High School | 70.9 | 69.2 - 72.5 |

### Evidence-based Resources

Evidence-based intervention programs are available on the Evidence-Based Cancer Control Programs (EBCCP) website that promote smoking cessation and provide guidance to quit.

### Additional Information on Clinicians' Advice to Quit Smoking

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3. » Diet, Physical Activity, and Weight

## 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 and Processed Meat Consumption
- Fat Consumption

- Alcohol Consumption
- Physical Activity
- Weight

## Prevention

Tobacco Use Smoking Cessation Diet, Physical Activity, and Weight UV Exposure and Sun-Protective Behavior
HPV Vaccination Genetic Testing Tobacco Policy/Regulatory Factors Secondhand Smoke Chemical and Environmental Exposures

## Prevention

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- Red Meat Consumption

- Fat Consumption
- Alcohol Consumption
- Physical Activity
- Weight
- Sun Protective Practices
- Indoor Tanning
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- Genetic Testing
- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke Exposure
- Smoke-free Home and Work Environment
- Arsenic
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- Nitrate
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    - Secondhand Smoke Exposure
    - Smokefree Home Rules
    - Smokefree Workplace Rules and Laws
  - Chemical and Environmental Exposures
    - Arsenic
    - Benzene
    - Cadmium
    - Nitrate
    - Radon
- Early Detection
  - Breast Cancer Screening

# Fruit and Vegetable Consumption

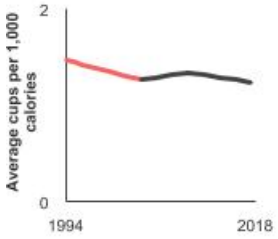
### Data Up to Date as of:

July 2021

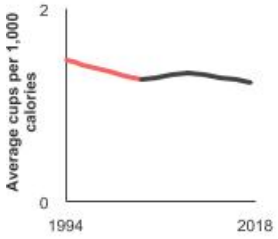
### On This Page:



From 2017 to 2018, people aged 2 years and olderconsumed 1.2 cups of fruit and vegetables per 1,000 calories.




See Graph Details




## Background

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 2030 Target

- Increase the consumption of fruits by persons aged 2 years and over to 0.56 cup equivalents of fruit per 1,000 calories.
- Increase the consumption of total vegetables by persons aged 2 years and over to 0.84 cup equivalents of total vegetables per 1,000 calories.

Healthy People 2030 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.

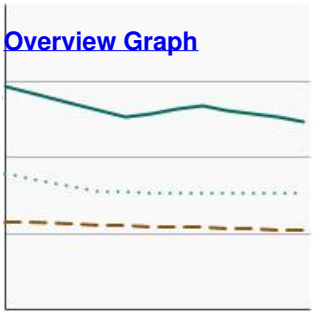
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1994–2018.

## 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, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
| | Fruit and Vegetables Combined | 1.2 | 1.2 - 1.3 |
| | Fruit | 0.5 | 0.5 - 0.5 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
|  | Vegetables | 0.7 | 0.7 - 0.8 |

**Fruit and Vegetables Combined**

Expand Section + Collapse Section -

**By Sex**

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
| | Both Sexes | 1.2 | 1.2 - 1.3 |
| | Male | 1.1 | 1.0 - 1.2 |
| | Female | 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, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
| | All Races | 1.2 | 1.2 - 1.3 |
| | Non-Hispanic White | 1.2 | 1.1 - 1.2 |
| | Non-Hispanic Black | 1.2 | 1.1 - 1.3 |
| | Hispanic | 1.5 | 1.3 - 1.6 |

**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, 1994-2018

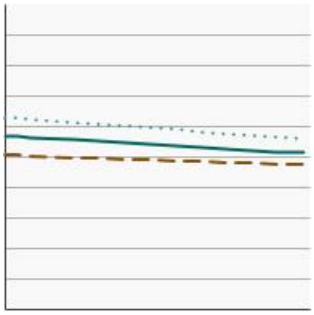
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
| | <200% of Federal Poverty Level | 1.2 | 1.1 - 1.3 |
| | >=200% of Federal Poverty Level | 1.3 | 1.2 - 1.3 |

**Fruit**

Expand Section + Collapse Section -

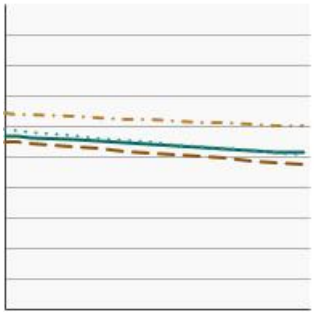
**By Sex**

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
|  | Both Sexes | 0.5 | 0.5 - 0.5 |
| | Male | 0.4 | 0.4 - 0.5 |
| | Female | 0.5 | 0.5 - 0.6 |

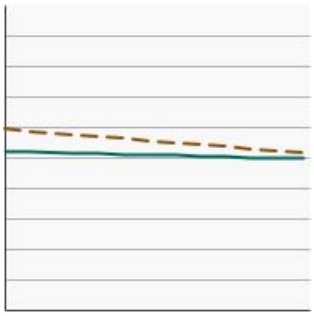
**By Race/Ethnicity**

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
|  | All Races | 0.5 | 0.5 - 0.5 |
| | Non-Hispanic White | 0.4 | 0.4 - 0.5 |
| | Non-Hispanic Black | 0.5 | 0.4 - 0.6 |
| | Hispanic | 0.6 | 0.6 - 0.7 |

**By Poverty Income Level**

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
|  | <200% of Federal Poverty Level | 0.5 | 0.4 - 0.5 |
| | >=200% of Federal Poverty Level | 0.5 | 0.5 - 0.5 |

**Vegetables**

Expand Section + Collapse Section -

**By Sex**

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
| | Both Sexes | 0.7 | 0.7 - 0.8 |
| | Male | 0.7 | 0.6 - 0.7 |
| | Female | 0.8 | 0.8 - 0.9 |

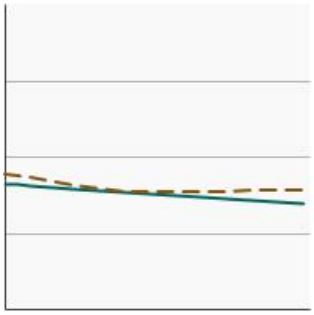
**By Race/Ethnicity**

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
| | All Races | 0.7 | 0.7 - 0.8 |
| | Non-Hispanic White | 0.7 | 0.7 - 0.8 |
| | Non-Hispanic Black | 0.7 | 0.6 - 0.8 |
| | Hispanic | 0.8 | 0.8 - 0.9 |

**By Poverty Income Level**

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average cups per 1,000 calories | 95% Confidence Interval |
|  | <200% of Federal Poverty Level | 0.7 | 0.7 - 0.8 |
| | >=200% of Federal Poverty Level | 0.8 | 0.7 - 0.8 |

## 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 Evidence-Based Cancer Control Programs (EBCCP) website.

## Additional Information on Fruit and Vegetable Consumption

### General Public Resources

- 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: Healthy Choices. Centers for Disease Control and Prevention.

### Public Health Resources

- 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 guideline for diet and physical activity for cancer prevention. Rock CL, Thomson C, Gansler T, et al. CA Cancer J Clin. 2020; 70(4): 245-271.
- 2020-2025 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- Continuous Update Project. World Cancer Research Fund International.
- Diet, Nutrition, Physical Activity and Cancer: a Global Perspective. 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.

### Year Range

1994-2018

### Recent Summary Trend Year Range

2013-2018

### Summary Tables

Diet

### Recent Summary Trend

Non-Significant Change

### Desired Direction

Rising

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  - Physical Activity
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  - Sun-Protective Behavior
  - Indoor Tanning
  - Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Policy/Regulatory Factors
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    - Benzene
    - Cadmium
    - Nitrate
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# Red Meat and Processed Meat Consumption

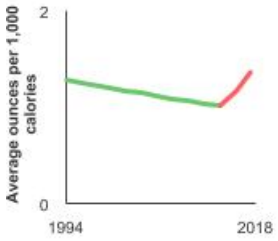
### Data Up to Date as of:

July 2021

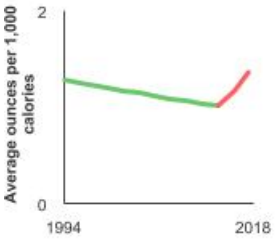
### On This Page:



From 2017 to 2018, people aged 2 years and older consumed, on average, 1.4 ounces of red meat per 1,000 calories.




See Graph Details




## Background

Red meat is associated with an increased risk of colon and rectum cancer, and evidence also suggests it is associated with some other cancers, such as prostate and pancreatic cancer. Examples of red meat include beef, pork, and lamb.

Processed meats are products that have been preserved by smoking, curing, salting, and/or the addition of chemical preservatives. Examples of processed meat include hot dogs, sausages, bacon, and luncheon meats. Processed meat is associated with an increased risk of colorectal cancer, and evidence also suggests it is associated with stomach cancer.

However, more research is needed to understand how red meat and processed 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 and processed meat per 1000 calories for people aged 2 years and older.

The method used to estimate total red meat intake in the U.S. population was automated beginning with NHANES 2007-2008. Organ meats were excluded when the method was automated, based on the definition of red meat in the Dietary Guidelines for Americans. Organ meat intake in the U.S. population is low and therefore did not meaningfully influence total red meat intake estimates when excluded.

## Healthy People 2030 Target

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

Healthy People 2030 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, 1999–2018.

## Trends and Most Recent Estimates

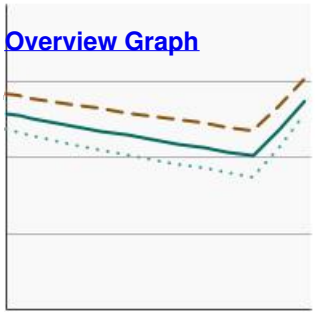
### Red Meat

Expand Section + Collapse Section -

#### By Sex

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
| | Both Sexes | 1.4 | 1.4 - 1.5 |
| | Male | 1.6 | 1.5 - 1.6 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
|  | Female | 1.3 | 1.2 - 1.4 |

**By Race/Ethnicity**

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
| | All Races | 1.4 | 1.4 - 1.5 |
| | Non-Hispanic White | 1.5 | 1.3 - 1.6 |
| | Non-Hispanic Black | 1.4 | 1.3 - 1.4 |
| | Hispanic | 1.5 | 1.4 - 1.6 |

**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, 1994-2018

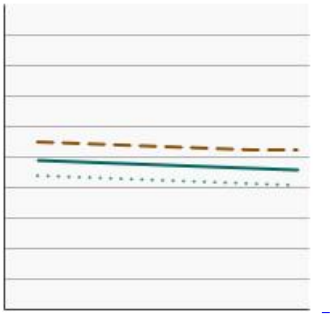
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
| | <200% of Federal Poverty Level | 1.5 | 1.4 - 1.5 |
| | >=200% of Federal Poverty Level | 1.5 | 1.3 - 1.6 |

**Processed Meat**

Expand Section + Collapse Section -

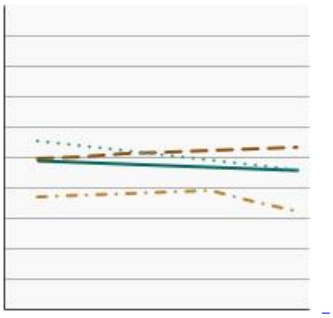
**By Sex**

Average ounces of processed meat consumed per 1,000 calories by individuals aged 2 years and older by sex, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
|  | Both Sexes | 0.4 | 0.4 - 0.5 |
| | Male | 0.5 | 0.5 - 0.6 |
| | Female | 0.4 | 0.3 - 0.4 |

**By Race/Ethnicity**

Average ounces of processed meat consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
|  | All Races | 0.4 | 0.4 - 0.5 |
| | Non-Hispanic White | 0.5 | 0.4 - 0.6 |
| | Non-Hispanic Black | 0.5 | 0.4 - 0.6 |
| | Hispanic | 0.3 | 0.3 - 0.4 |

**By Poverty Income Level**

Average ounces of processed meat consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Average ounces per 1,000 calories | 95% Confidence Interval |
| | <200% of Federal Poverty Level | 0.4 | 0.4 - 0.5 |
| | >=200% of Federal Poverty Level | 0.5 | 0.4 - 0.5 |

## Cancers Related to Red Meat and Processed Meat Consumption

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

- Colon and Rectum
- Prostate
- Pancreatic

- 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.

## Additional Information on Red Meat and Processed Meat Consumption

### General Public Resources

- Chemicals in Meat Cooked at High Temperatures and Cancer Risk. National Cancer Institute.
- 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: Healthy Choices. Centers for Disease Control and Prevention.
- Q&A on the Carcinogenicity of the Consumption of Red Meat and Processed Meat. International Agency for Research on Cancer (IARC).

### Public Health Resources

- Carcinogenicity of Consumption of Red and Processed Meat. The Lancet Oncology.

### Scientific Reports

- A large prospective study of meat consumption and colorectal cancer risk: an investigation of potential mechanisms underlying this association. Cross AJ, Ferrucci LM, Risch A. Cancer Res 2010;70:2406.
- American Cancer Society guideline for diet and physical activity for cancer prevention. Rock CL, Thomson C, Gansler T, et al. CA Cancer J Clin. 2020; 70(4): 245-271.
- 2020-2025 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- Continuous Update Project. World Cancer Research Fund International.
- Diet, Nutrition, Physical Activity, and Cancer: a Global Perspective. World Cancer Research Fund, and the American Institute for Cancer Research.
- Diet, nutrition and the prevention of chronic diseases. World Health Organization.

### Statistics

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

## Year Range

1994-2018

## Recent Summary Trend Year Range

2013-2018

## Summary Tables

Diet

## Recent Summary Trend

Rising

## Desired Direction

Falling

# Prevention

- Tobacco Use
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  - Youth Tobacco Use
  - Adult Tobacco Use
- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
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  - Red Meat and Processed Meat Consumption
  - Fat Consumption
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- UV Exposure and Sun-Protective Behavior
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  - Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Policy/Regulatory Factors
  - Tobacco Company Marketing Expenditures
  - Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke
  - Secondhand Smoke Exposure
  - Smokefree Home Rules
  - Smokefree Workplace Rules and Laws
- Chemical and Environmental Exposures
  - Arsenic
  - Benzene
  - Cadmium
  - Nitrate
  - Radon

# Prevention

- Tobacco Use Initiation
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- Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke Exposure
- Smoke-free Home and Work Environment
- Arsenic
- Benzene
- Cadmium
- Nitrate
- Indoor Air Laws

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NIH... Turning Discovery Into Health

# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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## Prevention

## Main Menu

## Prevention





# Fat Consumption

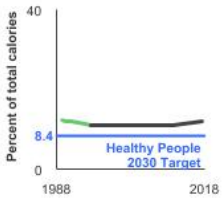
### Data Up to Date as of:

July 2021

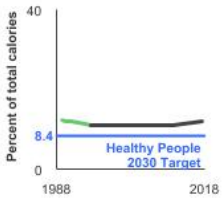
### On This Page:



From 2017 to 2018, saturated fat made up 11.8% of the calories people consumed.




See Graph Details




## Background

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 2030 Target

- Reduce the consumption of saturated fat by persons aged 2 years and over to 8.4 percent of calories consumed.

Healthy People 2030 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

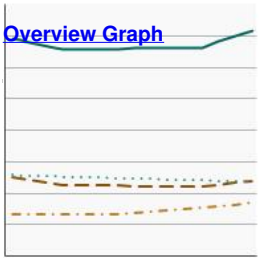
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999-2018.

## Trends and Most Recent Estimates

### Fat Intake Comparison

Fat intake as a percentage of total calories, 1989-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of total calories | 95% Confidence Interval |
| | Total | 35.8 | 35.4 - 36.2 |
| | Saturated Fat | 11.8 | 11.6 - 12.0 |
| | Monounsaturated Fat | 12.1 | 11.9 - 12.3 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of total calories | 95% Confidence Interval |
|  | Polyunsaturated Fat | 8.4 | 8.2 - 8.6 |

**Total Fat Intake**

Expand Section + Collapse Section -

**By Sex**

Total fat intake as a percentage of total calories by sex, 1989-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of total calories | 95% Confidence Interval |
|  | Both Sexes | 35.8 | 35.4 - 36.2 |
| | Male | 35.6 | 35.1 - 36.2 |
| | Female | 36.0 | 35.4 - 36.5 |

**By Race/Ethnicity**

**By Poverty Income Level**

**Saturated Fat Intake**

Expand Section + Collapse Section -

**By Sex**

Saturated fat intake as a percentage of total calories by sex, 1989-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of total calories | 95% Confidence Interval |
|  | Both Sexes | 11.8 | 11.6 - 12.0 |
| | Male | 11.8 | 11.6 - 12.0 |
| | Female | 11.8 | 11.6 - 12.1 |

**By Race/Ethnicity**

**By Poverty Income Level**

**Monosaturated Fat Intake**

Expand Section + Collapse Section -

By Sex

Monosaturated fat intake as a percentage of total calories by sex, 1989-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of total calories | 95% Confidence Interval |
| | Both Sexes | 12.1 | 11.9 - 12.3 |
| | Male | 12.1 | 11.8 - 12.3 |
| | Female | 12.1 | 11.8 - 12.3 |

By Race/Ethnicity

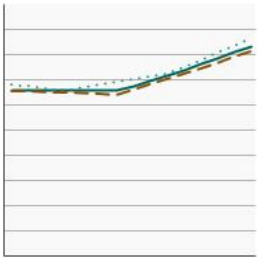
By Poverty Income Level

**Polyunsaturated Fat Intake**

Expand Section + Collapse Section -

By Sex

Polyunsaturated fat intake as a percentage of total calories by sex, 1989-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of total calories | 95% Confidence Interval |
|  | Both Sexes | 8.4 | 8.2 - 8.6 |
| | Male | 8.2 | 7.9 - 8.5 |
| | Female | 8.5 | 8.3 - 8.8 |

By Race/Ethnicity

By Poverty Income Level

## 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

**General Public Resources**

- 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: Healthy Choices. Centers for Disease Control and Prevention.
- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention.

- What We Eat in America. U.S. Department of Agriculture.

**Public Health Resources**

- 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 guideline for diet and physical activity for cancer prevention. Rock CL, Thomson C, Gansler T, et al. CA Cancer J Clin. 2020; 70(4): 245-271.
- 2020-2025 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- Continuous Update Project. World Cancer Research Fund International.
- Diet, Nutrition, Physical Activity, and Cancer: a Global Perspective. World Cancer Research Fund, and the American Institute for Cancer Research.
- Diet, nutrition and the prevention of chronic diseases. 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.

### Year Range

1989-2018

### Recent Summary Trend Year Range

2013-2018

### Summary Tables

Diet

### Recent Summary Trend

Non-Significant Change

### Desired Direction

Falling

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    - Smokefree Workplace Rules and Laws
  - Chemical and Environmental Exposures
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    - Benzene
    - Cadmium
    - Nitrate
    - Radon
- Early Detection
  - Breast Cancer Screening

# Alcohol Consumption

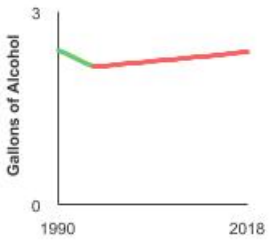
### Data Up to Date as of:

July 2021

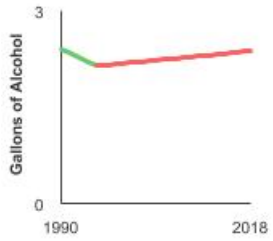
### On This Page:



In 2018, the annual per capita alcohol consumption was 2.4 gallons.




See Graph Details




## Background

Drinking alcohol increases the risk of cancers of the mouth, esophagus, pharynx, larynx, liver, colon and rectum 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 2030 Target

- There are no Healthy People 2030 targets regarding per capita alcohol consumption.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

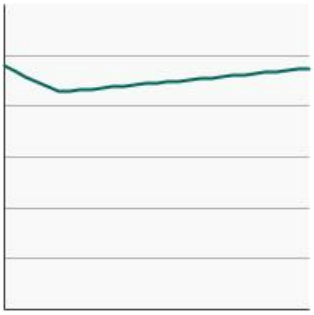
## Data Source

National Institute on Alcohol Abuse and Alcoholism. Surveillance report #115 – Apparent per capita alcohol consumption: national, state, and regional trends, 1977–2018. April 2020.

## Trends and Most Recent Estimates

### Alcohol Consumption

Apparent per capita alcohol consumption in gallons by individuals aged 14 years and older, 1990-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Gallons of Alcohol | 95% Confidence Interval |
|  | All Types of Alcoholic Beverages | 2.4 | Not available |

## Cancers Related to Alcohol Consumption

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

- Breast
- Colon and Rectum
- Esophagus

- Larynx
- Liver and Intrahepatic Bile Duct
- Oral Cavity and Pharynx

## Additional Information on Alcohol Consumption

### General Public Resources

- Alcohol and Cancer Risk. National Cancer Institute.
- Alcohol Use and Cancer. American Cancer Society.
- Publications & Multimedia – NIAAA resources on alcohol consumption and alcohol-related problems. National Institute on Alcohol Abuse and Alcoholism.

### Public Health Resources

- Alcohol Misuse: Screening and Behavioral Counseling Interventions in Primary Care. U.S. 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;17(3):437-46.
- American Cancer Society guideline for diet and physical activity for cancer prevention. Rock CL, Thomson C, Gansler T, et. al. CA Cancer J Clin. 2020; 70(4): 245-271.
- 2020-2025 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- Continuous Update Project. World Cancer Research Fund International.
- Diet, Nutrition, Physical Activity, and Cancer: a Global Perspective. World Cancer Research Fund, and the American Institute for Cancer Research.

### Statistics

- Food Intakes, U.S. Population, 2007-10: Usual Daily Intake of Alcoholic Drinks. National Cancer Institute.

## Year Range

1990-2018

## Recent Summary Trend Year Range

2014-2018

## Summary Tables

Diet

## Recent Summary Trend

Rising

## Desired Direction

Falling

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  - Cadmium
  - Nitrate
  - Radon

## Prevention

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- National Institutes of Health
- National Cancer Institute
- USA.gov

NIH... Turning Discovery Into Health

# Physical Activity

## Data Up to Date as of:

July 2021

## Background

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 bladder, breast, colon, endometrium (lining of the uterus), esophagus (adenocarcinoma), kidney, and stomach. Physical activity 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. For people with colorectal cancer, women with breast cancer, and men with prostate cancer, greater amounts of physical activity are associated with reduced risk of mortality from the original type of cancer. For people with colorectal cancer and women with breast cancer, greater amounts of physical activity are also associated with reduced risk of all-cause mortality.

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 2030 Target

- Reduce the percentage of adults who engage in no leisure-time physical activity to 21.2 percent.
- Increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity to 28.4 percent.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

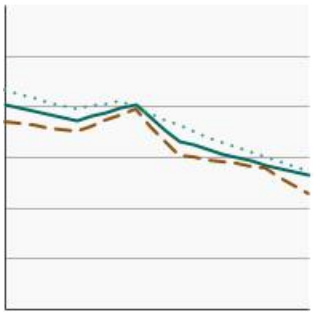
**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1992–2018.

## 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, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 25.4 | 24.4 - 26.5 |
| | Male | 23.0 | 21.8 - 24.3 |
| | Female | 27.7 | 26.4 - 29.1 |

### By Race/Ethnicity

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by race/ethnicity, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 25.4 | 24.4 - 26.5 |
| | Non-Hispanic White | 21.7 | 20.6 - 22.9 |
| | Non-Hispanic Black | 34.0 | 31.3 - 36.7 |
| | Hispanic | 34.1 | 31.6 - 36.7 |

### By Poverty Income Level

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by poverty income level, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | <200% of federal poverty level | 38.9 | 37.1 - 40.7 |
| | >=200% of federal poverty level | 20.4 | 19.3 - 21.5 |

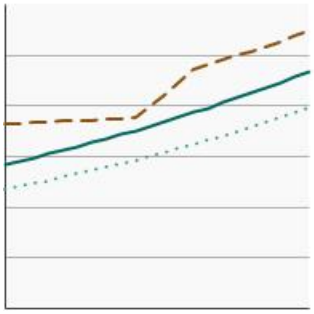
### By Education Level

Percentage of adults aged 25 years and older reporting no physical activity in their leisure time by highest level of education obtained, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 47.7 | 44.8 - 50.7 |
| | High School | 35.2 | 33.3 - 37.2 |
| | Greater than High School | 19.7 | 18.7 - 20.8 |

## 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, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 23.8 | 23.0 - 24.6 |
| | Male | 27.1 | 26.0 - 28.3 |
| | Female | 20.6 | 19.6 - 21.6 |

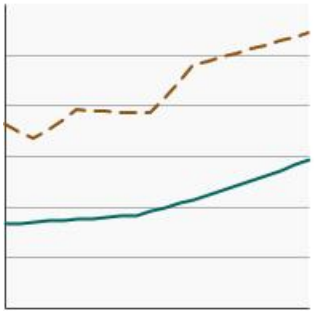
### By Race/Ethnicity

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by race/ethnicity, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 23.8 | 23.0 - 24.6 |
| | Non-Hispanic White | 25.6 | 24.5 - 26.6 |
| | Non-Hispanic Black | 20.2 | 18.1 - 22.5 |
| | Hispanic | 21.2 | 19.4 - 23.0 |

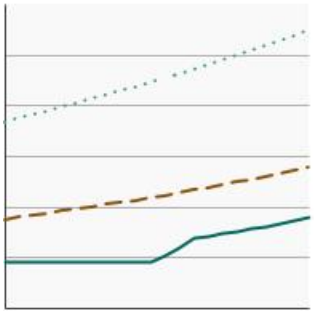
### By Poverty Income Level

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by poverty income level, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | <200% of federal poverty level | 14.8 | 13.7 - 15.9 |
| | >=200% of federal poverty level | 27.3 | 26.3 - 28.3 |

**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, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Less than High School | 9.6 | 8.1 - 11.3 |
| | High School | 14.4 | 13.2 - 15.8 |
| | Greater than High School | 27.3 | 26.3 - 28.3 |

### 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

# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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- Summary Tables

## Main Menu

# Weight

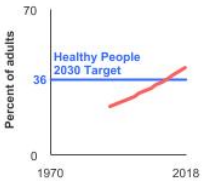
### Data Up to Date as of:

July 2021

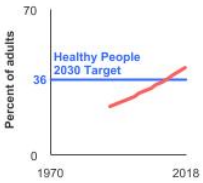
### On This Page:



During 2017 to 2018, 42.4% of adults were obese.




See Graph Details




## Background

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 and outcomes 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 2030 Target

- Reduce the proportion of adults with obesity to 36.0 percent.

Healthy People 2030 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

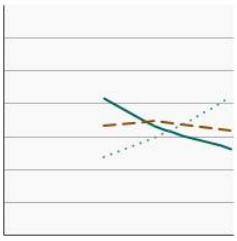
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1971–2018.

## Trends and Most Recent Estimates

**Body Weight Comparison**

Percentage of adults aged 20 years and older who were at a healthy weight, overweight, or obese, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Healthy Weight | 24.9 | 22.4 - 27.3 |
| | Overweight | 31.2 | 29.1 - 33.3 |
| | Obese | 42.4 | 39.0 - 45.8 |

**Healthy Weight**

Expand Section + | Collapse Section -

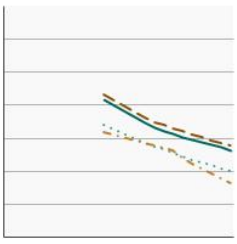
**By Sex**

Percentage of adults aged 20 years and older who were at a healthy weight by sex, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 24.9 | 22.4 - 27.3 |
| | Male | 21.3 | 18.0 - 24.6 |
| | Female | 28.4 | 25.4 - 31.4 |

**By Race/Ethnicity**

Percentage of adults aged 20 years and older who were at a healthy weight by race/ethnicity, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 24.9 | 22.4 - 27.3 |
| | Non-Hispanic White | 27.0 | 23.4 - 30.5 |
| | Non-Hispanic Black | 22.2 | 19.6 - 24.8 |
| | Hispanic | 16.1 | 14.0 - 18.1 |

**By Poverty Income Level**

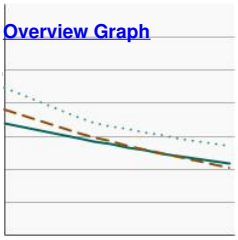
Percentage of adults aged 20 years and older who were at a healthy weight by poverty status, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | < 200% of the federal poverty level | 24.1 | 20.9 - 27.4 |
| | >= 200% of the federal poverty level | 24.5 | 21.4 - 27.5 |

**By Education Level**

Percentage of adults aged 25 years and older who were at a healthy weight by highest level of education obtained, 1991-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 22.5 | 19.3 - 25.6 |
| | High School | 20.1 | 17.4 - 22.7 |

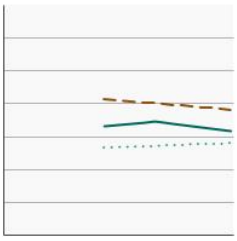
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Greater than High School | 24.9 | 22.1 - 27.8 |

**Overweight**

Expand Section + | Collapse Section -

**By Sex**

Percentage of adults aged 20 years and older who were overweight by sex, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 31.2 | 29.1 - 33.3 |
| | Male | 34.6 | 31.0 - 38.2 |
| | Female | 28.0 | 26.2 - 29.8 |

**By Race/Ethnicity**

Percentage of adults aged 20 years and older who were overweight by race/ethnicity, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 31.2 | 29.1 - 33.3 |
| | Non-Hispanic White | 29.0 | 25.8 - 32.3 |
| | Non-Hispanic Black | 26.8 | 23.8 - 29.9 |

**By Poverty Income Level**

Percentage of adults aged 20 years and older who were at a healthy weight by poverty status, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | < 200% of the federal poverty level | 29.2 | 26.5 - 32.0 |
| | >= 200% of the federal poverty level | 32.4 | 29.4 - 35.4 |

**By Education Level**

Percentage of adults aged 25 years and older who were overweight by highest level of education obtained, 1991-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 33.8 | 28.8 - 38.9 |

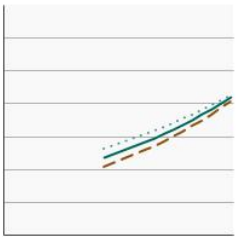
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | High School | 29.3 | 26.3 - 32.4 |
| | Greater than High School | 32.7 | 29.8 - 35.7 |

**Obese**

Expand Section + | Collapse Section -

**By Sex**

Percentage of adults aged 20 years and older who were obese by sex, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 42.4 | 39.0 - 45.8 |
| | Male | 42.9 | 37.8 - 48.1 |
| | Female | 41.9 | 38.1 - 45.6 |

**By Race/Ethnicity**

Percentage of adults aged 20 years and older who were obese by race/ethnicity, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 42.4 | 39.0 - 45.8 |
| | Non-Hispanic White | 42.3 | 37.5 - 47.0 |
| | Non-Hispanic Black | 49.4 | 46.0 - 52.7 |

**Males by Race/Ethnicity**

Percentage of males aged 20 years and older who were obese by race/ethnicity, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 42.9 | 37.8 - 48.1 |
| | Non-Hispanic White | 44.6 | 37.6 - 51.6 |
| | Non-Hispanic Black | 40.7 | 36.1 - 45.4 |

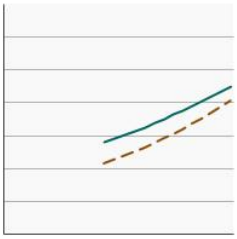
**Females by Race/Ethnicity**

Percentage of females aged 20 years and older who were obese by race/ethnicity, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 41.9 | 38.1 - 45.6 |
| | Non-Hispanic White | 39.9 | 34.5 - 45.4 |
| | Non-Hispanic Black | 56.5 | 52.4 - 60.5 |

**By Poverty Income Level**

Percentage of adults aged 20 years and older who were at a healthy weight by poverty status, 1971-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | < 200% of the federal poverty level | 44.3 | 40.4 - 48.2 |
| | >= 200% of the federal poverty level | 42.1 | 38.0 - 46.2 |

**By Education Level**

Percentage of adults aged 25 years and older who were obese by highest level of education obtained, 1991-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 42.8 | 37.8 - 47.8 |
| | High School | 48.7 | 44.6 - 52.9 |
| | Greater than High School | 41.6 | 37.6 - 45.6 |

## 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 Evidence-Based Cancer Control Programs (EBCCP) website.

## Additional Information on Weight

**General Public Resources**

- Obesity and Cancer Risk. National Cancer Institute.
- 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: Healthy Choices. 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.
- Body Mass Index Table. National Heart, Lung, and Blood Institute.

**Public Health Resources**

- 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.
- Weight Loss to Prevent Obesity-Related Morbidity and Mortality in Adults: Behavioral Interventions . U.S. Preventive Services Task Force.

**Scientific Reports**

- Prevalence of Obesity and Severe Obesity Among Adults: United States, 2017–2018. Hales CM, Carroll MD, Fryar CD, Ogden CL. NCHS Data Brief, no 360. Hyattsville, MD: National Center for Health Statistics. 2020
- Body Fatness and Cancer — Viewpoint of the IARC Working Group. 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.
- American Cancer Society guideline for diet and physical activity for cancer prevention. Rock, C.L., Thomson, C., Gansler, T., et al. CA A Cancer J Clin, 70: 245-271. https://doi.org/10.3322/caac.21591.
- 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.
- 2018 Physical Activity Guidelines Advisory Committee Scientific Report. Part F. Chapter 5. Cardiometabolic Health and Prevention of Weight Gaine. U.S Department of Health and Human Services. F5-4 – F5-12.
- Diet, nutrition, physical activity, and cancer: a global perspective. World Cancer Research Fund and the American Institute for Cancer Research.
- Energy balance and body fatness. World Cancer Research Fund and the American Institute for Cancer Research.

**Statistics**

- Obesity and Overweight. Centers for Disease Control and Prevention.

### Year Range

1971-2018

### Recent Summary Trend Year Range

2013-2018

### Summary Tables

Weight and Physical Activity

### Recent Summary Trend

Rising

### Desired Direction

Falling

## Prevention

- Tobacco Use
  - Tobacco Use Initiation
  - Youth Tobacco Use
  - Adult Tobacco Use
- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
  - Fruit and Vegetable Consumption
  - Red Meat and Processed Meat Consumption
  - Fat Consumption
  - Alcohol Consumption
  - Physical Activity
  - Weight
- UV Exposure and Sun-Protective Behavior
  - Sun-Protective Behavior
  - Indoor Tanning
  - Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Policy/Regulatory Factors
  - Tobacco Company Marketing Expenditures
  - Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke
  - Secondhand Smoke Exposure
  - Smokefree Home Rules
  - Smokefree Workplace Rules and Laws
- Chemical and Environmental Exposures
  - Arsenic
  - Benzene
  - Cadmium
  - Nitrate
  - Radon

## Prevention

- Tobacco Use Initiation
- Youth Tobacco Use
- Adult Tobacco Use
- Quitting Smoking
- Clinicians' Advice to Quit Smoking
- Fruit and Vegetable Consumption
- Red Meat Consumption
- Fat Consumption
- Alcohol Consumption
- Physical Activity
- Weight
- Sun Protective Practices
- Indoor Tanning
- Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke Exposure
- Smoke-free Home and Work Environment
- Arsenic
- Benzene
- Cadmium
- Nitrate
- Indoor Air Laws

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## Subscription

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- U.S. Department of Health and Human Services
- National Institutes of Health
- National Cancer Institute
- USA.gov

NIH... Turning Discovery Into Health

## UV Exposure and Sun Protective Behavior

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

# Cancer Trends Progress Report

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    - Red Meat and Processed Meat Consumption
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    - Physical Activity
    - Weight
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    - Sun-Protective Behavior
    - Indoor Tanning
    - Sunburn
  - HPV Vaccination
  - Genetic Testing
  - Tobacco Policy/Regulatory Factors
    - Tobacco Company Marketing Expenditures
    - Medicaid Coverage of Tobacco Dependence Treatments
  - Secondhand Smoke
    - Secondhand Smoke Exposure
    - Smokefree Home Rules
    - Smokefree Workplace Rules and Laws
  - Chemical and Environmental Exposures
    - Arsenic
    - Benzene
    - Cadmium
    - Nitrate
    - Radon
- Early Detection
  - Breast Cancer Screening

# Sun-Protective Behavior

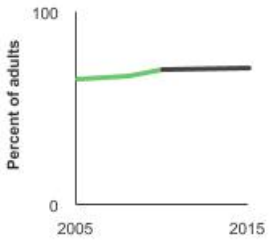
### Data Up to Date as of:

July 2021

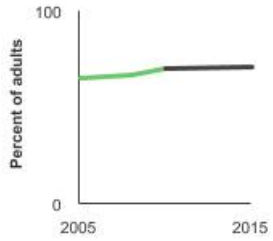
### On This Page:



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.




See Graph Details




## Background

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 ultraviolet (UV) radiation and sunburn. For example, avoiding intense sun when possible and seeking shade can reduce the risk of sunburn, and one of the goals of the Surgeon General's Call To Action to Prevent Skin Cancer is to increase the availability of shade in outdoor recreation, education, and workplace environments. Additional behaviors such as wearing sun-protective clothing (e.g., long sleeve shirt, long pants, and wide brim hat) and sunglasses can help prevent excessive exposure to UV. Broad spectrum sunscreen (protects against UVA and UVB) with a sun protection factor of 15 or higher (SPF15 or higher) should be used in combination with other sun-protective behaviors and applied appropriately (e.g., proper amount applied prior to sun exposure and with timely reapplication).

Although sunbathing and tanning are strongly associated with sunburn, recent data indicate that most sunburns occur in contexts unrelated to intentional tanning. Results suggest the need to promote multiple forms of sun protection tailored to specific contexts, especially when being physically active and when spending time near the water.

Protective behaviors are most needed when UV intensity is greatest, which occurs during the summer time and between 10 am and 4 pm. However, UV index can also be high during cloudy days, and for some regions of the U.S., 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, especially for those with sun sensitive skin. People with sun sensitive skin are relatively more likely to incur sunburn and are at greater risk for skin cancer. Sun sensitivity reflects a person's characteristic skin response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Though related to sun sensitivity, skin color and ethnicity are not adequate proxies for sun sensitivity.

In recent years, the Food and Drug Administration has improved standards for sunscreen content and labeling to minimize misleading statements and better ensure formulations deliver the advertised benefits.

## 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 2030 Target

- There are no Healthy People 2030 targets regarding protective measures that may reduce the risk of skin cancer.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

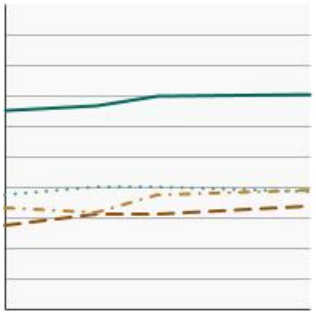
## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey 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 |
|  | Total | 70.8 | 69.9 - 71.6 |
| | Sunscreen (SPF 15+) | 33.7 | 32.8 - 34.5 |
| | Protective Clothing | 38.4 | 37.6 - 39.2 |
| | Seek Shade | 39.1 | 38.3 - 40.0 |

**Use Some Type of Protection**

Expand Section + Collapse Section -

**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 |
| | Both Sexes | 70.8 | 69.9 - 71.6 |
| | Male | 66.7 | 65.6 - 67.8 |
| | Female | 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 |
| | All Races | 70.8 | 69.9 - 71.6 |
| | Non-Hispanic White | 69.6 | 68.6 - 70.7 |
| | Non-Hispanic Black | 67.7 | 65.5 - 69.9 |
| | Hispanic | 75.7 | 74.0 - 77.3 |

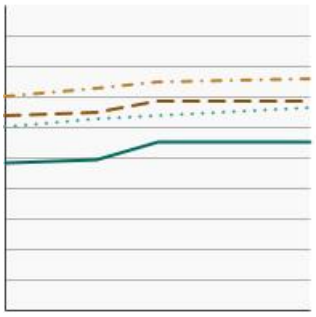
**By Age**

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) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 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) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | 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) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | <200% of federal poverty level | 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

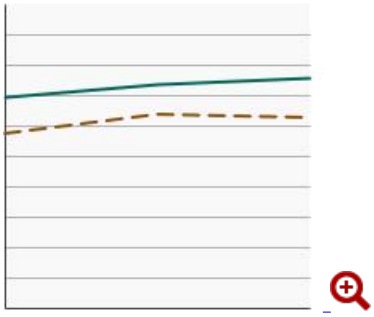
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 73.6 | 71.5 - 75.5 |
| | High School | 69.3 | 67.8 - 70.9 |
| | Greater than High School | 72.9 | 71.9 - 73.9 |

#### By Sun Sensitivity

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |

Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Sun-Sensitive | 75.7 | 74.6 - 76.7 |
| | Not Sun-Sensitive | 62.7 | 61.5 - 64.0 |

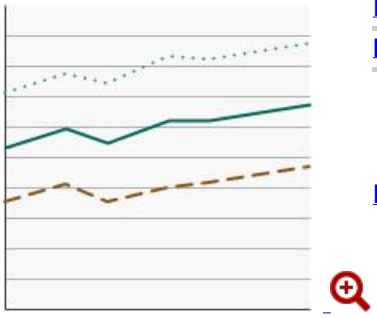
Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

**Use Sunscreen**

Expand Section + Collapse Section -

**By Sex**

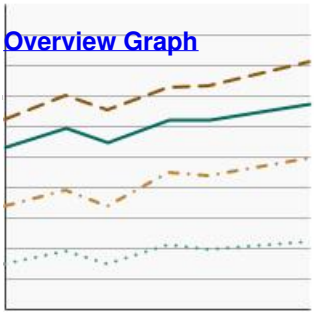
Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen by sex, 2000-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 33.7 | 32.8 - 34.5 |
| | Male | 23.4 | 22.4 - 24.4 |
| | Female | 43.6 | 42.4 - 44.8 |

**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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 33.7 | 32.8 - 34.5 |
| | Non-Hispanic White | 40.4 | 39.3 - 41.5 |
| | Non-Hispanic Black | 10.9 | 9.8 - 12.2 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Hispanic | 24.7 | 23.1 - 26.4 |

**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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 25.9 | 23.2 - 28.9 |
| | Ages 25+ | 34.8 | 33.9 - 35.7 |

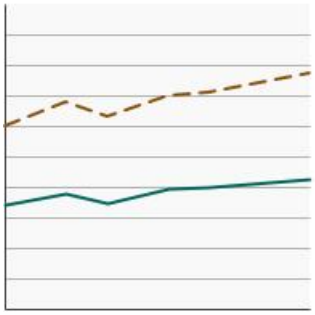
**By Sex and Age**

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 |

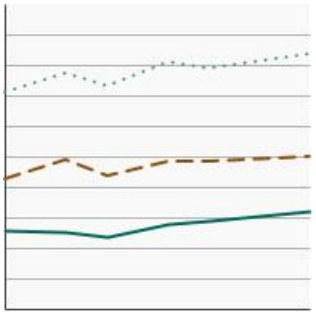
**By Poverty Income Level**

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 |

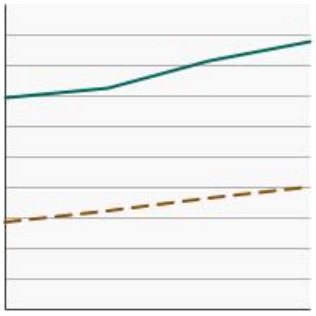
**By Education Level**

Percentage of adults aged 25 years and older who always or most of the time protect themselves from the sun by using SPF 15 or higher sunscreen 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 |

**By Sun Sensitivity**

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 sun sensitivity, 2000-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Sun-Sensitive | 43.9 | 42.7 - 45.0 |
| | Not Sun-Sensitive | 20.0 | 19.0 - 21.1 |

Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

**Wear Protective Clothing**

Expand Section + Collapse Section -

**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 |

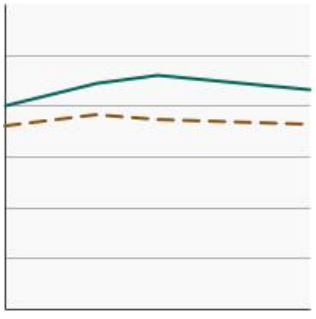
**By Sex and Age**

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 |

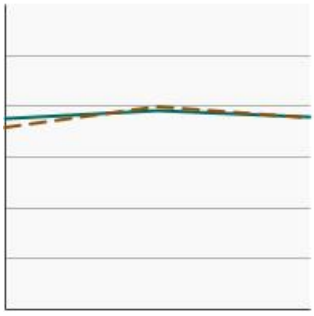
#### By Education Level

Percentage of adults aged 25 years and older who always or most of the time protect themselves from the sun by wearing protective clothing 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 |

#### By Sun Sensitivity

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 sun sensitivity, 2005-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Sun-Sensitive | 38.0 | 37.0 - 39.1 |
| | Not Sun-Sensitive | 37.7 | 36.5 - 38.9 |

Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

### Seek Shade

Expand Section + Collapse Section -

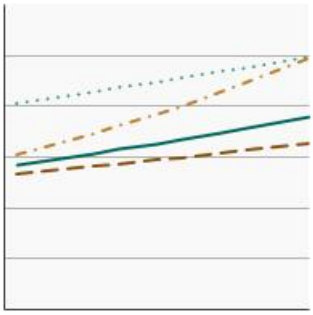
#### By Sex

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 39.1 | 38.3 - 40.0 |
| | Male | 31.9 | 30.8 - 33.2 |
| | Female | 46.0 | 45.0 - 47.1 |

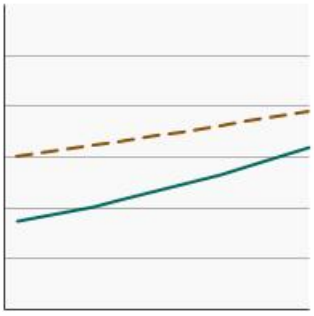
#### By Race/Ethnicity

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 39.1 | 38.3 - 40.0 |
| | Non-Hispanic White | 34.1 | 33.1 - 35.1 |
| | Non-Hispanic Black | 48.7 | 46.5 - 50.9 |
| | Hispanic | 49.1 | 47.2 - 50.9 |

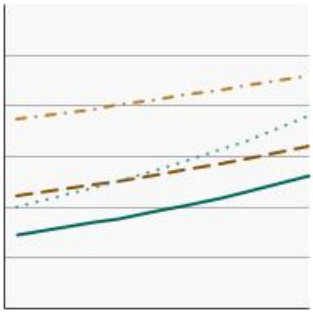
**By Age**

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Ages 18-24 | 32.0 | 29.5 - 34.6 |
| | Ages 25+ | 40.2 | 39.3 - 41.1 |

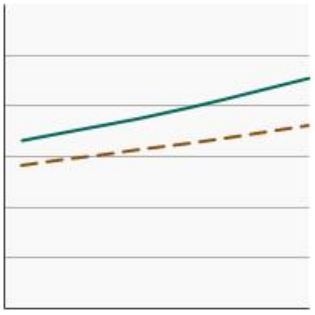
**By Sex and Age**

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by 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 |

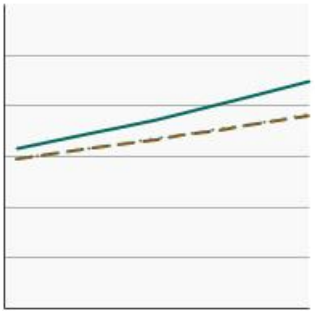
**By Poverty Income Level**

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 seeking shade 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 |

**By Sun Sensitivity**

Percentage of adults aged 18 years and older who always or most of the time protect themselves from the sun by seeking shade by sun sensitivity, 2000-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Sun-Sensitive | 41.4 | 40.2 - 42.6 |
| | Not Sun-Sensitive | 33.0 | 31.8 - 34.2 |

Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

## 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

### General Public Resources

- Skin Cancer. National Cancer Institute.
- Skin Cancer. American Cancer Society.
- Skin Cancer. Centers for Disease Control and Prevention.
- Skin Cancer. National Council on Skin Cancer Prevention.
- FDA Proposes Sunscreen Regulation Changes. U.S. Food and Drug Administration.
- Sun protection factor (SPF). U.S. Food and Drug Administration.
- Sunscreen: How to Help Protect Your Skin from the Sun. U.S. Food and Drug Administration.
- Sun Safety. U.S. Environmental Protection Agency.

### Public Health Resources

- Melanoma Treatment (PDQ®) - Health Professional Version. National Cancer Institute.
- Skin Cancer Treatment (PDQ®) - Health Professional Version. National Cancer Institute.
- 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.
- Surgeon General's Call to Action to Prevent Skin Cancer. Centers for Disease Control and Prevention.
- Skin cancer: multicomponent community-wide interventions. Community Preventive Services Task Force.
- Stratosphere: UV index. National Weather Service: Climate Prediction Center.
- Code of Federal Regulations Title 21, Volume 76, Number 117, Part 352: Sunscreen Drug Products for Over-the-Counter Human Use (April 2019). U.S. Food and Drug Administration.
- Code of Federal Regulations Title 21, Volume 76, Number 117, Part 201: Labeling (July 2018). U.S. Food and Drug Administration.
- FDA proposed rule: sunscreen drug products for over-the-counter-human use; proposal to amend and lift stay on monograph. U.S. Food and Drug Administration.
- Skin Cancer Prevention: Behavioral counseling. U.S. Preventive Services Task Force.

### Scientific Reports

- Association of occupational sun safety policy and actions in state transportation sector in the United States. Buller DB, Walkosz BJ, Olivas S, et al. Am J Ind Med. 2021 Apr;64(4):274-282.
- Interdisciplinary perspectives on sun safety. Geller AC, Jablonski NG, Pagoto SL, et al. JAMA Dermatol. 2018;154(1):88-92.
- 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.
- Estimated cost of sunburn-associated visits to US hospital emergency departments. Guy GP, Berkowitz Z, and Watson M. JAMA Dermatol. 2017;153(1):90-92.
- Trends in indoor tanning and its association with sunburn among US adults. Guy GP, Watson M, Seidenberg AB et al. J Am Acad Dermatol. 2017;76(6):1191-1193.
- The potential impact of reducing indoor tanning on melanoma prevention and treatment costs in the United States: an economic analysis. Guy GP, Zhang Y, Ekwueme DU, et al. J Am Acad Dermatol. 2017;76(2):226-233.
- Prevalence of sun protection use and sunburn and association of demographic and behavioral characteristics with sunburn among US adults. Holman DM, Ding H, Guy GP et al. JAMA Dermatol. 2018; 154(5):561-568.
- Health Beliefs About UV and Skin Cancer Risk Behaviors. Cancer Control. Julian A, Thorburn S, Geldhof GJ. 2020 Jan-Dec;27(4):1073274819894008.
- Benefit–Cost Analysis of the Danish Sun Safety Campaign 2007–2015: Cost Savings from Sunburn and Sunbed Use Reduction and Derived Skin Cancer Reductions 2007–2040 in the Danish Population. Køster B, Meyer MKH, Søgaard J, Dalum P. Pharmacoecon Open. 2020 Sep;4(3):419-425.
- Prevalence and predictors of total-body skin examination among US adults: 2005 National Health Interview Survey. Lakhani NA, Shaw KM, Thompson T, et al. J Am Acad Dermatol. 2011: 65(3): 645-648.
- Prevalence and correlates of skin self-examination practices among cutaneous malignant melanoma survivors. Manne SL, Heckman CJ, Kashy D, et al. Prev Med Rep. 2020 May 1;19:101110.
- Effect of Sunscreen Application Under Maximal Use Conditions on Plasma Concentration of Sunscreen Active Ingredients: A Randomized Clinical Trial. Matta MK, Zusterzeel R, Pilli NR, et al. JAMA. 2019;321(21):2082-2091.
- Decision tree model v traditional measures to identify patterns of sun-protective behaviors and sun sensitivity associated with sunburn. Morris KL and Perna FM. JAMA Dermatol. 2018;154(8):897-902.
- Environmental effects of stratospheric ozone depletion, UV radiation, and interactions with climate change: UNEP Environmental Effects Assessment Panel, Update 2020. Neale RE, Barnes PW, Robson TM, et al. Photochem

Photobiol Sci. 2021 Jan;20(1):1-67.
- The effect of sunscreen on vitamin D: a review. Neale RE, Khan SR, Lucas RM, et al. Br J Dermatol. 2019 Nov;181(5):907-915.
- Remote skin self-examination training of melanoma survivors and their skin check partners: A randomized trial and comparison with in-person training. Robinson JK, Reavy R, Mallett KA, Turrisi R. Cancer Med. 2020 Oct;9(19):7301-7309.
- Melanoma Skin Self-Examination Education During Mammography: Health Burden of Women Impairs Implementation. Robinson JK, Brown Z, Spring B. J Cancer Educ. 2020 Feb 24:10.1007/s13187-020-01714-4.
- Community-wide interventions to prevent skin cancer: two community guide systematic reviews. Sandhu PK, Elder R, Patel M, et al. Am J Prev Med. 2016;51(4):531-9.
- Implementation of the SunSmart program and population sun protection behaviour in Melbourne, Australia: Results from cross-sectional summer surveys from 1987 to 2017. Tabbakh T, Volkov A, Wakefield M, Dobbinson S. PLoS Med. 2019;16(10):e1002932.
- Walking and Sun Protective Behaviors: Cross-Sectional Associations of Beneficial Health Factors. Tribby CP, Perna FM, Berrigan D. Int J Environ Res Public Health. 2019 Jul 3;16(13):2361.

**Statistics**

- SEER Cancer Statistics Review, National Cancer Institute.
- National Health Interview Survey. Centers for Disease Control and Prevention, National Center for Health Statistics.

### Year Range

2005-2015

### Recent Summary Trend Year Range

2010-2015

### Summary Tables

Sun Protection

### Recent Summary Trend

Stable

### Desired Direction

Rising

## Prevention

## Prevention



## About

## About



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# Cancer Trends Progress Report

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- Prevention
- Early Detection
- Diagnosis
- Treatment
- Life After Cancer
- End of Life
- Summary Tables

## Main Menu

# Indoor Tanning

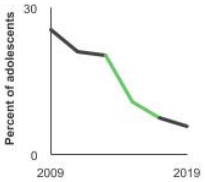
### Data Up to Date as of:

July 2021

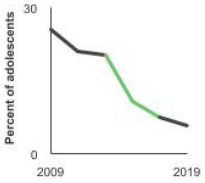
### On This Page:



In 2019, 5.7% of female adolescents used an indoor tanning device within the past year.




See Graph Details




### Background

Guy et al. 2017 estimated that restricting indoor tanning among minors under 18 years old may prevent melanoma incidence and mortality and save millions of dollars in treatment costs in the United States. Subsequent international modeling studies accounting for more stringent indoor policies in the US, Canada, and Europe since 2018 estimate reduced skin cancer burden and reduced health care costs if indoor tanning were banned among minors or banned completely.

Reports indicate that age restriction laws have been associated with less indoor tanning, and teens who do not tan before age 18 are two to four times less likely to tan as adults. Several states have adopted laws restricting youth access to tanning beds, and the FDA has proposed a nationwide restriction for minors' (under 18 years) access to tanning beds. Bowers et al, 2020 reported that indoor tanning rates among adults over age 18 also decreased in states that banned indoor tanning among minors as compared to adults in states without tanning restrictions for minors.

### 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 receipt of 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 likely resulted in overestimates, and these data are not included in the report.

### Healthy People 2030 Target

There are no Healthy People 2030 targets regarding indoor tanning.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

### Data Source

**Adolescents:** Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Youth Risk Behavior Surveillance System (YRBSS), 2009–2019.

**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.

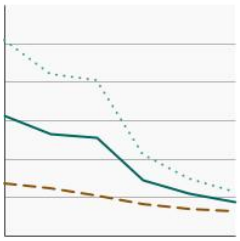
### Trends and Most Recent Estimates

#### Adolescents

Expand Section + Collapse Section -

#### By Sex

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by sex, 2009-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Both Sexes | 4.5 | 3.5 - 5.6 |
| | Male | 3.2 | 2.5 - 4.1 |
| | Female | 5.7 | 4.2 - 7.7 |

#### By Race/Ethnicity

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by race/ethnicity, 2009-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Races | 4.5 | 3.5 - 5.6 |
| | Non-Hispanic White | 5.6 | 4.2 - 7.4 |
| | Non-Hispanic Black | 3.2 | 2.2 - 4.7 |
| | Hispanic | 3.4 | 2.5 - 4.5 |

#### 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, 2009-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of female adolescents | 95% Confidence Interval |
| | All Races | 5.7 | 4.2 - 7.7 |
| | Non-Hispanic White | 8.4 | 6.0 - 11.7 |
| | Non-Hispanic Black | 0.5 | 0.3 - 0.9 |
| | Hispanic | 3.3 | 2.5 - 4.4 |

#### By High School Grade

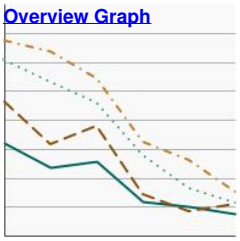
Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Grade 9 | 3.0 | 2.1 - 4.3 |
| | Grade 10 | 4.4 | 3.2 - 6.1 |
| | Grade 11 | 4.7 | 3.2 - 7.0 |
| | Grade 12 | 5.5 | 4.0 - 7.4 |

#### 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, 2009-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of female adolescents | 95% Confidence Interval |
| | Grade 9 | 3.7 | 2.4 - 5.6 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of female adolescents | 95% Confidence Interval |
|  | Grade 10 | 5.5 | 3.7 - 8.1 |
| | Grade 11 | 5.6 | 3.5 - 9.0 |
| | Grade 12 | 7.5 | 5.0 - 11.3 |

**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, 2009-2019

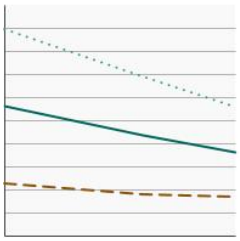
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of female Non-Hispanic White adolescents | 95% Confidence Interval |
| | Grade 9 | 5.3 | 3.3 - 8.4 |
| | Grade 10 | 8.5 | 5.7 - 12.6 |
| | Grade 11 | 9.9 | 6.1 - 15.8 |
| | Grade 12 | 10.1 | 6.2 - 16.2 |

**Adults**

Expand Section + Collapse Section -

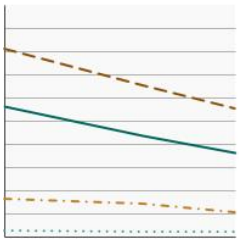
**By Sex**

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 3.6 | 3.3 - 4.0 |
| | Male | 1.7 | 1.4 - 2.0 |
| | Female | 5.6 | 5.1 - 6.2 |

**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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 3.6 | 3.3 - 4.0 |
| | Non-Hispanic White | 5.5 | 5.0 - 6.1 |
| | Non-Hispanic Black | 0.2 | 0.1 - 0.4 |
| | Hispanic | 1.0 | 0.8 - 1.4 |

**By Age**

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 6.2 | 5.1 - 7.5 |
| | Ages 25+ | 3.3 | 2.9 - 3.6 |

**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 | 0.9 - 2.5 |
| | Males, Ages 25+ | 1.7 | 1.4 - 2.0 |
| | Females, Ages 18-24 | 11.0 | 9.0 - 13.4 |
| | Females, Ages 25+ | 4.8 | 4.3 - 5.4 |

**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

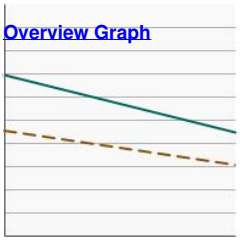
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 1.6 | 1.1 - 2.2 |
| | High School | 3.8 | 3.1 - 4.6 |
| | Greater than High School | 3.4 | 3.0 - 3.8 |

**By Sun Sensitivity**

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Sun-Sensitive | 4.5 | 4.0 - 5.0 |

Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Not Sun-Sensitive | 3.0 | 2.6 - 3.5 |

Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.

## 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

Multicomponent community-wide interventions are recommended to prevent skin cancer as well as education and policy approaches.

## Additional Information on Indoor Tanning

### General Public Resources

- Skin Cancer (including Melanoma)—Patient Version. National Cancer Institute.
- Skin Cancer. American Cancer Society.
- National Council on Skin Cancer Prevention.
- Sunburn Protection Factor (SPF). U.S. Food and Drug Administration.
- Indoor tanning: The risks of ultraviolet rays. U.S. Food and Drug Administration.
- Sunscreen: How to Help Protect Your Skin From the Sun. U.S. Food and Drug Administration.

### Public Health Resources

- Melanoma Treatment (PDQ®)—Health Professional Version. National Cancer Institute.
- Skin Cancer Treatment (PDQ®)—Health Professional Version. National Cancer Institute.
- Surgeon General's Call to Action to Prevent Skin Cancer. Centers for Disease Control and Prevention.
- Counseling on Sun Protection and Indoor Tanning. Balk SJ, Gottschlich EA, Holman DM, Watson M. Pediatrics. 2017;140(6): e20171680.
- Skin cancer: multicomponent community-wide interventions. Community Preventive Services Task Force.
- Radiation-Emitting Products: Sunlamps and Sunlamp Products (Tanning Beds/Booths). U.S. Food and Drug Administration.
- Behavioral counseling to prevent skin cancer: U.S. Preventive Services Task Force recommendation statement. U.S. Preventive Services Task Force. JAMA 2018;319(11):1134–1142.
- Indoor Tanning Restrictions for Minors – A State-by-State Comparison (April 2018). National Conference of State Legislatures.

### Scientific Reports

- Effect of vitamin D supplementation on non-skeletal disorders: a systematic review of meta-analyses and randomized trials. Autier P, Mullie P, Macacu A et al. Lancet Diabetes Endocrinol. 2017;5(12):986-1004.
- VITamin D and OmegA-3 TriaL (VITAL Study). Brigham and Women's Hospital.
- Interdisciplinary Perspectives on Sun Safety. Geller AC, Jablonski NG, Pagoto SL et al. JAMA Detmatol. 2018:154(1):88-92.
- Trends in indoor tanning and its association with sunburn among US adults. Guy GP, Watson M, Seidenberg AB et al. J Am Acad Dermatol. 2017;76(6):1191-1193 .
- The potential impact of reducing indoor tanning on melanoma prevention and treatment costs in the U.S.: An economic analysis. Guy GP, Zhang Y, Ekwueme DU et al. J Am Acad Dermatol. 2017;76(2):226-233.
- Behavioral counseling to prevent skin cancer: U.S. Preventive Services Task Force recommendation statement. U.S. Preventive Services Task Force. JAMA 2018;319(11):1134–1142.
- Age-Specific Incidence of Melanoma in the United States. Paulson KG, Gupta D, Kim TS, et al. JAMA Dermatol. 2019. doi: 10.1001/jamadermatol.2019.3353. [Epub ahead of print]
- Research on Skin Cancer-Related Behaviors and Outcomes in the NIH Grant Portfolio, 2000-2014: Skin Cancer Intervention Across the Cancer Control Continuum (SCI-3C). Perna FM, Dwyer LA, Tesauro G et al. JAMA Dermatol. 2017;153(5): 398-405.
- State Indoor Tanning Laws and Prevalence of Indoor Tanning Among US High School Students, 2009-2015. Qin J, Holman DM, Jones SE et al. Am J Public Health. 2018;108(7):951-956.
- Implementation of the SunSmart program and population sun protection behaviour in Melbourne, Australia: Results from cross-sectional summer surveys from 1987 to 2017. Tabbakh T, Volkov A, Wakefield M, Dobbinson S. PLoS Med. 2019;16(10):e1002932.
- Tanning Salon Compliance Rates in States with Legislation to Protect Youth Access to UV Tanning. Williams MS, Buhalog B, Blumenthal L, Stratman EJ. JAMA Dermatol 2018;154(1):67-72.
- Prevalence of indoor tanning and association with sunburn among youth in the United States. Guy GP, Berkowitz Z, Jones ES et al. JAMA Dermatol 2017;153(5):387-390.

### Statistics

- SEER Cancer Statistics Review. National Cancer Institute.
- Cancer Statistics Center, 2018 Estimates. American Cancer Society.
- National Health Interview Survey. Centers for Disease Control and Prevention, National Center for Health Statistics.

## Year Range

2009-2019

### Recent Summary Trend Year Range

2015-2019

### Summary Tables

Sun Protection

### Recent Summary Trend

Falling

### Desired Direction

Falling

## Prevention

- Tobacco Use
  - Tobacco Use Initiation
  - Youth Tobacco Use
  - Adult Tobacco Use
- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
  - Fruit and Vegetable Consumption
  - Red Meat and Processed Meat Consumption
  - Fat Consumption
  - Alcohol Consumption
  - Physical Activity
  - Weight
- UV Exposure and Sun-Protective Behavior
  - Sun-Protective Behavior
  - Indoor Tanning
  - Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Policy/Regulatory Factors
  - Tobacco Company Marketing Expenditures
  - Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke
  - Secondhand Smoke Exposure
  - Smokefree Home Rules
  - Smokefree Workplace Rules and Laws
- Chemical and Environmental Exposures
  - Arsenic
  - Benzene
  - Cadmium
  - Nitrate
  - Radon

## Prevention

- Tobacco Use Initiation
- Youth Tobacco Use
- Adult Tobacco Use
- Quitting Smoking
- Clinicians' Advice to Quit Smoking
- Fruit and Vegetable Consumption
- Red Meat Consumption
- Fat Consumption
- Alcohol Consumption
- Physical Activity
- Weight
- Sun Protective Practices
- Indoor Tanning

- Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke Exposure
- Smoke-free Home and Work Environment
- Arsenic
- Benzene
- Cadmium
- Nitrate
- Indoor Air Laws

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# Sunburn

## Data Up to Date as of:

July 2021

## Background

Sunburn, also known as erythema, is caused by excessive exposure to ultraviolet radiation (UVR), which results in an acute cutaneous inflammatory response. Sunburn results from over exposure to UVR and can occur from use of indoor tanning beds or over exposure to outdoor sunlight. Although sunbathing and tanning are strongly associated with sunburn, recent data indicate that most sunburns occur in contexts unrelated to intentional tanning, such as engaging in physical activity and when spending time near the water. Sunburn symptoms include redness, warmth, tenderness, or edema, and may cause pain or blistering. Annually, over 33,000 sunburns are reported that require emergency room visits and may occur among people of all racial/ethnic groups. Previous sun burning, particularly experienced at younger ages, is a strong predictor of future skin cancer and especially melanoma, the deadliest form of skin cancer. People with sun sensitive skin are more likely to incur sunburn and are at greater risk for skin cancer, especially melanoma, than those with relatively less sun sensitivity. Sun sensitivity reflects a person's characteristic skin response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Though related to sun sensitivity, skin color and ethnicity are not adequate proxies for sun sensitivity because they are not accurate biological descriptors of at-risk populations.

## 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 2030 Target

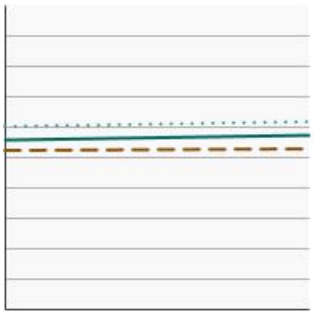
- Reduce to 52.2 percent the proportion of adolescents in grades 9 through 12 who report sunburn.

Healthy People 2030 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), 2015-2017.
**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 students in grades 9-12 who were sunburned in the past year by sex, 2015-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
|  | Both Sexes | 57.2 | 54.1 - 60.3 |
| | Male | 52.8 | 49.4 - 56.0 |
| | Female | 61.6 | 58.4 - 64.7 |

### By Race/Ethnicity
Percentage of students in grades 9-12 who were sunburned in the past year by race/ethnicity, 2015-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | All Races | 57.2 | 54.1 - 60.3 |
| | Non-Hispanic White | 74.8 | 73.0 - 76.6 |
| | Non-Hispanic Black | 13.0 | 10.4 - 16.1 |
| | Hispanic | 45.1 | 42.4 - 47.8 |

### By High School Grade
Percentage of students in grades 9-12 who were sunburned in the past year by grade level, 2015-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Grade 9 | 57.7 | 53.9 - 61.4 |
| | Grade 10 | 57.2 | 53.1 - 61.2 |
| | Grade 11 | 55.6 | 51.5 - 59.7 |
| | Grade 12 | 58.7 | 54.5 - 62.9 |

## Adults

### By Sex

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 35.3 | 34.4 - 36.2 |
| | Male | 35.5 | 34.2 - 36.7 |
| | Female | 35.2 | 34.1 - 36.3 |

### By Race/Ethnicity

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 35.3 | 34.4 - 36.2 |
| | Non-Hispanic White | 46.3 | 45.1 - 47.5 |
| | Non-Hispanic Black | 9.9 | 8.8 - 11.1 |
| | Hispanic | 22.4 | 20.9 - 24.0 |

### By Age

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 18-24 | 46.0 | 43.1 - 48.9 |
| | Ages 25+ | 33.7 | 32.8 - 34.6 |

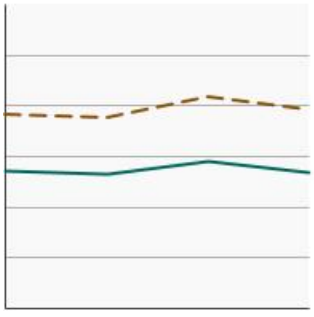
### By Sex and Age

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 | 39.8 - 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 | 32.2 - 34.3 |

### 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 |

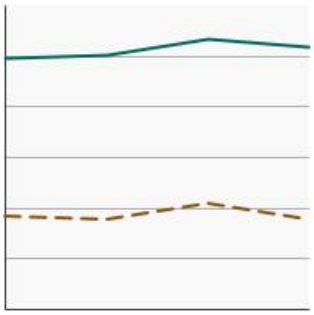
### By Education Level

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 - 32.5 |
| | Greater than High School | 37.2 | 36.3 - 38.2 |

### By Sun Sensitivity

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Sun-Sensitive | 51.7 | 50.6 - 52.8 |
| | Not Sun-Sensitive | 17.7 | 16.7 - 18.7 |

*Sun sensitivity reflects a person's biological response (e.g., a burn, a burn and then tan, etc.) after prolonged sun exposure or after a long period or season of being relatively unexposed. Although race is related to sun sensitivity, race and ethnicity are not adequate proxies for sun sensitivity.*

## 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

# HPV Vaccination

## Data Up to Date as of:

July 2021

## Background

Human papillomavirus (HPV) is a common virus, some types of which spread through sexual contact. Some sexually transmitted HPVs can cause genital warts, whereas others, 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. The HPV vaccine, Gardasil 9, prevents infection with seven HPV types that cause cancer and two HPV types that cause genital warts. According to the Centers for Disease Control and Prevention (CDC), both males and females aged 11 to 12 years should get vaccinated. People aged 9 to 26 years are recommended to receive the vaccine. People aged 27 to 45 years may decide to get vaccinated after talking with their doctors about their risks for new HPV infections.

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 is available on the National Immunization Survey-Teen (NIS-Teen): Revised Definition of Adequate Provider Data (APD) website, published by the CDC.

## Healthy People 2030 Target

- Increase to 80 percent the proportion of adolescents who receive recommended doses of the human papillomavirus (HPV) vaccine.

Healthy People 2030 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.

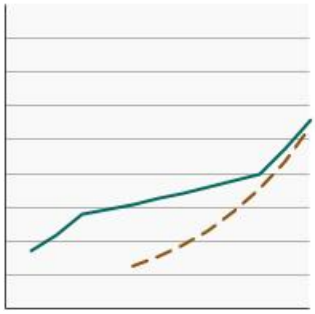
## Data Source

Centers for Disease Control and Prevention, The National Immunization Surveys (NIS), 2008-2019.

## Trends and Most Recent Estimates

### Ages 13-15

Percent of adolescents aged 13-15 years who had received 2 or 3 doses of the human papillomavirus (HPV) vaccine as recommended at time of immunization by sex, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
|  | Female | 54.6 | 51.8 - 57.4 |
| | Male | 50.0 | 47.3 - 52.6 |

### Ages 13-17

### Female

Percentage of females aged 13-17 years who had received 1+ dose or were up-to-date[1] on the human papillomavirus (HPV) vaccine, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | 1+ doses | 73.2 | 71.3 - 75.0 |
| | Up-to-date | 56.8 | 54.6 - 59.0 |

### Male

Percentage of males aged 13-17 years who had received 1+ dose or were up-to-date[1] on the human papillomavirus (HPV) vaccine, 2012-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | 1+ doses | 69.8 | 67.9 - 71.7 |
| | Up-to-date | 51.8 | 49.7 - 53.9 |

### Cancers Related to HPV

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 Vaccination

# Genetic Testing

## Data Up to Date as of:

July 2021

## Background

Genetic testing looks for specific inherited changes in a person's DNA (or genetic mutations) that may increase a person's chance of developing a disease such as cancer. Genetic testing should be considered if personal or family history suggests an inherited cancer risk condition. The test results can help guide a person's future medical care.

A genetic counselor is a health professional who has special training in medical genetics and counseling. Any person who is considering genetic testing should speak with a genetic counselor before deciding whether to be tested. Genetic counselors can also discuss the risks, benefits, and limitations of genetic testing for individuals to help them understand their situation.

## Measure

Percentage of females aged 18 years and older with a family history of breast and/or ovarian cancer who had discussed the possibility of getting a genetic test for cancer risk with a doctor or other health professional, 2005-2015.

Percentage of adults aged 18 years and older with a personal history of colorectal cancer who had discussed the possibility of getting a genetic test for cancer risk with a doctor or other health professional, by sex, 2005-2015.

Percentage of adults aged 18 years and older with a personal history of colorectal cancer who had a genetic test for cancer risk, by sex, 2005-2015.

## Healthy People 2030 Target

- (Developmental Objective) Increase the proportion of women with a family history of breast and/or ovarian cancer who receive genetic counseling.
- (Research Objective) Increase the proportion of persons with newly diagnosed colorectal cancer who receive genetic testing to identify Lynch syndrome or familial colorectal cancer syndromes.

*Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.*
*Note: Healthy People 2030 Developmental and Research Objectives do not have targets, so that is why there is no target line on the Detailed Trend Graphs. Learn more about different types of Healthy People Objectives.*

## 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, 2005-2015.

## Trends and Most Recent Estimates

### Breast and Ovarian Cancer

Percentage of females aged 18 years and older with a family history of breast and/or ovarian cancer who had discussed the possibility of getting a genetic test for cancer risk with a doctor or other health professional[1], 2005-2015

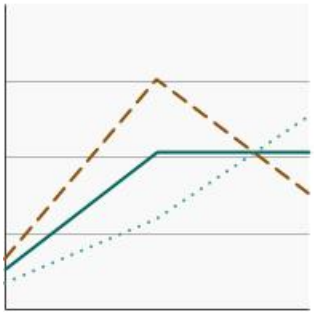
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of females | 95% Confidence Interval |
| | Discussed the Possibility of a Genetic Test for Cancer Risk | 22.9 | 12.8 - 37.6 |

*[1] Analysis includes females who met the USPSTF guidelines based on family history of breast and ovarian cancer.*

### Colorectal Cancer

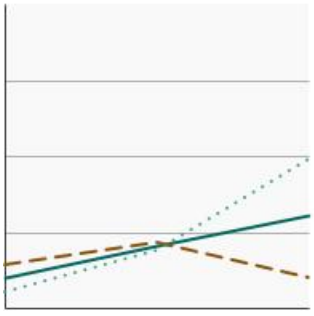
### Genetic Counseling

Percentage of adults aged 18 years and older with a personal history of colorectal cancer who had discussed the possibility of getting a genetic test for cancer risk with a doctor or other health professional by sex, 2005-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults with personal history of colorectal cancer | 95% Confidence Interval |
|  | Both Sexes | 10.3 | 6.0 - 17.1 |
| | Male | 7.6 | 3.3 - 16.6 |
| | Female | 12.6 | 6.2 - 23.9 |

### Genetic Testing

Percentage of adults aged 18 years and older with a personal history of colorectal cancer who had a genetic test for cancer risk by sex, 2005-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults with personal history of colorectal cancer | 95% Confidence Interval |
|  | Both Sexes | 6.1 | 2.9 - 12.3 |
| | Male | 2.0 | 0.7 - 5.4 |
| | Female | 9.8 | 4.3 - 21.1 |

### Cancers Related to Genetic Testing

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

- Adrenal Gland
- Bone and Joint
- Brain and Other Nervous System
- Breast
- Colon and Rectum
- Eye
- Kidney and Renal Pelvis
- Leukemia
- Liver and Intrahepatic Bile Duct
- Melanoma of the Skin
- Ovary
- Pancreas
- Pineal Gland
- Pituitary Gland
- Prostate
- Small Intestine
- Soft Tissue including Heart
- Stomach
- Thyroid
- Uterus

### Additional Information on Genetic Testing

# Cancer Trends Progress Report

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- Cadmium
- Nitrate
- Radon

1. Home
2. » Prevention
3. » Tobacco Policy/Regulatory Factors

# 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

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# Cancer Trends Progress Report

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# Tobacco Company Marketing Expenditures

### Data Up to Date as of:

July 2021

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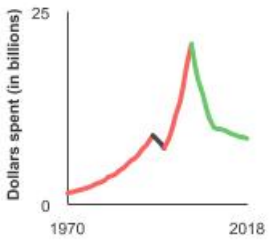
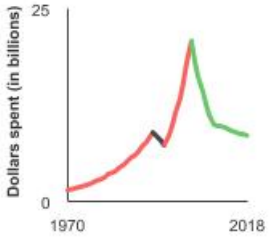
In 2018, adjusted combined annual expenditures for cigarette advertising and promotion was $8.4 billion.




See Graph Details




## Background

Tobacco advertising and promotion are causally related to increased tobacco use. Cigarettes are one of the most heavily marketed products in the U.S. 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 U.S. The sales and marketing expenditures reported include categories such as direct mail, Internet, point of sale, price discounts, coupons, sampling distribution, and sponsorships. The Federal Trade Commission has issued orders to six e-cigarette manufacturers seeking similar information to accompany the cigarette and smokeless tobacco product reports on sales and marketing.

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 parent companies of the major manufacturers of cigarettes sold in the U.S., adjusted, as reported by manufacturers to the U.S. Federal Trade Commission.

Combined smokeless tobacco annual advertising and promotional expenditures by the 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 2030 Target

- There are no Healthy People 2030 targets for reducing tobacco company marketing expenditures.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## Data Source

Federal Trade Commission Cigarette Report for 2018.

Federal Trade Commission Smokeless Tobacco Report for 2018.

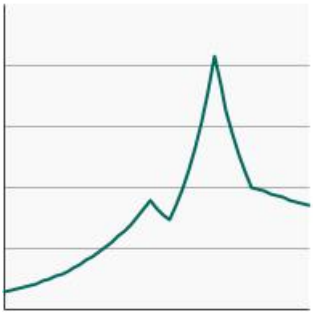
## Trends and Most Recent Estimates

Expand All + Collapse All -

### Cigarettes

Domestic cigarette advertising and promotional expenditures by U.S. tobacco companies adjusted to 2018 dollars, 1970-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Dollars spent (in billions) | 95% Confidence Interval |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Dollars spent (in billions) | 95% Confidence Interval |
|  | Total Marketing Expenditures | 8.4 | Not available |

**Smokeless Tobacco**

Domestic smokeless tobacco advertising and promotional expenditures by U.S. tobacco companies adjusted to 2018 dollars, 1985-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Dollars spent (in millions) | 95% Confidence Interval |
| | Total Marketing Expenditures | 658.5 | Not available |

## Additional Information on Tobacco Company Marketing Expenditures

### General Public Resources

- Smoke Free Movies. UCSF Center for Tobacco Control Research and Education.
- Litigation Against Tobacco Companies. U.S. Department of Justice, Consumer Protection Branch.
- Family Smoking Prevention and Tobacco Control Act—An Overview. U.S. Food and Drug Administration.

#### Quitting Resources

- Smokefree.gov. National Cancer Institute.
- Tobacco. National Cancer Institute.
- North American Quitline Consortium.

### Public Health Resources

- Smokeless Tobacco and Public Health: A Global Perspective. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Institutes of Health, National Cancer Institute. NIH Publication No. 14-7983; 2014.
- Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use. National Cancer Institute. Smoking and Tobacco Control Monographs.
- 2016 Surgeon General's Report: E-Cigarette Use Among Youth and Young Adults. Centers for Disease Control and Prevention.
- 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.

### Scientific Reports

- Exposure to multimedia tobacco marketing and product use among youth: A longitudinal Analysis. Choi K, Rose SW,

Zhou Y et al. Nivotine Tob Res 2020:22(6):1036-1040.
- Examining market trends in smokeless tobacco sales in the United States: 2011-2019. Delnevo CD, Hrywna M, Lo, EJM et al. Nicotine Tob Res 2020: epub
- 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.
- Cigarette Brand Preference and Pro-Tobacco Advertising Among Middle and High School Students—United States, 2012-2016. Perks SN, Armour B, Agaku IT. MMWR 2018;67(4):119-124 .
- Association between receptivity to tobacco advertising and progression to tobacco use in youth and young adults in the PATH study. Pierce JP, Sargent JD, Portnoy DB et al. JAMA Pediatr. 2018:172(5):444-451.
- Tobacco Control: Advertising and Marketing. Public Health Law Center.
- Tobacco Use in Top-Grossing Movies – United States, 2010-2018. Tynan MA, Polansky JR, Driscoll D, Garcia C, Glantz SA. MMWR 2019;68(43):974-978.

**Statistics**

- NCI sponsored Tobacco Use Supplement to the Current Population. U.S. Dept. of Commerce, Census Bureau.
- Smoking in the Movies. Centers for Disease Control and Prevention.
- Tobacco Industry Marketing. Centers for Disease Control and Prevention.

### Year Range

1970-2018

### Recent Summary Trend Year Range

2014-2018

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Tobacco Company Marketing Expenditures

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Falling

### Desired Direction

Falling

## Prevention

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# Medicaid Coverage of Tobacco Dependence Treatments

## Data Up to Date as of:

July 2021

## Background

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.

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 2014, section 2502 of the ACA barred state Medicaid programs that participate in the Medicaid drug rebate program 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 30, 2020, only 15 states provided comprehensive coverage of all 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. [1]

The number of states that provide coverage under Medicaid for tobacco cessation medications. [1]

***[1] Definitions***

***Covered:*** *This service is provided for all individuals enrolled in Medicaid.*

***Coverage Varies by Plan:*** *If fee-for-service and managed care plans provide different coverage of this service, it was classified as "Varies by Plan."*

***Pregnant Women Only:*** *This service is provided only for pregnant women*

***Note:*** *For Both fee-for-service and managed care plans were considered. If a state reported "Not Applicable" for one plan, what was reported for the other plan was used. Otherwise, if the report for fee-for-service and managed care plans did not match, it was classified as "Varies by Plan." If fee-for-service and managed care plans did match, they were classified as such.*

## Healthy People 2030 Target

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

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## Data Source

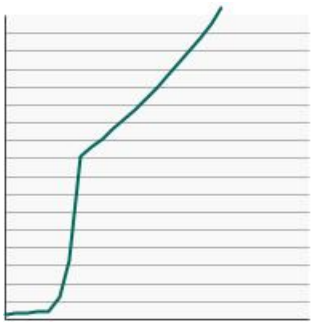
Centers for Disease Control and Prevention. State Tobacco Activities Tracking and Evaluation (STATE) System.

McMenamin SB, Haplin HA, Bellows MN, Husten CG, Rosenthal A. State Medicaid coverage for tobacco-dependance treatments - United States, 2007. Morbidity and Mortality Weekly Report 2009;58(43);1199-1204.

## Trends and Most Recent Estimates

### Medicaid Coverage of Cessation Treatements

Medicaid Coverage of at least one tobacco-dependence treatment for at least some enrollees in the 50 states and DC, 1990-2010

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2010) | |
|---|---|---|---|
| | | Number of States | 95% Confidence Interval |
|  | Medicaid Coverage of Cessation Treatments | 51.0 | Not available |

### Medicaid Coverage for Group Cessation Counseling

State Medicaid coverage for tobacco cessation group counseling by level of coverage, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Number of U.S. states | 95% Confidence Interval |
| | Covered | 15.0 | Not available |
| | Pregnant Women Only | 1.0 | Not available |
| | Coverage Varies by Plan | 14.0 | Not available |

### Medicaid Coverage for Individual Cessation Counseling

State Medicaid coverage for tobacco cessation individual counseling by level of coverage, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Number of U.S. states | 95% Confidence Interval |
| | Covered | 33.0 | Not available |
| | Pregnant Women Only | 3.0 | Not available |
| | Coverage Varies by Plan | 12.0 | Not available |

### Medicaid Coverage for Cessation Aids

State Medicaid coverage for tobacco cessation aids by medication availablity and level of coverage, 2008-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Number of U.S. states | 95% Confidence Interval |
| | Over-the-Counter Aids Covered | 50.0 | Not available |
| | Prescription Aids Covered | 51.0 | Not available |
| | OTC Coverage Varies by Plan | 1.0 | Not available |
| | Prescription Coverage Varies by Plan | 1.0 | Not available |

## Additional Information on Medicaid Coverage of Tobacco Dependence Treatments

## Secondhand Smoke

Secondhand smoke (SHS) 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 SHS are known to be harmful, and at least 69 are known to cause cancer. Conclusive scientific evidence documents that SHS causes premature death and disease in children and adults who do not smoke. Among adults, exposure to SHS 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.

Secondhand aerosol is a mixture of chemicals in the aerosol exhaled by e-cigarette users. Some of the chemicals found in SHS are also present in secondhand aerosol. Although these levels are generally lower than in secondhand smoke, exposure is not risk-free. Besides nicotine, e-cigarette aerosol may contain heavy metals, volatile organic compounds, and fine and ultrafine particles that can be inhaled deeply into the lungs by both users and bystanders. Secondhand aerosol is often incorrectly referred to as "vapor".

- Secondhand Smoke Exposure
- Smokefree Home Rules
- Smokefree Workplace Rules and Laws

# Cancer Trends Progress Report

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  - Cancer Survivors and Weight
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# Secondhand Smoke Exposure

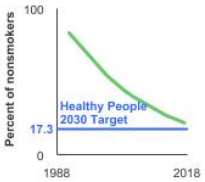
### Data Up to Date as of:

July 2021

### On This Page:



From 2017 to 2018, 25.8% of persons aged 3 years and older were currently exposed to second-hand smoke.

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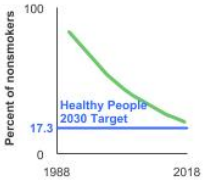



### Background

Secondhand smoke (SHS) 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 SHS are known to be harmful, and at least 69 are known to cause cancer.

Conclusive scientific evidence documents that SHS causes premature death and disease in children and adults who do not smoke. Among adults, exposure to SHS 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 SHS among nonsmokers can be assessed by measurement of cotinine, a metabolite of nicotine. While cotinine levels may vary by individual due to the speed of nicotine metabolism and cotinine clearance, detection of cotinine above a minimum threshold is a validated measure of exposure to SHS in nonsmokers.

### 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 2030 Target

- Reduce the proportion of people who do not smoke but are exposed to secondhand smoke to 17.3%.

Healthy People 2030 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

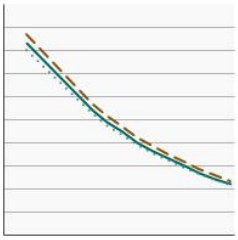
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey. "Secondhand smoke exposure" measure.

### Trends and Most Recent Estimates

Expand All + Collapse All -

**By Sex**

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by sex, 1988-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of nonsmokers | 95% Confidence Interval |
|  | Both Sexes | 25.8 | 22.8 - 28.7 |
| | Male | 27.1 | 22.6 - 31.6 |
| | Female | 24.6 | 22.1 - 27.1 |

[1]The 1988-1994 estimate starts at age 4 instead of age 3.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.

**By Race/Ethnicity**

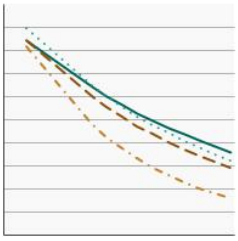
Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by race/ethnicity, 1988-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of nonsmokers | 95% Confidence Interval |
| | All Races | 25.8 | 22.8 - 28.7 |
| | Non-Hispanic White | 24.5 | 20.9 - 28.2 |
| | Non-Hispanic Black | 47.8 | 41.5 - 54.0 |
| | Hispanic | 18.7 | 15.4 - 21.9 |

[1]The 1988-1994 estimate starts at age 4 instead of age 3.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.

**By Age**

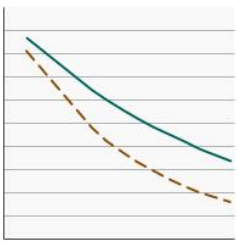
Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by age, 1988-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of nonsmokers | 95% Confidence Interval |
|  | Ages 3-11 | 38.2 | 34.4 - 42.0 |
| | Ages 12-17 | 32.9 | 26.9 - 38.9 |
| | Ages 18-29 | 33.9 | 28.1 - 39.8 |
| | Ages 30+ | 19.6 | 16.5 - 22.8 |

[1]The 1988-1994 estimate starts at age 4 instead of age 3.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.

**By Poverty Income Level**

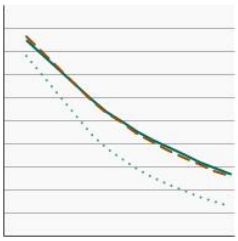
Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by poverty income level, 1988-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of nonsmokers | 95% Confidence Interval |
|  | <200% of federal poverty level | 37.5 | 33.4 - 41.6 |
| | >=200% of federal poverty level | 19.0 | 15.7 - 22.3 |

[1]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.

**By Education Level**

Percentage of nonsmokers aged 25 years and older exposed to secondhand smoke[1] by highest level of education obtained, 1988-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Percent of nonsmokers | 95% Confidence Interval |
|  | Less than High School | 25.3 | 20.4 - 30.1 |
| | High School | 27.5 | 22.4 - 32.5 |
| | Greater than High School | 17.9 | 14.6 - 21.2 |

[1]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.

## Cancers Related to Secondhand Smoke

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

- Lung and Bronchus

## Evidence-based Resources

The Cancer Control P.L.A.N.E.T. web portal contains tobacco control resources that support collaboration, identify evidence-based approaches, and list Evidence-Based Cancer Control Programs.

## Additional Information on Secondhand Smoke Exposure

**General Public Resources**

- Secondhand Smoke Exposure. National Cancer Institute.
- Secondhand Smoke and Cancer. National Cancer Institute.
- Health Risks of Secondhand Smoke. American Cancer Society.
- Smokefree Cars and Child Health. American Academy of Pediatrics.
- Smoking and Tobacco Use: Secondhand Smoke. Centers for Disease Control and Prevention.
- Smoke-Free Public Housing and Multifamily Properties. Department of Housing and Urban Development.
- Secondhand Smoke and Smoke-free Homes. Environmental Protection Agency.
- Cancer Health Effects. National Toxicology Program, U.S. Department of Health and Human Services.
- Secondhand Smoke and What it Means to You. U.S. Department of Health and Human Services.

**Public Health Resources**

- 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.
  - The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, 2006. U.S. Department of Health and Human Services.
- American Nonsmokers' Rights Foundation.
  - Overview List – How many smokefree laws? American Nonsmokers' Rights Foundation.
  - Summary of 100% Smokefree State Laws and Protected by 100% U.S. Smokefree Laws. American Nonsmokers' Rights Foundation.
  - U.S. 100% Smokefree Laws in Non-Hospitality Workplaces, Restaurants, and Bars. American Nonsmokers' Rights Foundation.

**Scientific Reports**

- Tobacco Control Monograph Series. National Cancer Institute.
  - Monograph 10: Health Effects of Exposure to Environmental Tobacco Smoke. National Cancer Institute.
- Smoke-free and tobacco-free colleges and universities in the United States. Blake KD, Klein AL, Walpert L, Casey L, Hallett C, Douglas C, Sinha B, Koh HK. Tob Control 2020;29(3):289-294.
- Secondhand Smoke Exposure Among Nonsmoking Adults: United States, 2015–2018. Brody DJ, Faust E, Tsai J. NCHS Data Brief 2021;396.
- State and local comprehensive smoke-free laws for worksites, restaurants, and bars—United States, 2015. Centers for Disease Control and Prevention. MMWR 2016;65(24)623-626.
- Assessment of indoor air quality at an electronic cigarette (Vaping) convention. Chen R, Aherrera A, Isichei C, et al. J Expo Sci Environ Epidemiol 2018;28(6):522-529.
- Uneven access to smoke-free laws and policies and its effect on health equity in the United States: 2000-2019. Hafez AY, Gonzalez M, Kulik MC, Vijayaraghavan M, Glantz SA. Am J Public Health 2019;109(11):1568-1575.
- Parental home smoking policies: the protective effect of having a young child in the household. Hawkins SS and 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.
- Effects of Electronic Cigarettes on Indoor Air Quality and Health. Li L, Lin Y, Xia T, Zhu Y. Annu Rev Public Health 2020;41(2):363-380.
- Small Area Estimation of Smoke-free Workplace Polices and Home Rules in U.S. Counties. Liu B, Dompreh I, Hartman AM. Nicotine Tob Res. 2021; [Epub ahead of print]
- Exposure to Secondhand Smoke Among Nonsmokers in New York City in the Context of Recent Tobacco Control Policies: Current Status, Changes Over the Past Decade, and National Comparisons. Perlman SE, Chernov C, Farley SM, et al. Nicotine Tob Res 2016; 18(11):2065-2074.
- SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. Task Force on Sudden Infant Death Syndrome. Pediatrics 2016;138(5):e20162938.

**Statistics**

- Tobacco Use Supplement to the Current Population Survey. National Cancer Institute.
- Cancer Facts and Figures. American Cancer Society.

- State Tobacco Activities Tracking and Evaluation System. Centers for Disease Control and Prevention.

### Year Range

1988-2018

### Recent Summary Trend Year Range

2013-2018

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Secondhand Smoke

### Recent Summary Trend

Falling

### Desired Direction

Falling

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## Prevention

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# Cancer Trends Progress Report

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Secondhand Smoke Chemical and Environmental Exposures

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2. » Prevention
3. » Smokefree Home Rules

## Smokefree Home Rules

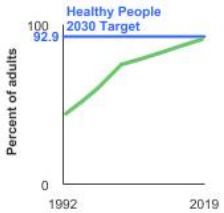
### Data Up to Date as of:

July 2021

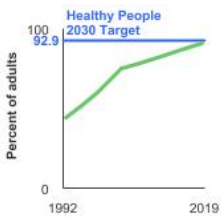
### On This Page:



In 2018 to 2019, 90.2% of adults aged 18 years and older reported a smokefree home environment.




See Graph Details




### Background

Many individuals and families, including both smokers and non-smokers, have voluntarily adopted smokefree 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 smokefree

home rules is a significant predictor of smoking cessation success. To protect non-smokers living within public housing, the US Department of Housing and Urban Development has adopted a rule making all public housing smokefree. This rule was implemented in July 2018.

Secondhand smoke (SHS) is a mixture of the side stream smoke released by a smoldering cigarette, pipe, hookah or 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 SHS are known to be harmful, and at least 69 are known to cause cancer.

Conclusive scientific evidence documents that SHS causes premature death and disease in children and adults who do not smoke. Among adults, exposure to SHS 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. Due to shared ventilation ducts and other related airborne conduits, SHS exposure may occur within multi-unit housing by smoke drifting to the homes of non-smokers.

### Measure

The percentage of respondents reporting a smokefree home.

### Healthy People 2030 Target

- Increase the proportion of smokefree homes to 92.9 percent.

Healthy People 2030 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 smokefree policies" measures.

### Trends and Most Recent Estimates

Expand All + Collapse All -

**By Sex**

Percentage of adults aged 18 years and older reporting a smokefree home environment by sex, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 90.2 | 90.0 - 90.5 |
| | Male | 89.5 | 89.2 - 89.8 |
| | Female | 90.9 | 90.6 - 91.2 |

**By Race/Ethnicity**

**By Age**

**By Sex and Age**

**By Poverty Income Level**

**By Education Level**

### Cancers Related to Smokefree Home Rules

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

- Lung and Bronchus

## Evidence-based Resources

The Cancer Control P.L.A.N.E.T. web portal contains tobacco control resources that support collaboration, identify evidence-based approaches, and list Evidence-Based Cancer Control Programs.

## Additional Information on Smokefree Home Rules

### General Public Resources

- Secondhand Smoke Exposure. National Cancer Institute.
- Secondhand Smoke and Cancer. National Cancer Institute.
- Smokefree Cars and Child Health. American Academy of Pediatrics.
- Smokefree Homes and Child Health. American Academy of Pediatrics.
- Health Risks of Secondhand Smoke. American Cancer Society.
- Smoking & Tobacco Use: Children in the Home. Centers for Disease Control and Prevention.
- Smoking & Tobacco Use: Going Smokefree Matters. Centers for Disease Control and Prevention.

### Public Health Resources

- 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.
  - The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, 2006. U.S. Department of Health and Human Services.
- American Nonsmokers' Rights Foundation.

### Scientific Reports

- Secondhand Smoke Exposure Among Nonsmoking Adults: United States, 2015–2018. Brody DJ, Faust E, Tsai J. NCHS Data Brief 2021;396.
- Association between smokefree laws and voluntary smokefree-home rules. Cheng KW, Glantz SA, Lightwood JM. Am J Prev Med 2011;41(6):566–72.
- Small Area Estimation of Smoke-free Workplace Polices and Home Rules in U.S. Counties. Liu B, Dompreh I, Hartman AM. Nicotine Tob Res. 2021; [Epub ahead of print]
- Parental home smoking policies: the protective effect of having a young child in the household. Hawkins SS and 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, et al. A. Prev Med. 2016 Jan;82:51-8.
- Persistent tobacco smoke residue in multiunit housing: Legacy of permissive indoor smoking policies and challenges in the implementation of smoking bans. Matt GE, Quintana PJE, Hoh E, et al. Prev Med Rep 2020;18:101088.
- SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. Task Force on Sudden Infant Death Syndrome. Pediatrics 2016;138(5):e20162938.
- Income disparities in smoking cessation and the diffusion of smoke-free homes among U.S. smokers: Results from two longitudinal surveys. Vijayaraghavan M, Benmarhnia T, Pierce JP, et al. PLoS One. 2018;13(7):e0201467.
- Effects of hookah smoking on indoor air quality in homes. 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, et al. Am J Public Health 2014 Sep;104 Suppl 4: S572-9.

### Statistics

- Tobacco Use Supplement to the Current Population Survey. National Cancer Institute.
- 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.

## Year Range

1992-2019

## Recent Summary Trend Year Range

2014-2019

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## Recent Summary Trend

Rising

## Desired Direction

Rising

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Online Summary of Trends in US Cancer Control Measures

# Smokefree Workplace Rules and Laws

## Data Up to Date as of:

July 2021

## Background

Thirty-six states, along with the District of Columbia, American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands, have laws in effect that require one or more of the following venues to be 100% smokefree: non-hospitality workplaces, restaurants, bars and state-run gambling establishments. A total of 1,622 cities and counties have a 100% smokefree provision in effect in one or more of the following venues: non-hospitality workplaces, restaurants, and bars.

E-cigarettes (also known as vapes or Electronic Nicotine Delivery Systems) are battery-powered devices that convert a liquid ("e-liquid") into an aerosol. E-liquids typically contains nicotine, flavorings, vegetable glycerin, propylene glycol and other chemicals. Besides nicotine, e-cigarette aerosol may contain heavy metals, volatile organic compounds, and fine and ultrafine particles that can be inhaled deeply into the lungs by both users and by-standers. States and localities are increasingly incorporating prohibition of e-cigarette use into comprehensive smokefree air laws. As of January 2, 2020, 19 states, 929 municipalities, and three U.S. territories have prohibited the use of e-cigarettes in 100% smokefree locations.

Secondhand smoke (SHS) 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 SHS are known to be harmful, and at least 69 are known to cause cancer. Conclusive scientific evidence documents that SHS causes premature death and disease in children and adults who do not smoke. Among adults, exposure to SHS 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. Today, comprehensive smokefree laws, covering public places and workplaces, including restaurants and bars are increasingly the norm. Additionally, smokefree policies may now extend to private spaces, including cars and multi-unit housing.

## Measure

The percentage of indoor workers reporting a smokefree work environment.

The percentage of the population protected by local and state smokefree 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 2030 Target

- Increase the proportion of worksites that are covered by indoor worksite policies that prohibit smoking
- Increase the number of states, territories, and DC that prohibit smoking in worksites, restaurants, and bars to 58.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## Data Source

National Cancer Institute. Tobacco Use Supplement to the Current Population Supplement for "work place smokefree policies" measures.

Americans for Nonsmokers Right Foundation. "Percentage of the population covered by local and/or state 100% smokefree air laws".

## Trends and Most Recent Estimates
### Smokefree Workplace Rules
### By Sex

Percentage of workers aged 18 years and older reporting a smokefree work environment by sex, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of workers | 95% Confidence Interval |
| | Both Sexes | 80.4 | 79.9 - 80.8 |
| | Male | 77.9 | 77.2 - 78.6 |
| | Female | 82.7 | 82.1 - 83.2 |

### By Race/Ethnicity

Percentage of workers aged 18 years and older reporting a smokefree work environment by race/ethnicity, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of workers | 95% Confidence Interval |
| | All Races | 80.4 | 79.9 - 80.8 |
| | Non-Hispanic White | 82.4 | 81.9 - 82.9 |
| | Non-Hispanic Black | 79.0 | 77.6 - 80.5 |
| | Hispanic | 73.8 | 72.2 - 75.4 |

### By Age

Percentage of workers aged 18 years and older reporting a smokefree work environment by age, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of workers | 95% Confidence Interval |
| | Ages 18-24 | 76.2 | 74.5 - 77.8 |
| | Ages 25+ | 81.0 | 80.6 - 81.5 |

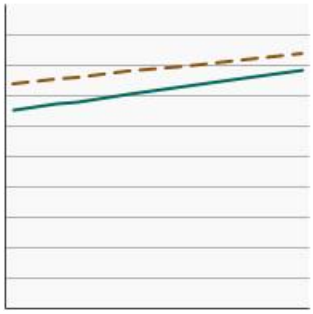
### By Sex and Age

Percentage of workers aged 18 years and older reporting a smokefree work environment by sex and age, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of workers | 95% Confidence Interval |
| | Males, ages 18-24 | 73.7 | 71.1 - 76.2 |
| | Males, ages 25+ | 78.6 | 77.9 - 79.3 |
| | Females, ages 18-24 | 78.4 | 76.1 - 80.6 |
| | Females, ages 25+ | 83.3 | 82.7 - 83.9 |

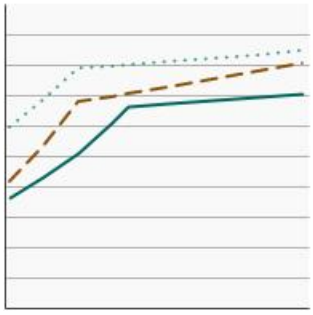
### By Poverty Income Level

Percentage of workers aged 18 years and older reporting a smokefree work environment by poverty income level, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of workers | 95% Confidence Interval |
|  | < 200% of the federal poverty level | 74.9 | 73.7 - 76.1 |
| | >= 200% of the federal poverty level | 81.4 | 80.9 - 81.9 |

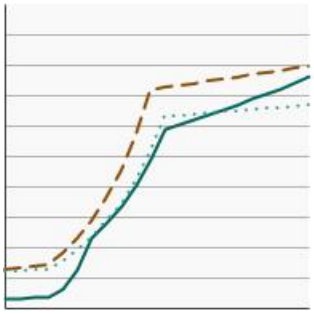
### By Education Level

Percentage of workers aged 25 years and older reporting a smokefree work environment by highest level of education obtained, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018 to 2019) | |
|---|---|---|---|
| | | Percent of workers | 95% Confidence Interval |
|  | Less than High School | 67.9 | 64.9 - 70.7 |
| | High School | 77.2 | 76.1 - 78.2 |
| | Greater than High School | 82.9 | 82.4 - 83.4 |

### Indoor Air Laws

Percentage of population protected by local and state 100% smokefree indoor air laws, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of population | 95% Confidence Interval |
|  | Workplaces | 76.1 | Not available |
| | Restaurants | 77.8 | Not available |
| | Bars | 66.4 | Not available |

### Cancers Related to Smokefree Workplace Rules and Laws

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

- Lung and Bronchus

### Evidence-based Resources

The Cancer Control P.L.A.N.E.T. web portal contains tobacco control resources that support collaboration, identify evidence-based approaches, and list Evidence-Based Cancer Control Programs.

### Additional Information on Smokefree Workplace Rules and Laws

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    - Benzene
    - Cadmium
    - Nitrate
    - Radon
- Early Detection
  - Breast Cancer Screening

# 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 the International Agency for Research on Cancer (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

This report includes the R function “svyquantile” from the R Package “survey” to estimate the percentiles and their confidence limits. Based on the Confidence Intervals for Medians and Other Position Measures article, published in the *Journal of the American Statistical Association*, and the Confidence Intervals for Proportions with Small Expected Number of Positive Counts Estimates from Survey Data article, published in the journal *Survey Methodology*, the researchers chose the “betaWald” interval option. To test whether there is statistically significant difference between the estimated percentiles obtained from different survey years, they used the “svyranktest” R function from the same package. For more details on the applicable R functions, see the Analysis of Complex Survey Samples by Thomas Lumley.

# Prevention

- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
  - Fruit and Vegetable Consumption
  - Red Meat and Processed Meat Consumption
  - Fat Consumption
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  - Physical Activity
  - Weight
- UV Exposure and Sun-Protective Behavior
  - Sun-Protective Behavior
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  - Benzene
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  - Nitrate
  - Radon

## Prevention

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- Red Meat Consumption
- Fat Consumption
- Alcohol Consumption
- Physical Activity
- Weight
- Sun Protective Practices
- Indoor Tanning
- Sunburn
- HPV Vaccination
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## Main Menu

## Prevention

# Arsenic

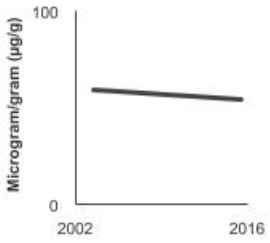
### Data Up to Date as of:

July 2021

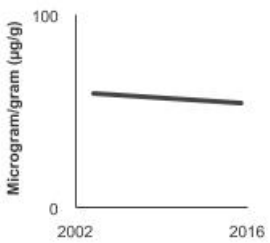
### On This Page:



In 2015 to 2016, the 95th percentile for urinary (creatinine corrected) concentration of arsenic among persons aged 6 years and older was 45.8 µg/g.




See Graph Details




### Background

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 strongly linked to cancer of the bladder, lungs, and skin. Additionally, inorganic arsenic has been linked to some types of kidney cancers, as well as liver and intrahepatic bile duct and prostate cancers.

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.

## 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 2030 Target

There are no Healthy People 2030 targets regarding urinary concentration of arsenic.

Healthy People 2030 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

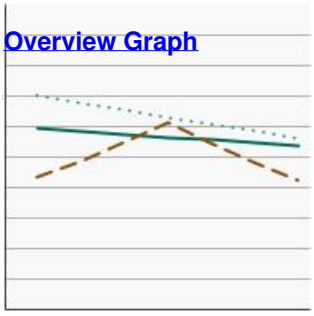
### Total Arsenic Exposure

Expand Section + Collapse Section -

By Sex

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 6 years and older by sex, 2003-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Both Sexes | 45.8 | 32.2 - 65.4 |
| | Male | 43.3 | 30.4 - 63.5 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) Dependent Variable | 95% Confidence Interval |
|---|---|---|---|
|  | Female | 48.2 | 31.6 - 71.7 |

By Race/Ethnicity

By Age

By Poverty Income Level

By Education Level

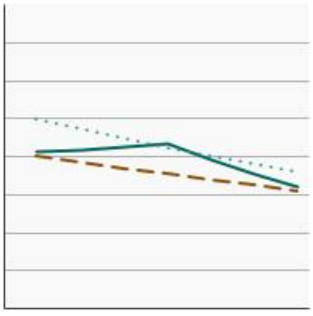
By Smoking Status

**Inorganic Arsenic Exposure**

Expand Section + Collapse Section -

By Sex

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of inorganic-related arsenic species among persons aged 6 years and older by sex, 2003-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) Dependent Variable | 95% Confidence Interval |
|---|---|---|---|
|  | Both Sexes | 16.2 | 14.3 - 18.0 |
| | Male | 13.7 | 11.9 - 16.7 |
| | Female | 17.3 | 15.5 - 20.4 |

By Race/Ethnicity

## Additional Information on Arsenic

### General Public Resources

- Arsenic. National Cancer Institute.
- 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, March 2018, Volume One . Centers for Disease Control and Prevention.
- Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, March 2018, 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 in groundwater of the United States. U.S. Geological Survey, National Water-Quality Assessment Program, Trace Elements National Synthesis Project.

### Public Health Resources

- 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, inorganic. Environmental Protection Agency, Integrated Risk Information System.

### Scientific Reports

- New England Bladder Cancer Study. National Cancer Institute, Division of Cancer Epidemiology & Genetics.
- 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. 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. International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2004;84:41–267.
- 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. 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, Fourteenth Edition 2016.

## Year Range

2003-2016

## Recent Summary Trend Year Range

2011-2016

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Chemical Exposures

## Recent Summary Trend

Non-Significant Change

### Desired Direction

Falling

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  - Cancer Survivors and Weight

# Benzene

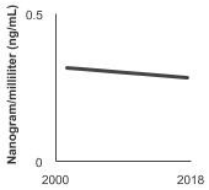
### Data Up to Date as of:

July 2021

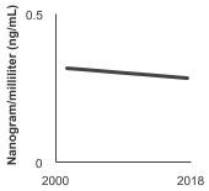
### On This Page:



In 2017 to 2018, the 95th percentile for blood concentration of benzene among persons aged 20 years and older was 0.3 ng/mL.




See Graph Details




### Background

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 has been identified as a cause of acute non-lymphocytic leukemia, including acute myeloid leukemia (AML) in adults. The Carcinogenicity of Benzene article, published in the journal *The Lancet Oncology*, provides evidence that benzene might be related to other myeloid and certain lymphoid malignancies.

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 tanks and 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.

### 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. For more information, see the 2009 Fourth National Report on Human Exposure to Environmental Chemicals, published by the Centers for Disease Control and Prevention.

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.

### Healthy People 2030 Target

There are no Healthy People 2030 targets regarding benzene.

Healthy People 2030 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

Expand All + Collapse All -

### By Sex

95th percentile for blood concentrations (ng/mL) of benzene among adults aged 20 years and older by sex, 2001-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Both Sexes | 0.3 | 0.2 - 0.4 |
| | Male | 0.3 | 0.2 - 0.4 |
| | Female | 0.3 | 0.2 - 0.4 |

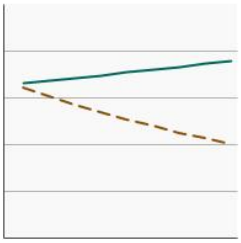
### By Race/Ethnicity

95th percentile for blood concentrations (ng/mL) of benzene among adults aged 20 years and older by race/ethnicity, 2001-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | All Races | 0.3 | 0.2 - 0.4 |
| | Non-Hispanic White | 0.3 | 0.2 - 0.4 |
| | Non-Hispanic Black | 0.4 | 0.3 - 0.4 |
| | Hispanic | 0.1 | 0.1 - 0.2 |

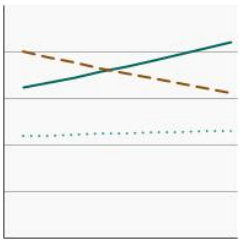
### By Poverty Income Level

95th percentile for blood concentrations (ng/mL) of benzene among adults aged 20 years and older by poverty income level, 2001-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
|  | < 200% of the federal poverty level | 0.4 | 0.3 - 0.5 |
| | >= 200% of the federal poverty level | 0.2 | 0.1 - 0.2 |

### By Education Level

95th percentile for blood concentrations (ng/mL) of benzene among adults aged 20 years and older by highest level of education obtained, 2001-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
|  | Less than High School | 0.4 | 0.3 - 0.5 |
| | High School | 0.4 | 0.3 - 0.4 |
| | Greater than High School | 0.2 | 0.2 - 0.3 |

### By Smoking Status

95th percentile for blood concentrations (ng/mL) of benzene among adults aged 20 years and older by smoking status, 2001-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Non-Smoker | 0.1 | 0.1 - 0.1 |
| | Smoker | 0.6 | 0.5 - 0.7 |

### Additional Information on Benzene

**General Public Resources**

- 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, March 2018, Volume One . Centers for Disease Control and Prevention.
- Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, March 2018, 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.

**Public Health Resources**

- Minimal Risk Levels (MRLs) List. Agency for Toxic Substances & Disease Registry.
- Benzene. Environmental Protection Agency, Integrated Risk Information System.

**Scientific Reports**

- 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.
- 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.International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100f:249-294.
- Carcinogenicity of benzene. Loomis D, Guyton KZ, Grosse Y, et al. Lancet Oncol. 2017;18(12):1574-1575.

### Year Range

2001-2018

### Recent Summary Trend Year Range

2013-2018

### Summary Tables

Chemical Exposures

### Recent Summary Trend

Non-Significant Change

### Desired Direction

Falling

## Prevention

- Tobacco Use
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  - Youth Tobacco Use
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- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
  - Fruit and Vegetable Consumption
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## Prevention



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## About



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NIH... Turning Discovery Into Health

# Cadmium

## Data Up to Date as of:

July 2021

## Background

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.

## 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 2030 Target

There are no Healthy People 2030 targets regarding blood levels of cadmium.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

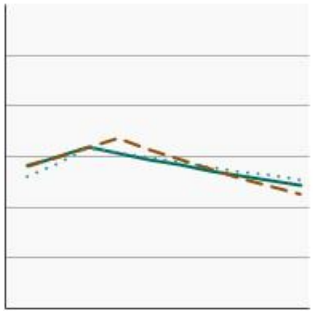
## Data Source

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 (µg/L) of cadmium among persons aged 1 year and older by sex, 1999-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
|  | Both Sexes | 1.3 | 1.1 - 1.5 |
| | Male | 1.1 | 1.0 - 1.3 |
| | Female | 1.5 | 1.1 - 1.8 |

### By Race/Ethnicity

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by race/ethnicity, 1999-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | All Races | 1.3 | 1.1 - 1.5 |
| | Non-Hispanic White | 1.3 | 1.1 - 1.6 |
| | Non-Hispanic Black | 1.3 | 1.2 - 1.7 |
| | Hispanic | 0.8 | 0.7 - 0.9 |

### By Age

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by age, 1999-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Ages 1-5 | 0.2 | 0.2 - 0.2 |
| | Ages 6-11 | 0.2 | 0.2 - 0.3 |
| | Ages 12-19 | 0.4 | 0.3 - 0.4 |
| | Ages 20+ | 1.4 | 1.2 - 1.7 |

### By Poverty Income Level

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by poverty income level, 1999-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | < 200% of the federal poverty level | 1.6 | 1.4 - 1.7 |
| | >= 200% of the federal poverty level | 1.0 | 0.9 - 1.2 |

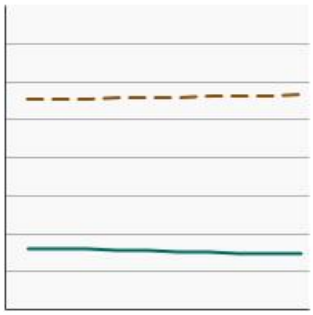
### By Education Level

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 20 years and older by highest level of education obtained, 1999-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Less than High School | 1.8 | 1.4 - 2.3 |
| | High School | 1.8 | 1.6 - 2.1 |
| | Greater than High School | 1.1 | 1.0 - 1.3 |

### By Smoking Status

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 20 years and older by smoking status, 1999-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
|  | Non-Smoker | 0.7 | 0.7 - 0.8 |
| | Smoker | 2.9 | 2.5 - 3.2 |

### Additional Information on Cadmium

# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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# Nitrate

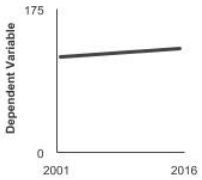
### Data Up to Date as of:

July 2021

### On This Page:



In 2015 to 2016, the 95th percentile for urinary (creatinine corrected) concentration of nitrate among persons aged 6 years and older was 137.6 mg/g of creatinine.

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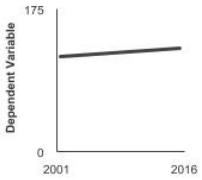



### Background

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 nitrate 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.

The biggest source of nitrate exposure is dietary consumption of certain types of vegetables which are naturally high in nitrate. However, these vegetables also contain compounds that prevent the formation of NOCs. Studies assessing connections between nitrate and cancer in humans have focused on excess exposure from drinking water or food grown in areas where use of nitrogen-based fertilizers is common. Some of the highest levels of nitrate have been measured in shallow wells and surface water supplies that are subject to runoff from nitrogen fertilizers and confined animal feedlot operations and resulting excrement and contamination from leaking septic tanks and sewage. 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.

### 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 2030 Target

There are no Healthy People 2030 targets regarding nitrate.

Healthy People 2030 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

Expand All + Collapse All -

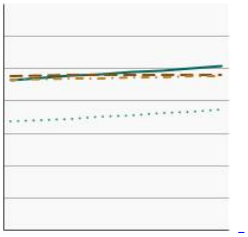
**By Sex**

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by sex, 2001-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Both Sexes | 137.6 | 119.1 - 158.1 |
| | Male | 122.1 | 107.4 - 154.9 |
| | Female | 147.1 | 121.4 - 176.9 |

**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, 2001-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
|  | All Races | 137.6 | 119.1 - 158.1 |
| | Non-Hispanic White | 142.3 | 112.8 - 164.2 |
| | Non-Hispanic Black | 98.6 | 87.7 - 104.5 |
| | Hispanic | 120.7 | 107.1 - 139.9 |

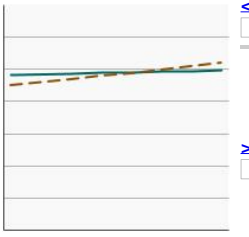
**By Age**

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by age, 2001-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Ages 6-11 | 175.4 | 133.2 - 220.3 |
| | Ages 12-19 | 103.0 | 83.5 - 117.7 |
| | Ages 20+ | 125.7 | 108.0 - 151.6 |

**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, 2001-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
|  | < 200% of the federal poverty level | 129.5 | 115.4 - 146.8 |
| | >= 200% of the federal poverty level | 143.4 | 117.5 - 164.3 |

**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, 2001-2016

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Less than High School | 119.4 | 102.0 - 161.2 |
| | High School | 90.4 | 81.2 - 152.2 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015 to 2016) | |
|---|---|---|---|
| | | Dependent Variable | 95% Confidence Interval |
| | Greater than High School | 135.9 | 113.1 - 162.4 |

### Additional Information on Nitrate

**General Public Resources**

- Toxic Substances Portal – Nitrate and Nitrite: ToxFAQs™ for Nitrate and Nitrite. Agency for Toxic Substances & Disease Registry.
- Stomach Cancer Risk Factors American Cancer Society.
- Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, March 2018, Volume One . Centers for Disease Control and Prevention.
- Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, March 2018, Volume Two . Centers for Disease Control and Prevention.
- Drinking Water Requirements for States and Public Water Systems: Chemical Contaminant Rules. Environmental Protection Agency.

**Public Health Resources**

- 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.
- Ingested Nitrate and Nitrite, and Cyanobacterial Peptide Toxins. International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2010;94.
- Drinking water nitrate and human health: an updated review. Ward MH, Jones RR, Brender JD et al. Int J Environ Res Public Health 2018;15(7): pii:E1557.
- 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.

### Year Range

2001-2016

### Recent Summary Trend Year Range

2011-2016

### Summary Tables

Chemical Exposures

### Recent Summary Trend

Non-Significant Change

### Desired Direction

Falling

## Prevention

- Tobacco Use
  - Tobacco Use Initiation
  - Youth Tobacco Use
  - Adult Tobacco Use
- Smoking Cessation
  - Quitting Smoking
  - Clinicians' Advice to Quit Smoking
- Diet, Physical Activity, and Weight
  - Fruit and Vegetable Consumption
  - Red Meat and Processed Meat Consumption
  - Fat Consumption
  - Alcohol Consumption
  - Physical Activity
  - Weight

- UV Exposure and Sun-Protective Behavior
  - Sun-Protective Behavior
  - Indoor Tanning
  - Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Policy/Regulatory Factors
  - Tobacco Company Marketing Expenditures
  - Medicaid Coverage of Tobacco Dependence Treatments
- Secondhand Smoke
  - Secondhand Smoke Exposure
  - Smokefree Home Rules
  - Smokefree Workplace Rules and Laws
- Chemical and Environmental Exposures
  - Arsenic
  - Benzene
  - Cadmium
  - Nitrate
  - Radon

## Prevention

- Tobacco Use Initiation
- Youth Tobacco Use
- Adult Tobacco Use
- Quitting Smoking
- Clinicians' Advice to Quit Smoking
- Fruit and Vegetable Consumption
- Red Meat Consumption
- Fat Consumption
- Alcohol Consumption
- Physical Activity
- Weight
- Sun Protective Practices
- Indoor Tanning
- Sunburn
- HPV Vaccination
- Genetic Testing
- Tobacco Company Marketing Expenditures
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- U.S. Department of Health and Human Services
- National Institutes of Health
- National Cancer Institute
- USA.gov

NIH... Turning Discovery Into Health

# Radon

## Data Up to Date as of:

July 2021

## Background

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 ≥4pCi/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 2030 Target

- There are no Healthy People 2030 targets for radon exposure.

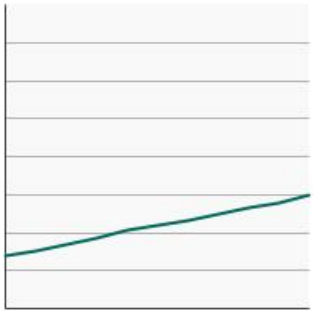
Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## 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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent of homes | 95% Confidence Interval |
|  | Homes with an Operating Radon Mitigation System | 15.0 | Not available |

### Additional Information on Radon

## Early Detection

The use of screening tests to detect cancers earlier provides potential opportunities for patients to obtain more effective treatment with fewer side effects. Patients whose cancers are found at an earlier stage and treated in a timely manner are less likely to die from these cancers than are those whose cancers are not found until they are more widespread.

While there are clear benefits to screening, screening tests also carry harms. Not all screening tests are helpful and most have harms. It is important to know the harms associated with the test and whether it has been shown to decrease one's chances of dying from cancer.

This section describes trends in the use of breast, cervical, colorectal, and lung screening tests, which have been found to detect cancers accurately for specified age groups and can reduce the risk of death from that cancer.

- Breast Cancer Screening
- Cervical Cancer Screening
- Colorectal Cancer Screening
- Lung Cancer Screening

This section also describes trends in prostate screening tests; however, the highest grade assigned to prostate cancer screening by the U.S. Preventive Services Task Force (USPSTF) is a grade C, meaning that, for men aged 55 to 69 years, the decision to undergo periodic prostate-specific antigen (PSA)-based screening for prostate cancer should be an individual one, and that before deciding whether to be screened, men should have an opportunity to discuss the potential benefits and harms of screening with their clinician.

- Prostate Cancer Screening

# Breast Cancer Screening

## Data Up to Date as of:

July 2021

## Background

Mammography screening uses an x-ray of the breast to look for tumors in women who don't have symptoms. This screening method allows for the earlier detection of breast cancer, which, when followed by timely treatment, can help reduce deaths due to the disease. In part because age is the most important risk factor for breast cancer, women aged 60 to 69 years are likely to derive the greatest absolute benefit from screening. The U.S. Preventive Services Task Force recommends that women aged 50 to 74 years receive a mammogram every 2 years, and that women aged 40 to 49 years make an individual decision regarding screening.

## 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.

### Measurement challenges

We track breast cancer screening rates in U.S. women using a large, national, in-person survey in which people are asked about their health behaviors and the medical care they receive (see Data Source, below). There are important limitations to this method that impact what information we can accurately collect and how confident we can be in the findings. Studies have found that certain types of healthcare survey questions can be difficult for people to clearly understand and answer, and it is easy for some questions to be misinterpreted.

In the case of breast cancer screening, it can be challenging to determine by self-report alone if a woman received a mammogram for the purposes of looking for asymptomatic, previously undetected cancer (i.e., for screening purposes), or to follow up on symptoms or suspicious findings from a prior test (i.e., for diagnostic purposes). From an individual's point of view both tests appear similar to the patient experiencing them. Additionally, looking for new or recurrent asymptomatic cancer in a person previously diagnosed and treated for that cancer type represents a third type of testing known as surveillance testing. People may also not always accurately recall the specific time they received a particular test. As people do not always accurately recall what medical tests they have received, the purpose of that testing, or its exact timing, our measure captures any type of mammogram received by a woman, and the population may include those with a prior diagnosis of breast cancer. Our measure captures general receipt of a mammogram (yes/no) more accurately than its underlying purpose. This serves as a reasonable approximation, although an overestimate, of the true U.S. breast cancer screening rate, i.e., the measure is not perfectly comparing the actual frequency of women's use of mammograms to national recommendations.

Even though the National Health Interview Survey breast cancer screening measures have limitations, it is the best nationally representative data we have available to assess breast cancer screening rates. It is frequently used by governmental and other organizations to track screening use over time in the US.

## Healthy People 2030 Target

- Increase to 77.1 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 2030 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.

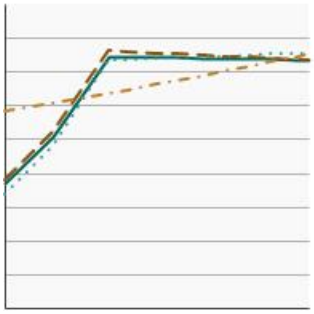
## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2019.

## Trends and Most Recent Estimates

### By Race/Ethnicity

Percent of females aged 50-74 years who had mammography within the past 2 years by race/ethnicity, 1987-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of women | 95% Confidence Interval |
|  | All Races | 76.4 | 75.1 - 77.6 |
| | Non-Hispanic White | 76.0 | 74.5 - 77.5 |
| | Non-Hispanic Black | 79.1 | 75.1 - 82.6 |
| | Hispanic | 78.5 | 74.6 - 82.0 |

### By Poverty Income Level

Percent of females aged 50-74 years who had mammography within the past 2 years by poverty income level, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of women | 95% Confidence Interval |
| | <200% of federal poverty level | 68.3 | 65.6 - 70.8 |
| | >=200% of federal poverty level | 79.6 | 78.1 - 80.9 |

### By Education Level

Percent of females aged 50-74 years who had mammography within the past 2 years by highest level of education obtained, 1987-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of women | 95% Confidence Interval |
| | Less than High School | 69.4 | 64.4 - 74.0 |
| | High School | 73.2 | 70.7 - 75.6 |
| | Greater than High School | 79.0 | 77.6 - 80.4 |

## 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, evidence-based intervention programs, state plans, discussions and more are available on Cancer Control P.L.A.N.E.T. – breast cancer.

## Additional Information on Breast Cancer Screening

# Cancer Trends Progress Report

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- Early Detection
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# Cervical Cancer Screening

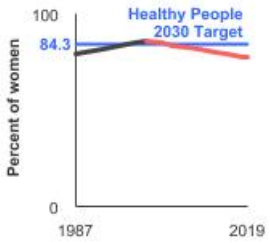
### Data Up to Date as of:

July 2021

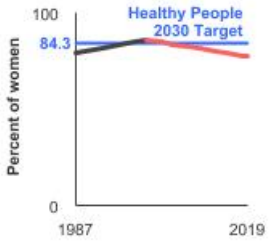
### On This Page:



In 2019, 73.5% of women aged 21-65 years were up-to-date with cervical cancer screening.




See Graph Details




## Background

Screening methods used to find cervical changes that may lead to cervical cancer include the Pap test (cytology-based screening, where a sample of cervical cells are collected and examined under a microscope) and human papillomavirus (HPV) testing (which tests cervical cells for the presence of high-risk types of HPV, a viral infection causing nearly all cervical cancer). Such screening tests may find cancers earlier, when they are more easily treated. Women who have never been screened face the greatest risk of developing invasive cervical cancer.

The U.S. Preventive Services Task Force (USPSTF) recommends screening for cervical cancer with the Pap test alone every 3 years in women aged 21 to 29 years. In women aged 30 to 65 years, the USPSTF recommends the Pap test alone every 3 years or HPV testing, with or without Pap co-testing, every 5 years.

## Measure

The percentage of women aged 21 to 65 years who were up-to-date with cervical cancer screening, by race/ethnicity, income, and education level. For 2013 and before, up-to-date was defined as having a Pap test within the past 3 years. For 2014-2018, up-to date is defined as having a Pap test within the past 3 years for all women aged 21 to 65 years, or having a Pap test, with or without an HPV test, in the past 5 years for women aged 30 to 65 years.

**Note:** Starting in 2018, up-to-date on cervical screening was additionally defined as having an HPV test alone in the past 5 years for women aged 30 to 65 years. The data source used for this measure only asks about HPV tests administered at the time of a Pap test; therefore, the HPV test alone criteria cannot be measured.

#### Measurement challenges

We track cervical cancer screening rates in U.S. women using a large, national, in-person survey in which people are asked about their health behaviors and the medical care they receive (see Data Source, below). There are important limitations to this method that impact what information we can accurately collect and how confident we can be in the findings. Studies have found that certain types of healthcare survey questions can be difficult for people to clearly understand and answer, and it is easy for some questions to be misinterpreted.

In the case of cervical cancer screening, it can be challenging to determine by self-report alone which type of test a woman received (i.e., a Pap smear, HPV test, or both). Both tests appear identical to the woman experiencing them; a person may only be aware which test she received if informed by her healthcare provider. Cancer screening is looking for cancer before a person has symptoms, when they are not known to have had that specific cancer type before. Looking for new or recurrent asymptomatic cancer in a person previously diagnosed and treated for that cancer type represents a different type of testing known as surveillance testing. Finally, people may not always accurately recall the specific time they received a particular test. As people do not always accurately recall what medical tests they have received, the purpose of that testing, or its exact timing, our measure captures any type of cervical cancer screening received by a woman, and the population may include those with a prior diagnosis of cervical cancer. Our measure is a reasonable approximation of the true U.S. cervical cancer screening rate, but it is not perfectly comparing the actual frequency of women's use of specific cervical cancer screening tests to national recommendations.

Even though the National Health Interview Survey cervical cancer screening measures have limitations, it is the best nationally representative data we have available to assess cervical cancer screening rates. It is frequently used by governmental and other organizations to track screening use over time in the US.

## Healthy People 2030 Target

- Increase to 84.3 percent the proportion of women aged 21 to 65 years who received cervical cancer screening based on the most recent guidelines.

Healthy People 2030 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–

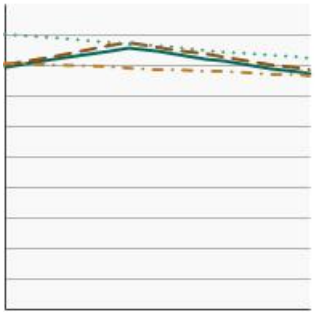
2019.

## Trends and Most Recent Estimates

Expand All + Collapse All -

### By Race/Ethnicity

Percentage of females aged 21-65 years who were up-to-date with cervical cancer screening by race/ethnicity, 1987-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of women | 95% Confidence Interval |
|  | All Races | 73.5 | 72.4 - 74.6 |
| | Non-Hispanic White | 75.4 | 74.0 - 76.7 |
| | Non-Hispanic Black | 74.8 | 71.9 - 77.5 |
| | Hispanic | 70.3 | 67.6 - 72.8 |

### By Poverty Income Level

Percentage of females aged 21-65 years who were up-to-date with cervical cancer screening by poverty income level, 1998-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of women | 95% Confidence Interval |
| | <200% of federal poverty level | 64.2 | 62.1 - 66.2 |
| | >=200% of federal poverty level | 77.8 | 76.5 - 79.0 |

### By Education Level

Percentage of females aged 21-65 years who were up-to-date with cervical cancer screening by highest level of education obtained, 1987-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of women | 95% Confidence Interval |
| | Less than High School | 59.1 | 54.6 - 63.4 |
| | High School | 67.1 | 64.6 - 69.4 |
| | Greater than High School | 78.1 | 76.9 - 79.3 |

## 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, evidence-

based intervention programs, 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

### General Public Resources

- Cervical Cancer (PDQ®)–Patient Version. National Cancer Institute.
- HPV and Pap Testing. National Cancer Institute.
- Next Steps after an Abnormal Cervical Cancer Screening Test: Understanding HPV and Pap Test Results. National Cancer Institute.
- Medicare Coverage for Cancer Prevention and Early Detection. American Cancer Society.
- Cervical 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.

### Public Health Resources

- Cervical Cancer Screening (PDQ®)-Health Professional Version. National Cancer Institute.
- Cervical Cancer Prevention (PDQ®)-Health Professional Version. National Cancer Institute.
- The Community Guide: Cancer. Centers for Disease Control and Prevention, Community Preventive Services Task Force.
- Cervical Cancer: Screening (August 2018). U.S. Preventive Services Task Force.
- Cervical Cancer Screening: What's New? Updates for the Busy Clinician. Zhang S, McNamara M, Batur P. Am J Med 2018; 131(6): 702.e1-705e.5

### Scientific Reports

- Cervical cancer screening research in the PROSPR I consortium: Rationale, methods and baseline findings from a US cohort. Kamineni A, Tiro J, Beaber EF, et al. Int J Cancer 2019; 144(6): 1460-73.
- Cervical cancer risk for women undergoing concurrent testing for human papillomavirus and cervical cytology: a population-based study in routine clinical practice. Katki HA, Kinney WK, Fetterman B, et al. Lancet Oncol 12(7): 663-72, 2011.
- Cytology versus HPV testing for cervical cancer screening in the general population. Koliopoulos G, Nyaga VN, Santesso N, et al. Cochrane Database of Syst Rev 2017(8): CD008587.
- Screening for cervical cancer with high-risk human papillomavirus testing: Updated evidence report and systematic review for the U.S. Preventive Services Task Force. Melnikow J, Henderson JT, Burda BU, et al. JAMA 2018; 320(7): 687-705.
- Effect of Screening With Primary Cervical HPV Testing vs Cytology Testing on High-grade Cervical Intraepithelial Neoplasia at 48 Months: The HPV FOCAL Randomized Clinical Trial. Ogilvie GS, van Niekerk D, Krajden M, et al. JAMA 2018; 320 (1): 43-52,.
- Performance of human papillomavirus testing on self-collected versus clinician-collected samples for the detection of cervical intraepithelial neoplasia of grade 2 or worse: a randomised, paired screen-positive, non-inferiority trial. Polman NJ, Ebisch RMF, Heideman DAM, et al. Lancet Oncol 2019; 20 (2): 229-238.
- National, regional, state, and selected local area vaccination coverage among adolescents aged 13–17 years — United States, 2017. Walker TY, Elam-Evans LD, Yankey D, et al. Centers for Disease Control and Prevention. MMWR 2019; 68(33): 718-723.

### Statistics

- Health Information National Trends Survey. National Cancer Institute.
- SEER Cancer Stat Facts: Cervical Cancer. National Cancer Institute.
- 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.

## Year Range

1987-2019

## Recent Summary Trend Year Range

2015-2019

## Summary Tables

Breast and Cervical Cancers

### Recent Summary Trend

Falling

### Desired Direction

Rising

## Early Detection



## Early Detection



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## About



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- U.S. Department of Health and Human Services
- National Institutes of Health
- National Cancer Institute
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NIH... Turning Discovery Into Health

# Colorectal Cancer Screening

## Data Up to Date as of:

July 2021

## Background

The U.S. Preventive Services Task Force (USPSTF) recommends screening for colorectal cancer for adults aged 50 to 75 years, and adults aged 76 to 85 years should make an individual decision about screening. Regular colorectal cancer screening is important for preventing new colorectal cancers from developing as well as for identifying existing colorectal cancers early - which can reduce the risk of death. A variety of screening tests can be used to detect colorectal cancer and/or precancerous polyps, including:

- **Colonoscopy -** A procedure where a doctor looks into the rectum and the entire colon using a 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 a fecal occult blood test (FOBT) or fecal immunochemical test (FIT), fecal DNA test, sigmoidoscopy, or CT colonography. The USPSTF suggests a screening colonoscopy once every 10 years.
- **Computed tomography (CT) colonography** (otherwise known as a virtual colonoscopy) - Produces a three-dimensional image of the colon which your doctor examines for colorectal cancer and precancerous polyps. The USPSTF suggests CT colonography once every 5 years.
- **Fecal occult blood test (FOBT)** and **fecal immunochemical test (FIT)** - These tests identify hidden blood in the stool, which can be a sign of cancer. The USPSTF suggests people screen for colorectal cancer annually, using a home-based FOBT or FIT kit.
- **Fecal DNA test** – In addition to checking for hidden blood in the stool like a FIT, this test also looks for abnormal genetic material that may be a sign of colorectal cancer. The USPSTF suggests fecal DNA testing at least every 3 years.
- **Sigmoidoscopy -** A procedure where a doctor looks into the rectum and part of the colon using a flexible narrow tube to identify colorectal cancer or precancerous polyps. The USPSTF suggests sigmoidoscopy once every 5 years, or once every 10 years when conducted along with FIT every year.

## Measure

**Colorectal cancer tests:** The percentage of adults aged 50 to 75 years who were up-to-date with colorectal cancer screening, by sex, race/ethnicity, income, education level, and contributing test type. Before 2016, up-to-date was defined as having FOBT every year, a sigmoidoscopy every 5 years in combination with FOBT every 3 years, or a colonoscopy every 10 years. Beginning in 2016, up-to-date is defined as FOBT or FIT every year, fecal DNA testing at least every 3 years, CT colonography every 5 years, flexible sigmoidoscopy alone every 5 years or every 10 years in combination with yearly FIT, or colonoscopy every 10 years.

**Colonoscopy or sigmoidoscopy:** The percentage of adults aged 50 to 75 years who reported that they had a colonoscopy within the past 10 years or a sigmoidoscopy within the past 5 or 10 (if combined with FIT as of 2016) years, by sex and race/ethnicity. Rates for colonoscopy and sigmoidoscopy (as direct visualization tests) have been combined into a single measure due to current infrequent use of flexible sigmoidoscopy as a colorectal cancer screening test in the U.S. (≤2% of tests).

**CT Colonography:** Starting in 2010, the percentage of adults aged 50 to 75 years who reported that they had a CT colonography within the past five years, by sex and race/ethnicity.

**FOBT or FIT:** The percentage of adults aged 50 to 75 years who reported that they had a fecal occult blood test (FOBT) or FIT within the past year, by sex and race/ethnicity. 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. Starting in 2015, NHIS respondents were asked about both FOBT and FIT.

**Fecal DNA:** Starting in 2018, the percentage of adults aged 50 to 75 years who reported that they had a fecal DNA test within the past 3 years, by sex and race/ethnicity.

### Measurement challenges

We track colorectal cancer screening rates in U.S. adults using a large, national, in-person survey in which people are asked about their health behaviors and the medical care they receive (see Data Source, below). There are important limitations to this method that impact what information we can accurately collect and how confident we can be in the findings. Studies have found that certain types of healthcare survey questions can be difficult for people to clearly understand and answer, and it is easy for some questions to be misinterpreted.

In the case of colorectal cancer screening, it can be challenging to determine by self-report alone if an individual received a colonoscopy for the purposes of looking for asymptomatic, previously undetected cancer or precancers (i.e., for screening purposes), or to follow up on symptoms or suspicious findings from a prior test (i.e., for diagnostic purposes). From an individual's point of view the tests appear similar to the patient experiencing them. Our measure therefore captures general receipt of a colonoscopy (yes/no) more accurately than its underlying purpose. People also may have trouble distinguishing between some of the types of colorectal cancer screening tests available (e.g., FIT versus fecal DNA, flexible sigmoidoscopy versus colonoscopy). Additionally, people may not always accurately recall the specific time they received a particular test. Finally, cancer screening is looking for cancer before a person has symptoms, when they are not known to have had that specific cancer type before. Looking for new or recurrent asymptomatic cancer in a person previously diagnosed and treated for that cancer type represents a different type of testing known as surveillance testing. As people do not always accurately recall what medical tests they have received, the purpose of that testing, or its exact timing, our measure captures any type of colorectal cancer screening received by an individual, and the population may include those with a prior diagnosis of colorectal cancer. Our measure is a reasonable approximation, although an overestimate, of the true U.S. colorectal cancer screening rate, i.e., the measure is not perfectly comparing the actual frequency of adults' use of colorectal cancer screening tests to national recommendations.

Even though the NHIS colorectal cancer screening measures have limitations, it is the best nationally representative data we have available to assess colorectal cancer screening rates. It is frequently used by governmental and other organizations to track screening use over time in the US.

## Healthy People 2030 Target

- Increase to 74.4 percent the proportion of adults aged 50 to 75 years who have received a colorectal screening test based on the most

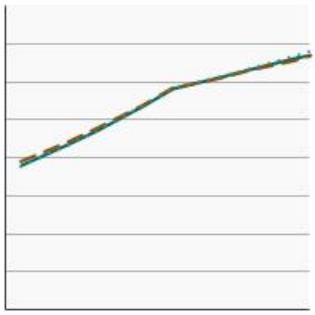
recent guidelines.

Healthy People 2030 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, 1987–2019.

## Trends and Most Recent Estimates
### Guideline Screening
### By Sex

Percentage of adults aged 50-75 years who were up-to-date[1] with colorectal cancer screening by sex, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 67.1 | 66.1 - 68.1 |
| | Male | 65.7 | 64.3 - 67.2 |
| | Female | 68.4 | 67.1 - 69.7 |

### By Race/Ethnicity

Percentage of adults aged 50-75 years who were up-to-date[1] with colorectal cancer screening by race/ethnicity, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 67.1 | 66.1 - 68.1 |
| | Non-Hispanic White | 70.1 | 69.0 - 71.2 |
| | Non-Hispanic Black | 68.5 | 65.8 - 71.1 |
| | Hispanic | 54.7 | 51.3 - 58.0 |

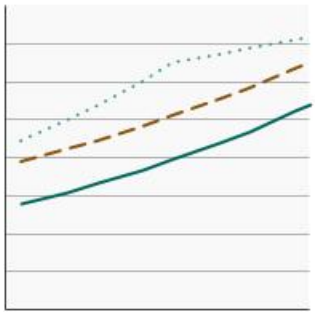
### By Poverty Income Level

Percentage of adults aged 50-75 years who were up-to-date[1] with colorectal cancer screening by poverty income level, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | <200% of federal poverty level | 55.4 | 53.3 - 57.5 |
| | >=200% of federal poverty level | 71.3 | 70.2 - 72.3 |

### By Education Level

Percentage of adults aged 50-75 years who were up-to-date[1] with colorectal cancer screening by highest level of education obtained, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Less than High School | 50.7 | 47.2 - 54.3 |
| | High School | 63.7 | 61.9 - 65.4 |
| | Greater than High School | 72.3 | 71.1 - 73.4 |

**By Contributing Test Type**

Breakdown of colorectal screening tests received by adults aged 50-75 years by type of screening test received, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Home FOBT | 3.3 | 3.0 - 3.7 |
| | Sigmoidoscopy or Colonoscopy | 63.1 | 62.1 - 64.2 |
| | CT Colonography | 1.2 | 1.0 - 1.5 |
| | Cologuard | 2.4 | 2.1 - 2.8 |

## Home FOBT or FIT
### By Sex

Percentage of adults aged 50-75 years who had a home fecal occult blood test (FOBT) or fecal immunochemical test (FIT) within the past year by sex, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 3.3 | 3.0 - 3.7 |
| | Male | 2.9 | 2.4 - 3.4 |
| | Female | 3.8 | 3.2 - 4.4 |

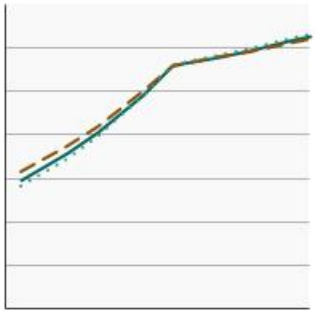
### By Race/Ethnicity

Percentage of adults aged 50-75 years who had a home fecal occult blood test (FOBT) or fecal immunochemical test (FIT) within the past year by race/ethnicity, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 3.3 | 3.0 - 3.7 |
| | Non-Hispanic White | 3.1 | 2.7 - 3.5 |
| | Non-Hispanic Black | 2.5 | 1.7 - 3.7 |
| | Hispanic | 5.1 | 3.9 - 6.6 |

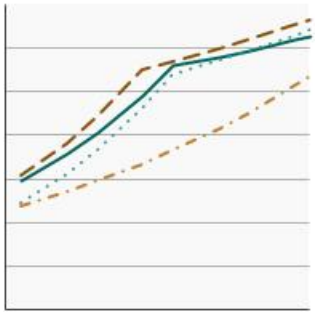
## Sigmoidoscopy or Colonoscopy
### By Sex

Percentage 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, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 63.1 | 62.1 - 64.2 |
| | Male | 62.1 | 60.6 - 63.6 |
| | Female | 64.1 | 62.7 - 65.5 |

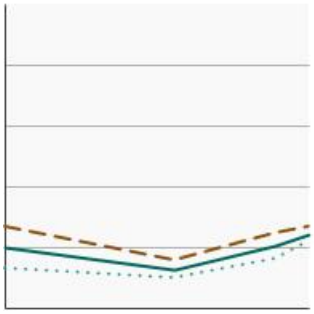
### By Race/Ethnicity

Percentage 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, 2000-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 63.1 | 62.1 - 64.2 |
| | Non-Hispanic White | 66.4 | 65.2 - 67.6 |
| | Non-Hispanic Black | 65.3 | 62.5 - 68.0 |
| | Hispanic | 48.8 | 45.6 - 52.0 |

## CT Colonography
### By Sex

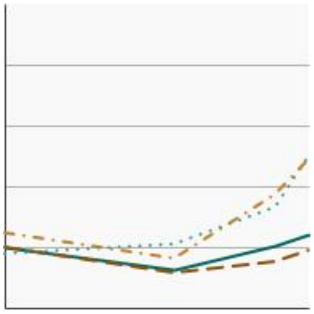
Percentage of adults aged 50-75 years who had a CT colonography in the past 5 years by sex, 2010-2019



| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Both Sexes | 1.2 | 1.0 - 1.5 |
| | Male | 1.3 | 1.0 - 1.7 |
| | Female | 1.1 | 0.8 - 1.5 |

### By Race/Ethnicity

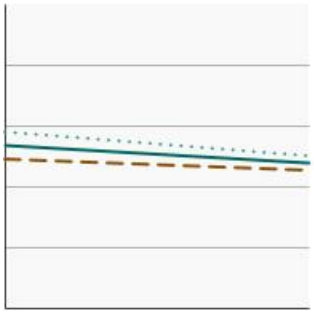
Percentage of adults aged 50-75 years who had a CT colonography in the past 5 years by race/ethnicity, 2010-2019



| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | All Races | 1.2 | 1.0 - 1.5 |
| | Non-Hispanic White | 0.9 | 0.8 - 1.2 |
| | Non-Hispanic Black | 2.5 | 1.7 - 3.6 |
| | Hispanic | 2.4 | 1.5 - 3.9 |

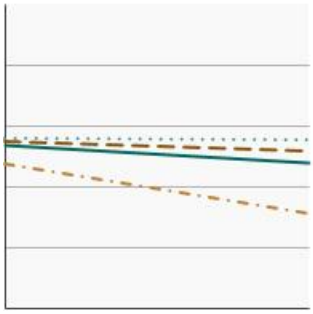
## Fecal DNA Test
### By Sex

Percentage of adults aged 50-75 years who had a home fecal DNA test in the past 3 years by sex, 2018-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 2.4 | 2.1 - 2.8 |
| | Male | 2.3 | 1.9 - 2.8 |
| | Female | 2.5 | 2.1 - 3.0 |

### By Race/Ethnicity

Percentage of adults aged 50-75 years who had a home fecal DNA test in the past 3 years by race/ethnicity, 2018-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 2.4 | 2.1 - 2.8 |
| | Non-Hispanic White | 2.6 | 2.2 - 3.1 |
| | Non-Hispanic Black | 2.8 | 1.8 - 4.3 |
| | Hispanic | 1.6 | 0.9 - 2.6 |

## 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

# Cancer Trends Progress Report

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## Main Menu

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## Lung Cancer Screening

### Data Up to Date as of:

July 2021

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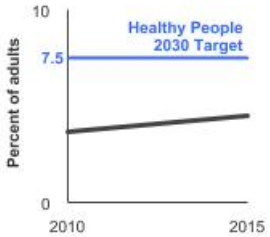
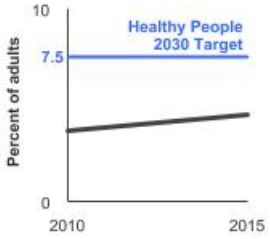
In 2015, 4.5% of adults aged 55-80 years who were at risk for lung cancer due to smoking had a CT scan to check for lung cancer within the past year.




See Graph Details




## Background

Lung cancer screening uses a type of chest computed tomography (CT), known as low radiation dose CT (LDCT), using reduced doses of radiation (as compared to usual chest CT) 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's (USPSTF) first lung cancer screening recommendations, issued in 2013, recommended annual LDCT screening for lung cancer in adults aged 55 to 80 years who had a 30 pack-year smoking history or more and who currently smoked or had quit within the past 15 years. The recommendation was based on findings of the National Lung Screening Trial (NLST), a large randomized controlled trial. NLST 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. In March 2021, the USPSTF published revised guidelines and now recommends annual LDCT screening for lung cancer in adults aged 50 to 80 years who have a 20 pack-year smoking history or more and who currently smoke or have quit within the past 15 years. The revision was based on the NLST results as well as results of other, more recently published, studies, as well as statistical modeling.

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

Percentage of adults at risk for lung cancer due to smoking, aged 55-80 years, who had a CT scan to check for lung cancer within the past year, by sex, race/ethnicity, income, education level, age, and smoking pack years.

### Measurement challenges

We track lung cancer screening rates in U.S. adults using a large, national, in-person survey in which people are asked about their health behaviors and the medical care they receive (see Data Source, below). There are important limitations to this method that impact what information we can accurately collect and how confident we can be in the findings. Studies have found that certain types of healthcare survey questions can be difficult for people to clearly understand and answer, and it is easy for some questions to be misinterpreted.

National guidelines state that only individuals with extensive cigarette smoking experience be screened for lung cancer, and this report strives to only include eligible individuals in our measures. One challenge we face is calculation of an accurate measure of lifetime smoking, which is needed to determine whether someone is eligible for screening. Cigarette smoking behaviors can vary from day to day and year to year, yet our survey does not capture such time-specific information; instead, we collect information about average lifetime smoking. In addition, it can be difficult for an individual to accurately recall how many cigarettes he or she smoked a day in years past. Furthermore, an individual may underreport amount smoked given the stigma associated with the activity.

In the case of lung cancer screening, it can be challenging to determine by self-report alone if an individual received an LDCT for the purposes of looking for asymptomatic, previously undetected cancer or precancers (i.e., for screening purposes), or to follow up on symptoms or suspicious findings from a prior test (i.e., for diagnostic purposes). Patients may not know the difference between a screening LDCT and a diagnostic LDCT. Therefore, we ask individuals whether they received an exam to check for lung cancer, and our measures include both screening and diagnostic LDCTs. Though people may have reported LDCT exams that occurred for surveillance following lung cancer diagnosis and treatment, as of 2021 we exclude individuals previously diagnosed with lung cancer, thus minimizing inclusion of surveillance exams. We also exclude individuals who report having an exam to check for lung cancer but then report that they had no exams in the last three years.

The challenges noted above can lead to the overreporting and underreporting of smoking and lung cancer screening; therefore, it is difficult to know whether our measures of lung cancer screening in eligible individuals are overestimates or underestimates. We do not believe that errors are extensive, and as such, we feel that our measures provide good estimates of the true magnitude of lung cancer screening. Furthermore, these data are widely considered to be the best national data on lung cancer screening and are used frequently to track lung cancer screening rates in the U.S.

In addition to the challenges noted above, lung cancer screening is somewhat unique among cancer screening modalities

because it does not apply to everyone in a specified age range, but rather only current or former heavy smokers in the age range. This means that the denominator of eligible individuals is considerably smaller than that for other screening modalities. Thus the resultant estimates from NHIS of those screened among the eligible population will have considerably larger standard errors (especially relative to the size of the estimates) than for other cancer sites, and should be interpreted with caution.

## Healthy People 2030 Target

Increase to 7.5 percent the proportion of adults aged 55 to 80 years who receive lung cancer screening based on the 2013 USPTF recommendations. Recommendations are restricted to individuals who have never had lung cancer, have smoked at least 30 pack-years, and if former smokers, have quit no more than 15 years ago.

*Healthy People 2030 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, 2010–2015.

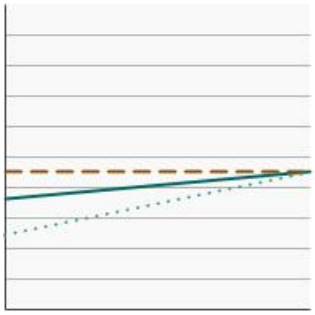
Please note that these data were collected while the 2013 USPSTF recommendations were in place. Therefore, the estimates include adults aged 55 to 80 who had a 30 pack-year smoking history or more and who currently smoked or had quit within the past 15 years.

## Trends and Most Recent Estimates

Expand All + Collapse All -

### By Sex

Percentage of adults at risk for lung cancer due to smoking[1], 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 |
|  | Both Sexes | 4.5 | 2.8 - 7.2 |
| | Male | 4.5 | 2.7 - 7.4 |
| | Female | 4.5 | 1.8 - 10.5 |

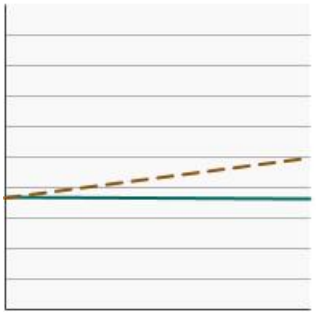
### By Race/Ethnicity

Percentage of adults at risk for lung cancer due to smoking[1], 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 |
| | All Races | 4.5 | 2.8 - 7.2 |
| | Non-Hispanic White | 4.9 | 3.0 - 8.0 |
| | Non-Hispanic Black | 1.7 | 0.6 - 5.0 |
| | Hispanic | 0.7 | 0.1 - 4.6 |

### By Poverty Income Level

Percentage of adults at risk for lung cancer due to smoking[1], 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 |
|  | <200% of federal poverty level | 3.6 | 2.0 - 6.5 |
| | >=200% of federal poverty level | 5.0 | 2.7 - 9.1 |

### By Education Level

Percentage of adults at risk for lung cancer due to smoking[1], 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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 2.3 | 1.1 - 4.7 |
| | High School | 7.0 | 4.0 - 11.8 |
| | Greater than High School | 3.8 | 1.4 - 9.6 |

### By Age

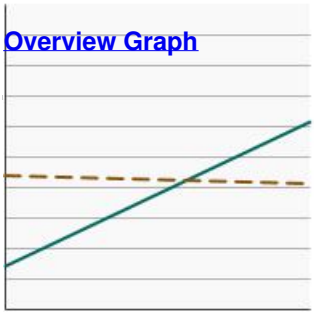
Percentage of adults at risk for lung cancer due to smoking[1], aged 55-80 years, who had a CT scan to check for lung cancer within the past year by age, 2010-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 55-64 | 2.2 | 1.2 - 3.8 |
| | Ages 65-80 | 6.6 | 3.7 - 11.7 |

### By Smoking Pack Years

Percentage of adults at risk for lung cancer due to smoking[1], aged 55-80 years, who had a CT scan to check for lung cancer within the past year by smoking pack years, 2010-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | 30-39 Years | 6.2 | 2.5 - 14.6 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | 40+ Years | 4.1 | 2.3 - 7.2 |

## Additional Information on Lung Cancer Screening

As noted in the Background section, the USPSTF published revised lung cancer screening guidelines in March, 2021. Some of the sources included in this section reflect the revision, but most have not yet been updated. Nevertheless, they provide other useful information. Lung cancer screening resources that reflect the 2021 guidelines are marked *2021 GUIDELINES*.

### General Public Resources

- Lung Cancer. National Cancer Institute.
- Lung Cancer Screening (PDQ®)-Patient Version. National Cancer Institute.
- Smokefree.gov. National Cancer Institute.
- Is Lung Cancer Screening Right for Me?. Agency for Healthcare Research and Quality.
- Can lung cancer be found early?. American Cancer Society.
- Lung Cancer. Centers for Disease Control and Prevention.
- Lung Cancer: Who Should Be Screened for Lung Cancer?. Centers for Disease Control and Prevention. *2021 GUIDELINES*
- Tips from Former Smokers: Guide for quitting smoking. 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.
- 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. *2021 GUIDELINES*
- Testing for lung cancer in people at high risk. Wiley Online Library.

### Public Health Resources

- Lung Cancer . National Cancer Institute
- Lung Cancer Screening (PDQ®)-Health Professional Version. National Cancer Institute
- Smoking Cessation. Cancer Trends Progress Report.
- Help others quit. Smokefree.gov.
- Lung cancer screening tools. Agency for Healthcare Research and Quality.
- Clinical Preventive Service Recommendation: Lung Cancer. American Academy of Family Physicians.
- Lung Cancer Screening Guidelines. American Cancer Society.
- Health Care Providers: How you can help your patients quit. Centers for Disease Control and Prevention.
- Decision Memo for Screening for Lung Cancer with Low Dose Computed Tomography (LDCT) (CAG-00439N). Centers for Medicare and Medicaid Services.
- Lung Cancer Screening, NCCN Clinical Practice Guidelines in Oncology. National Comprehensive Cancer Network.
- Final Recommendation Statement. Lung Cancer: Screening. U.S. Preventive Services Task Force. *2021 GUIDELINES*

### Scientific Reports

- Results of the two incidence screenings in the National Lung Screening Trial. Aberle DR, DeMello S, Berg CD et al. N Engl J Med 2013;369(10):920-31.

- 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 et al. Ann Intern Med 2014;160(5):311-20.
- Reduced lung-cancer mortality with volume CT screening in a randomized trial. de Koning HJ, van der Aalst CM, de Jong PA, et al. N Engl J Med. 2020;382(6):503-513. doi:10.1056/NEJMoa1911793
- 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 et al. Ann Intern Med 2013;159(6):411-420.
- Screening for Lung Cancer With Low-Dose Computed Tomography: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. Jonas DE, Reuland DS, Reddy SM, et al. JAMA. 2021;325(10):971–987. doi:10.1001/jama.2021.0377
- Lung Cancer Screening and Smoking Cessation Clinical Trials. SCALE (Smoking Cessation within the Context of Lung Cancer Screening) Collaboration. Joseph AM, Rothman AJ, Almirall D, et al. Am J Respir Crit Care Med. 2018 Jan 15;197(2):172-182.
- Stakeholder research priorities for smoking cessation interventions within lung cancer screening programs. An official American Thoracic Society Research Statement. Kathuria H, Detterbeck FC, Fathi JT et al. Am J Respir Crit Care Med 2017;196(9):1202-1212.
- Smoking-related health beliefs and smoking behavior in the National Lung Screening Trial. Kaufman AR, Dwyer LA, Land SR et al. Addict Behav 2018;84:27-32.
- Evaluation of the Benefits and Harms of Lung Cancer Screening With Low-Dose Computed Tomography: Modeling Study for the US Preventive Services Task Force. Meza R, Jeon J, Toumazis I, et al. JAMA. 2021;325(10):988–997. doi:10.1001/jama.2021.1077
- Reduced lung-cancer mortality with low-dose computed tomographic screening. National Lung Screening Trial Research Team, Aberle DR, Adams AM et al. N engl J Med 2011;365(5):395-409.
- Results of initial low-dose computed tomographic screening for lung cancer. National Lung Screening Trial Research Team, Church TR, Black WC et al. N Engl J Med 2013;368(21):1980-91.
- Screening for Lung Cancer: US Preventive Services Task Force Recommendation Statement. US Preventive Services Task Force. JAMA. 2021;325(10):962–970. doi:10.1001/jama.2021.1117


**Statistics**


- SEER Cancer Stat Facts: Lung and Bronchus Cancer. National Cancer Institute.
- 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 et al. Cancer Epidemiol Biomarkers Prev 2012;21(7):1049-59.
- Lung Cancer Screening With Low-Dose Computed Tomography in the United States-2010 to 2015. Jemal A, Fedewa SA. JAMA Oncol 2017;3(9):1278-1281.


### Year Range

2010-2015

### Recent Summary Trend Year Range

2010-2015

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Breast and Cervical Cancers

### Recent Summary Trend

Non-Significant Change

### Desired Direction

Rising

# Early Detection


Breast Cancer Screening
Cervical Cancer Screening
Colorectal Cancer Screening


## Early Detection

Lung Cancer Screening
Prostate Cancer Screening

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- National Cancer Institute
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NIH... Turning Discovery Into Health

# Prostate Cancer Screening

## Data Up to Date as of:

July 2021

## Background

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 2012 the U.S. Preventive Services Task Force (USPSTF) recommended against prostate cancer screening. In May 2018, the USPSTF published a final 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, the USPSTF recommends 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 55 to 69 years who reported having had a PSA test within the past year, by race/ethnicity, income, education level, and age. This provides information about the use of PSA testing in the population.

### Measurement challenges

We track prostate cancer screening rates in U.S. using a large, national, in-person survey in which male respondents were asked several questions about prostate cancer and PSA testing, including whether they had ever had a PSA test and, if so, the time of their most recent test and the main reason for undergoing it (see Data Source, below). There are some limitations to this self-reported data that may impact what information we can accurately measure. Studies have shown that self-reported health care information is prone to biases because people may not know the specific purpose for receiving a test, or not remember the timing of the test.

In the case of PSA screening, it may be challenging to determine by self-report alone if a PSA test was received for screening purposes, i.e., to look for asymptomatic, previously undetected cancer, or for diagnostic purposes as a follow up on symptoms or suspicious findings from a prior test. In some cases, because PSA testing is a blood test it may be bundled by a doctor with many other tests, and a man may be unaware he even had the test. Even though the use of PSA testing measure may include tests for reasons other than screening or may miss tests, this data is the best national data on PSA screening and has been used to track PSA screening rates in the US.

## Healthy People 2030 Target

There is no Healthy People 2030 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 PSA test to screen for prostate cancer with their health care provider.

Healthy People 2030 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.*

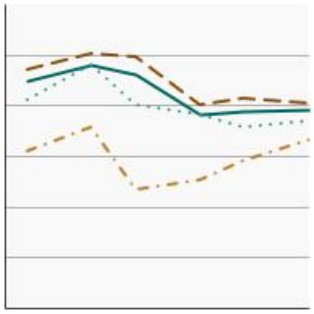
## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005-2018.

## Trends and Most Recent Estimates

### By Race/Ethnicity

Percent of men aged 55-69 years who had a prostate-specific antigen (PSA) test within the past year by race/ethnicity, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | All Races | 39.0 | 37.0 - 41.1 |
| | Non-Hispanic White | 40.4 | 38.0 - 42.8 |
| | Non-Hispanic Black | 37.0 | 31.3 - 43.1 |
| | Hispanic | 33.2 | 25.9 - 41.3 |

### By Poverty Income Level

Percent of men aged 55-69 years who had a prostate-specific antigen (PSA) test within the past year by poverty income level, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | <200% of federal poverty level | 27.1 | 23.4 - 31.3 |
| | >=200% of federal poverty level | 42.2 | 39.9 - 44.6 |

### By Education Level

Percent of men aged 55-69 years who had a prostate-specific antigen (PSA) test within the past year by highest level of education obtained, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Less than High School | 27.8 | 21.7 - 34.8 |
| | High School | 34.5 | 30.6 - 38.5 |
| | Greater than High School | 42.7 | 40.2 - 45.2 |

### By Age

Percent of men aged 40 years and older who had a prostate-specific antigen (PSA) test within the past year by age at time of screening, 2005-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Ages 40-54 | 13.4 | 11.9 - 15.0 |
| | Ages 55-69 | 39.0 | 37.0 - 41.1 |
| | Ages 70+ | 44.6 | 41.8 - 47.5 |

## Evidence-based Resources

Resources are available on prostate cancer screening to allow for the prioritization of cancer control efforts and the development, implementation and evaluation of cancer control plans. Find state and local level prostate cancer data, prostate cancer screening guidelines, evidence-based intervention programs and more on Cancer Control P.L.A.N.E.T. – prostate cancer.

## Additional Information on Prostate Cancer Screening

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    - Radon
- Early Detection
  - Breast Cancer Screening

# 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 (with the exception of prostate cancer screening, for which the highest grade assigned by the U.S. Preventive Services Task Force [USPSTF] is a grade C, meaning that, for men aged 55 to 69 years, the decision to undergo periodic prostate-specific antigen [PSA]-based screening for prostate cancer should be an individual one, and that before deciding whether to be screened, men should have an opportunity to discuss the potential benefits and harms of screening with their clinician). 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

### Home description:

Incidence,
Stage at diagnosis


# Diagnosis

Incidence
Stage at Diagnosis

# Diagnosis

- Incidence
- Stage at Diagnosis

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# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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# Incidence

### Data Up to Date as of:

July 2021

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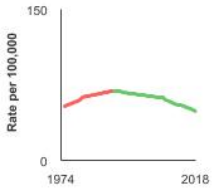
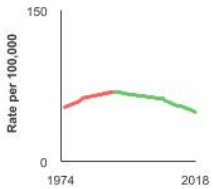
In 2018, the rate of new cases of all cancers combined was 47.9 per 100,000 people per year.




See Graph Details




### Background

Cancer incidence is typically 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 2021, nearly half of all new cancer cases are expected to be cancers of the prostate, breast, lung, and colon and rectum. According to American Cancer Society projections, about 1,898,160 new cases of cancer are expected to be diagnosed in 2021, including 248,530 cases of prostate cancer, 284,200 cases of breast cancer, 235,760 cases of lung and bronchus cancer, and 149,500 cases of colorectal cancer.

### Measure

Incidence rate: the observed number of new cancer cases per 100,000 people per year, adjusted for age and 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 2030 Target

There are no Healthy People 2030 targets for cancer incidence.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

### Data Source

SEER Program, National Cancer Institute, 1975–2018.

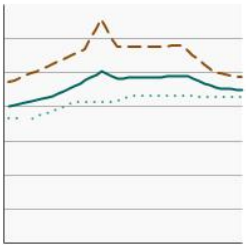
### Trends and Most Recent Estimates

#### All Cancer Sites Combined

Expand Section + Collapse Section -

**By Sex**

Rates of new cases of all cancer, delay-adjusted cancer incidence by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
|  | Both Sexes | 445.3 | 443.1 - 447.5 |
| | Male | 479.5 | 476.1 - 483.0 |
| | Female | 423.1 | 420.1 - 426.2 |

**By Race/Ethnicity**

Rates of new cases of all cancer, delay-adjusted cancer incidence by race/ethnicity, 2000-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
| | All Races | 450.5 | 449.3 - 451.6 |
| | White | 462.9 | 461.6 - 464.2 |
| | Black | 446.4 | 442.9 - 449.9 |
| | Hispanic | 357.7 | 354.9 - 360.5 |
| | Asian/Pacific Islander | 318.0 | 314.9 - 321.2 |
| | American Indian/Alaska Native | 340.2 | 326.2 - 354.7 |

## Top 4 Cancer Sites

Expand Section + Collapse Section -

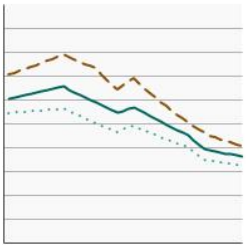
**Comparison of Top Cancer Sites**

Rates of new cases of the most common cancers, delay-adjusted cancer incidence, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
| | Colon and Rectum | 35.5 | 34.9 - 36.2 |
| | Lung and Bronchus | 47.9 | 47.2 - 48.7 |
| | Female Breast | 134.5 | 132.8 - 136.2 |
| | Prostate | 119.3 | 117.6 - 120.9 |

**Colon and Rectum Cancer by Sex**

Rates of new cases of colon and rectum cancer, delay-adjusted cancer incidence by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
|  | Both Sexes | 35.5 | 34.9 - 36.2 |
| | Male | 40.0 | 39.0 - 41.0 |
| | Female | 31.6 | 30.8 - 32.5 |

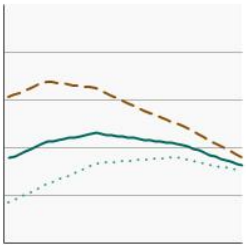
**Colon and Rectum Cancer by Race/Ethnicity**

Rates of new cases of colon and rectum cancer, delay-adjusted cancer incidence by race/ethnicity, 2000-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
| | All Races | 36.8 | 36.4 - 37.1 |
| | White | 36.5 | 36.1 - 36.9 |
| | Black | 41.2 | 40.1 - 42.3 |
| | Hispanic | 33.3 | 32.4 - 34.1 |
| | Asian/Pacific Islander | 30.1 | 29.1 - 31.0 |
| | American Indian/Alaska Native | 38.7 | 34.0 - 43.7 |

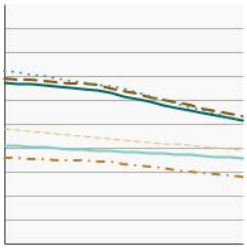
**Lung and Bronchus Cancer by Sex**

Rates of new cases of lung and bronchus cancer, delay-adjusted cancer incidence by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
|  | Both Sexes | 47.9 | 47.2 - 48.7 |
| | Male | 52.4 | 51.2 - 53.5 |
| | Female | 44.7 | 43.7 - 45.7 |

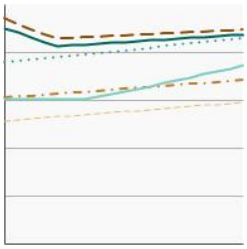
**Lung and Bronchus Cancer by Race/Ethnicity**

Rates of new cases of lung and bronchus cancer, delay-adjusted cancer incidence by race/ethnicity, 2000-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
|  | All Races | 50.8 | 50.4 - 51.2 |
| | White | 52.5 | 52.1 - 52.9 |
| | Black | 51.6 | 50.4 - 52.8 |
| | Hispanic | 27.6 | 26.8 - 28.5 |
| | Asian/Pacific Islander | 35.5 | 34.5 - 36.5 |
| | American Indian/Alaska Native | 39.2 | 34.3 - 44.5 |

**Female Breast Cancer by Race/Ethnicity**

Rates of new cases of female breast cancer, delay-adjusted cancer incidence by race/ethnicity, 2000-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
|  | All Races | 131.3 | 130.4 - 132.2 |
| | White | 133.5 | 132.5 - 134.5 |
| | Black | 124.9 | 122.5 - 127.4 |
| | Hispanic | 102.6 | 100.6 - 104.5 |
| | Asian/Pacific Islander | 114.2 | 111.7 - 116.7 |
| | American Indian/Alaska Native | 89.9 | 80.6 - 100.0 |

**Prostate Cancer by Race/Ethnicity**

Rates of new cases of prostate cancer, delay-adjusted cancer incidence by race/ethnicity, 2000-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
| | All Races | 119.3 | 118.4 - 120.1 |
| | White | 114.1 | 113.1 - 115.0 |
| | Black | 189.0 | 185.6 - 192.5 |
| | Hispanic | 92.9 | 90.7 - 95.2 |
| | Asian/Pacific Islander | 64.8 | 62.7 - 67.0 |
| | American Indian/Alaska Native | 54.8 | 46.5 - 64.1 |

**Selected Cancer Sites with Increasing Trends**

Rates of selected cancer sites that are increasing annually^, delay-adjusted cancer incidence, 1975-2018

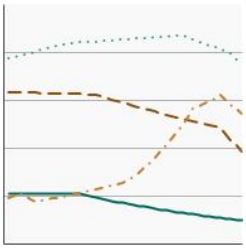
| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
| | Oral Cavity and Pharynx | 12.3 | 11.9 - 12.7 |
| | Pancreas | 13.6 | 13.3 - 14.0 |
| | Melanoma of the Skin | 25.8 | 25.2 - 26.3 |
| | Testis | 6.0 | 5.6 - 6.4 |
| | Leukemia | 14.4 | 14.0 - 14.8 |
| | Esophageal adenocarcinoma | 2.8 | 2.6 - 3.0 |

**Selected Cancer Sites with Decreasing Trends**

Expand Section + Collapse Section -

**Decreasing Greater than 2% Annually**

Rates of selected cancer sites that are decreasing by 2% or greater per year^, delay-adjusted incidence, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
|  | Larynx | 2.3 | 2.1 - 2.5 |
| | Ovary | 9.5 | 9.0 - 10.0 |
| | Urinary Bladder | 18.6 | 18.1 - 19.0 |
| | Thyroid | 13.6 | 13.2 - 14.0 |

**Decreasing Less than 2% Annually**

Rates of selected cancer sites that are decreasing by less than 2% per year^, delay-adjusted incidence, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) Rate per 100,000 | 95% Confidence Interval |
|---|---|---|---|
| | Stomach | 6.3 | 6.0 - 6.5 |
| | Brain and Other Nervous System | 6.5 | 6.2 - 6.8 |
| | Hodgkin Lymphoma | 2.6 | 2.4 - 2.7 |
| | Non-Hodgkin Lymphoma | 19.4 | 19.0 - 19.9 |

**Additional Information on Incidence**

**General Public Resources**

- Cancer Incidence Rates. National Cancer Institute.
- Common Cancer Types. National Cancer Institute.
- Learn About Cancer. American Cancer Society.

**Public Health Resources**

- Resources for Health Professionals. National Cancer Institute.
- Cancer Facts and Figures. American Cancer Society.

**Scientific reports**

- Annual Report to the Nation on the Status of Cancer. National Cancer Institute.
- Lung cancer incidence trends among men and women – United States, 2005–2009. Henley SJ, Richareds TB, Underwood JM, et al. MMWR Morb Mortal Wkly Rep 2014;63(01):1–5.
- Invasive Cancer Incidence and Survival—United States, 2013. Henley SJ, Singh SD, King JK et al. MMWR Morb Mortal Wkly Rep. 2017:66(3):69-75.
- Cancer Statistics, 2018. Siegel RL, Miller KD, Jemal, A. CA: A Cancer Journal for Clinicians. 2018;61(01):7-30.

**Statistics**

- SEER Cancer Statistics Review, National Cancer Institute.
- State Cancer Profiles. National Cancer Institute, and Centers for Disease Control and Prevention.
- United States Cancer Statistics: Data Visualizations. 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*Explorer: An interactive website that provides easy access to a wide range of SEER cancer statistics. National Cancer Institute.
- WONDER Online Databases – United States Cancer Statistics. Centers for Disease Control and Prevention.

### Year Range

1975-2018

### Recent Summary Trend Year Range

2014-2018

### Summary Tables

Diagnosis

### Recent Summary Trend

Falling

### Desired Direction

Falling

## Diagnosis




## Diagnosis

- Incidence
- Stage at Diagnosis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# Stage at Diagnosis

## Data Up to Date as of:

July 2021

## Background

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, lung and bronchus, 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.

**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/unknown) is shown.

## Healthy People 2030 Target

- There are no Healthy People Target for breast, colon, rectum, cervix uteri, lung and bronchus or prostate cancer by stage at diagnosis.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

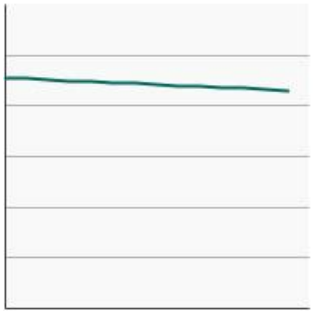
## Data Source

SEER Program, National Cancer Institute, 2004–2018.

## Trends and Most Recent Estimates

### Late Stage Breast Cancer Rates

Rates of new cases of late stage breast cancer, delay-adjusted incidence, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Delay Rate per 100,000 | 95% Confidence Interval |
|  | Late Stage Breast Cancer | 42.6 | 42.0 - 43.1 |

### Distant Stage Cancer Rates

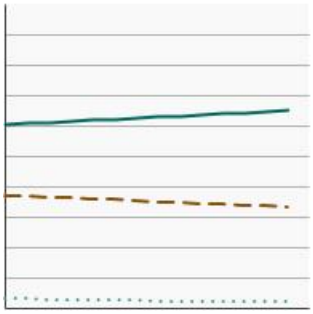
Rates of new cancers of distant stage diseases, delay-adjusted incidence, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Delay Rate per 100,000 | 95% Confidence Interval |
| | Colon | 5.9 | 5.8 - 6.1 |
| | Rectum | 1.6 | 1.6 - 1.7 |
| | Cervix Uteri | 1.1 | 1.0 - 1.1 |
| | Lung and Bronchus | 23.9 | 23.6 - 24.2 |
| | Prostate | 10.9 | 10.6 - 11.1 |

## Stage Distribution

### Female Breast Cancer

Distribution of female breast cancer diagnoses by stage at diagnosis, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of diagnoses | 95% Confidence Interval |
|  | Localized | 65.3 | 57.1 - 73.5 |
| | Regional/Distant | 32.5 | 24.4 - 40.5 |
| | Unstaged/Unknown | 2.6 | 0.0 - 5.3 |

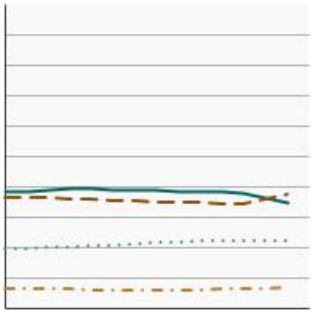
### Lung Cancer

Distribution of lung cancer diagnoses by stage at diagnosis, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of diagnoses | 95% Confidence Interval |
| | Localized | 28.1 | 15.6 - 40.6 |
| | Regional | 18.9 | 8.0 - 29.8 |
| | Distant | 47.6 | 33.7 - 61.5 |
| | Unstaged/Unknown | 6.0 | 0.0 - 12.6 |

### Colon Cancer

Distribution of colon cancer diagnoses by stage at diagnosis, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of diagnoses | 95% Confidence Interval |
|  | Localized | 36.2 | 17.6 - 54.8 |
| | Regional | 34.3 | 16.0 - 52.7 |
| | Distant | 23.3 | 6.9 - 39.6 |
| | Unstaged/Unknown | 7.2 | 0.0 - 17.2 |

### Rectum Cancer

Distribution of rectum cancer diagnoses by stage at diagnosis, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of diagnoses | 95% Confidence Interval |
| | Localized | 40.0 | 7.7 - 72.3 |
| | Regional | 32.7 | 1.8 - 63.6 |
| | Distant | 19.0 | 0.0 - 44.8 |
| | Unstaged/Unknown | 10.1 | 0.0 - 30.1 |

### Cervix Uteri Cancer

Distribution of cervix uteri cancer diagnoses by stage at diagnosis, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of diagnoses | 95% Confidence Interval |
| | Localized | 43.5 | 8.5 - 78.5 |
| | Regional | 38.0 | 3.7 - 72.3 |
| | Distant | 14.6 | 0.0 - 39.5 |
| | Unstaged/Unknown | 6.7 | 0.0 - 24.3 |

### Prostate Cancer

Distribution of prostate cancer diagnoses by stage at diagnosis, 2004-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of diagnoses | 95% Confidence Interval |
| | Localized | 68.4 | 60.0 - 76.9 |
| | Regional | 12.9 | 6.8 - 19.0 |
| | Distant | 8.9 | 3.7 - 14.1 |
| | Unstaged/Unknown | 10.4 | 4.8 - 15.9 |

## Additional Information on Stage at Diagnosis

# Cancer Trends Progress Report

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## Main Menu

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2. » Treatment

## 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, targeted therapy, or 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

### Home description:

Trends in cancer treatment

## Treatment

Bladder Cancer Treatment
Breast Cancer Treatment
Colorectal Cancer

## Treatment

Treatment
Kidney Cancer Treatment
Lung Cancer Treatment
Ovarian Cancer Treatment
Prostate Cancer Treatment

- Bladder Cancer Treatment
- Breast Cancer Treatment
- Colorectal Cancer Treatment
- Kidney Cancer Treatment


- Lung Cancer Treatment
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- Prostate Cancer Treatment


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# Bladder Cancer Treatment

### Data Up to Date as of:

July 2021

### On This Page:



In 2009, 29.7% of patients with non-muscle invasive disease received intravesical therapy.

See Graph Details

### Background

Bladder cancer is a disease in which malignant (cancer) cells form in the tissues of the bladder. The first targeted therapy for bladder cancer was approved by the FDA in 2019. 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, one type of immunotherapy, involves the instillation of an agent or biologic into the bladder. The use of intravesical therapy has been associated with improved survival for individuals with non-muscle invasive bladder cancer. 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 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including bladder cancer treatment.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

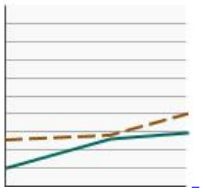
## Data Source

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

### General Public Resources

- Bladder Cancer. National Cancer Institute.
- Bladder Cancer Treatment (PDQ®)-Patient Version.National Cancer Institute.
- Treating Bladder Cancer. American Cancer Society.

### Public Health Resources

- Bladder Cancer Treatment (PDQ®)-Health Professional Version. National Cancer Institute.

### Statistics

- SEER Cancer Stat Facts: Bladder Cancer. National Cancer Institute.
- SEER-Medicare Linked Database. National Cancer Institute.
- SEER Patterns of Care/Quality of Care Studies. National Cancer Institute.

## Year Range

1995-2009

## Recent Summary Trend Year Range

2003-2009

## Summary Tables

Bladder, Breast, Colorectal

## Recent Summary Trend

Non-Significant Change

## Desired Direction

Rising

## Treatment

- Bladder Cancer Treatment
- Breast Cancer Treatment
- Colorectal Cancer Treatment
- Kidney Cancer Treatment
- Lung Cancer Treatment
- Ovarian Cancer Treatment
- Prostate Cancer Treatment

## Treatment

- Bladder Cancer Treatment
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# Breast Cancer Treatment

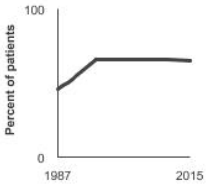
### Data Up to Date as of:

July 2021

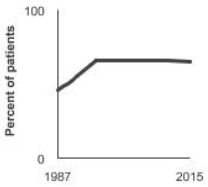
### On This Page:



In 2015, 64.2% of women diagnosed with node positive breast cancer, received multi-agent chemotherapy.




See Graph Details




### Background

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, immunotherapy, 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-concordant treatment is high. Clinical trials have demonstrated that women with early stage breast cancer who receive breast-conserving surgery (BCS) with radiation therapy 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 (local or regional stage), 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.

Due to SEER coding inconsistencies in AJCC stage at diagnosis data for women diagnosed with breast cancer in 2016, the only consistent staging system that could be used across all of the years was Summary Staging (local, regional, distant). This issue only applies to the measure on receiving breast-conserving surgery and radiation treatment through 2016 (from the SEER data) but is not an issue for the multi-agent chemotherapy measure (since it is based on SEER based patterns of care data and the most recent data point is 2015). For the breast conserving surgery and radiation measure local and regional disease was used as the closest approximation. Unfortunately this classification includes some patients beyond stage IIb who are not necessarily recommended for breast conserving therapy and radiation (approximately 13% – although it differs by year). Thus, even if complete compliance with guidelines occurred, this measure would not reach 100%.

*Note*: This measure includes women with both hormone receptor positive and negative breast cancer.

### Healthy People 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including breast cancer treatment and multi-agent chemotherapy.

Healthy People 2030 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 18 Registries, National Cancer Institute, 2004–2017.

Multi-agent chemotherapy estimates: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987-2015.

## Trends and Most Recent Estimates

Expand All + Collapse All -

### Treatment Distribution

Treatment distribution for invasive female breast cancer patients aged 20 years and older with local or regional diagnosis, 2004-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Mastectomy | 36.5 | 36.2 - 36.8 |
| | BCS with radiation | 45.9 | 45.6 - 46.1 |
| | BCS without radiation | 17.6 | 17.4 - 17.8 |

### Chemotherapy

Percentage of node positive female breast cancer patients receiving multiagent chemotherapy treatment by age at diagnosis, 1987-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Ages 20+ | 64.2 | 57.6 - 70.2 |
| | Ages 20-64 | 82.4 | 74.6 - 88.2 |
| | Ages 65+ | 40.7 | 29.9 - 52.5 |

## Additional Information on Breast Cancer Treatment

### General Public Resources

- Breast Cancer. National Cancer Institute.
- Breast Cancer Treatment (PDQ®)-Patient Version. National Cancer Institute.
- Breast Biopsy. American Cancer Society.
- Treating Breast Cancer. American Cancer Society.
- Breast Cancer (NCCN Guidelines for Patients®). National Comprehensive Cancer Network.

### Public Health Resources

- Breast Cancer Treatment (PDQ®)-Health Professional Version. National Cancer Institute.

### Statistics

- SEER Cancer Stat Facts: Breast Cancer. National Cancer Institute.
- SEER-Medicare Linked Database. National Cancer Institute.
- SEER Patterns of Care/Quality of Care Studies. National Cancer Institute.

## Year Range

1987-2015

## Recent Summary Trend Year Range

2010-2015

## Summary Tables

Bladder, Breast, Colorectal

## Recent Summary Trend

Stable

## Desired Direction

Rising

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# Colorectal Cancer Treatment

### Data Up to Date as of:

July 2021

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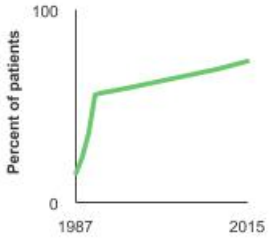
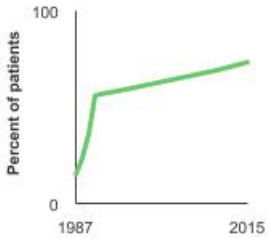
In 2015, 70.3% of stage III colon and stage II and III rectal patients received adjuvant chemotherapy.




See Graph Details




## Background

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, immunotherapy, 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 chemotherapy 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-concordant 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 adjuvant chemotherapy or diagnosed with stage II or stage III rectal cancer who received chemotherapy with or without radiation therapy.

## Healthy People 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including colorectal cancer treatment.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

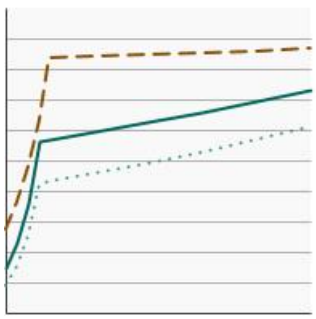
## Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987-2015.

## Trends and Most Recent Estimates

**Guideline-concordant Chemotherapy Treatment**

Percent of colon stage III and rectal stages II & III cancer patients who received guideline-concordant chemotherapy treatment by age at diagnosis, 1987-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | All Ages | 70.3 | 66.4 - 74.0 |
| | Ages <65 | 86.9 | 82.2 - 90.6 |
| | Ages 65+ | 57.1 | 51.1 - 62.9 |

## Additional Information on Colorectal Cancer Treatment

**General Public Resources**

- Colorectal Cancer. National Cancer Institute
- Colon Cancer Treatment (PDQ®)-Patient Version. National Cancer Institute.
- Rectal Cancer Treatment (PDQ®)-Patient Version. National Cancer Institute.
- Treating Colorectal Cancer. American Cancer Society.
- Colon Cancer (NCCN Guidelines for Patients®). National Comprehensive Cancer Network.
- Rectal Cancer (NCCN Guidelines for Patients®). National Comprehensive Cancer Network.

**Public Health Resources**

- Colon Cancer Treatment (PDQ®)-Health Professional Version. National Cancer Institute.
- Rectal Cancer Treatment (PDQ®)-Health Professional Version. National Cancer Institute.

**Statistics**

- SEER Cancer Stat Facts: Colorectal Cancer. National Cancer Institute.
- SEER-Medicare Linked Database. National Cancer Institute.
- SEER Patterns of Care/Quality of Care Studies. National Cancer Institute.
- Colorectal Cancer Mortality Projections. Cancer Intervention Surveillance Network.

### Year Range

1987-2015

### Recent Summary Trend Year Range

2010-2015

### Summary Tables

Bladder, Breast, Colorectal

### Recent Summary Trend

Rising

### Desired Direction

Rising

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# Kidney Cancer Treatment

## Data Up to Date as of:

July 2021

## Background

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, 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 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including kidney cancer treatment.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

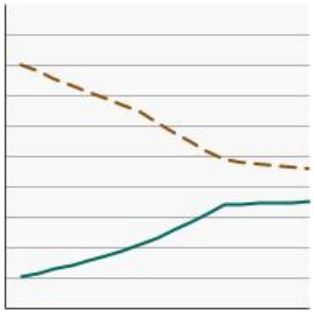
## Data Source

SEER 18 Registries, National Cancer Institute, 2000–2016.

## Trends and Most Recent Estimates

### All Races, Ages 20+

Percent of patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | Partial nephrectomy | 35.8 | 35.1 - 36.4 |
| | Complete nephrectomy | 45.5 | 44.8 - 46.2 |

### By Age

### Ages 20-64

Percent of patients aged 20 - 64 years diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Partial nephrectomy | 45.5 | 44.5 - 46.4 |
| | Complete nephrectomy | 46.1 | 45.2 - 47.1 |

### Ages 65 and Older

Percent of patients aged 65 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Partial nephrectomy | 30.4 | 30.0 - 30.9 |
| | Complete nephrectomy | 45.1 | 44.6 - 45.7 |

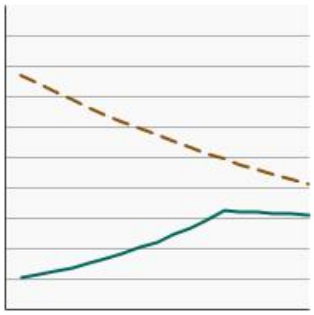
### By Race/Ethnicity
### White

Percent of White patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Partial nephrectomy | 36.4 | 35.8 - 37.0 |
| | Complete nephrectomy | 45.9 | 45.3 - 46.5 |

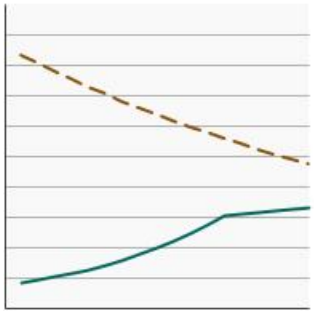
### Black

Percent of Black patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | Partial nephrectomy | 32.0 | 31.8 - 32.2 |
| | Complete nephrectomy | 42.8 | 42.6 - 43.1 |

### Hispanic

Percent of Hispanic patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | Partial nephrectomy | 33.7 | 33.4 - 33.9 |
| | Complete nephrectomy | 47.1 | 46.8 - 47.4 |

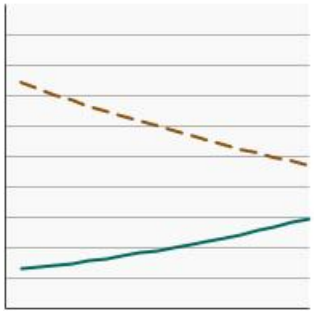
### Asian/Pacific Islander

Percent of Asian/Pacific Islander patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Partial nephrectomy | 36.2 | 36.0 - 36.3 |
| | Complete nephrectomy | 44.4 | 44.3 - 44.6 |

**American Indian/Alaska Native**

Percent of American Indian/Alaska Native patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2017

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | Partial nephrectomy | 26.7 | 26.7 - 26.8 |
| | Complete nephrectomy | 46.4 | 46.3 - 46.4 |

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# Lung Cancer Treatment

### Data Up to Date as of:

July 2021

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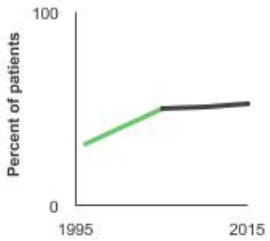
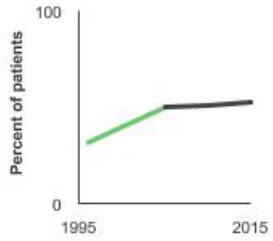
In 2015, 52.2% of stage IIIB or IV non-small cell lung cancer patients aged 20 years and older received chemotherapy.




See Graph Details




## Background

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 who have undergone surgical removal of 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 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including lung cancer treatment.

Healthy People 2030 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, 1996-2015.

## Trends and Most Recent Estimates

Help with navigating the graphs and data tables

### 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, 1996-2015

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2015) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
| | Ages 20 and older | 52.2 | 45.1 - 59.2 |
| | Ages 20-49 | 78.0 | 57.1 - 90.4 |
| | Ages 50-59 | 69.3 | 57.1 - 79.3 |
| | Ages 60-69 | 68.7 | 54.9 - 79.8 |
| | Ages 70-79 | 41.4 | 30.3 - 53.4 |
| | Ages 80 and older | 30.7 | 14.3 - 54.1 |

## Additional Information on Lung Cancer Treatment

### General Public Resources

- Lung Cancer. National Cancer Institute.
- Non-Small Cell Lung Cancer Treatment (PDQ®)-Patient Version. National Cancer Institute.

- Small Cell Lung Cancer Treatment (PDQ®)-Patient Version. National Cancer Institute.
- Treating Non-small Cell Lung Cancer. American Cancer Society.
- Treating Small Cell Lung Cancer. American Cancer Society.
- Non-Small Cell Lung Cancer (NCCN Guidelines for Patients®). National Comprehensive Cancer Network.

#### Quitting Resources

- Smokefree.gov. National Cancer Institute.
- Tobacco. National Cancer Institute.
- Stay Away from Tobacco. American Cancer Society.

#### Public Health Resources

- Non-Small Cell Lung Cancer Treatment (PDQ®)-Health Professional Version. National Cancer Institute.
- Small Cell Lung Cancer Treatment (PDQ®)-Patient Version. National Cancer Institute.

#### Statistics

- SEER Cancer Stat Facts: 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.

### Year Range

1996-2015

### Recent Summary Trend Year Range

2010-2015

### Summary Tables

Kidney, Lung, Ovarian, Prostate

### Recent Summary Trend

Stable

### Desired Direction

Rising

# Treatment



## Treatment

- Bladder Cancer Treatment
- Breast Cancer Treatment
- Colorectal Cancer Treatment
- Kidney Cancer Treatment
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# Ovarian Cancer Treatment

## Data Up to Date as of:
July 2021

## Background
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.

Ovarian cancer treatment varies by the type of tumor. 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. Epithelial ovarian cancer is treated with surgery, chemotherapy, and targeted therapy. Ovarian germ cell tumors are treated with surgery, chemotherapy, and radiation therapy. Ovarian stromal tumors are treated with surgery, chemotherapy, and hormone therapy.

Guidelines suggest intraperitoneal (IP) chemotherapy for later stage ovarian cancer. IP chemotherapy involves injecting a concentrated dose of drugs through a thin tube into the abdominal cavity where the cancer cells are located. 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 or hormonal therapy by stage of diagnosis.

## Healthy People 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including ovarian cancer treatment.

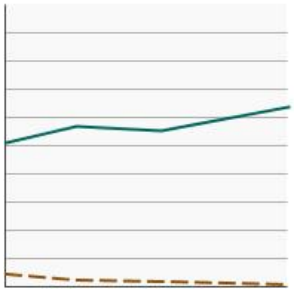
Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## 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 |
|  | Chemotherapy | 63.5 | (59.5 - 67.4) |
| | Hormone therapy | 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 |
| | Chemotherapy | 79.9 | (77.2 - 82.5) |
| | Hormone therapy | 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

# Prostate Cancer Treatment

## Data Up to Date as of:

July 2021

## Background

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, 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 block them from affecting 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 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including prostate cancer treatment.

Healthy People 2030 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

# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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# Life After Diagnosis

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 among people diagnosed with cancer, 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 Physical Activity
- Cancer Survivors and Weight

### Home description:

Financial burden of cancer care,
Cancer survivorship

# Life After Cancer

Financial Burden of Cancer Care
Survival
Cancer Survivors and Smoking
Cancer Survivors and Physical Activity
Cancer Survivors and Weight


# Life After Cancer

- Financial Burden of Cancer Care
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# Financial Burden of Cancer Care

## Data Up to Date as of:

July 2021

## Background

The national cancer-attributed medical care costs in the United States are substantial and projected to increase due to population changes alone, according to the Medical Care Costs Associated with Cancer Survivorship in the United States article, published in the journal *Cancer Epidemiology, Biomarkers & Prevention* (1). National costs for cancer care were estimated to be $190.2 billion in 2015 and $208.9 billion in 2020 (2020 U.S. dollars), an increase of 10 percent that is only due to the aging and growth of the U.S. population. These cost estimates include cancer-attributable costs for medical services and oral prescription drugs. National medical services costs were largest for female breast, colorectal, lung, and prostate cancers and non-Hodgkin lymphomas. National oral prescription drug costs were highest for female breast, leukemia, lung, and prostate cancers. The national costs reflect prevalence of the disease, treatment patterns, and costs for different types of care.
Per-patient annualized average costs were highest in the last year of life cancer phase, followed by the initial and continuing phases (medical services: $109,727, $43,516, and $5,518, and oral prescription drugs: $4,372, $1,874, $1,041, respectively). There was considerable variation in costs by cancer site. Annualized average oral drug costs were highest for chronic myeloid leukemia (CML) and myeloma in all phases of care. Annualized average costs also varied by stage in all phases of care [data is not shown here but is available in Mariotto, et al. (1)].

## Measure

- The estimates in this report come from Mariotto, et al. (1) and are an extension and update of previous estimates (2). All cost estimates have been adjusted and are reported in 2020 U.S. dollars.
- Per-patient annualized average cancer-attributable costs were estimated, respectively, from 2007-2013 Medicare claims by subtracting costs between patients with cancer and their matched controls without cancer. Annualized average medical costs were estimated by phases of care: initial (first year after diagnosis), end-of-life (year before cancer death) and continuing (the time in between).
- Medical services care costs were estimated from Medicare Parts A and B claims and include both Medicare payments and patient responsibilities for all billed medical services, including hospitalizations, outpatient hospital services, physician/supplier services, infusion or injectable drugs, durable medical equipment, hospice care, and home health care.
- Oral prescription drug costs were estimated from Medicare Part D claims.
- National expenditures or national cancer-attributed costs were estimated by combining U.S. cancer prevalence estimates and projections from the Anticipating the “Silver Tsunami”: Prevalence Trajectories and Comorbidity Burden among Older Cancer Survivors in the United States article, published in the journal *Cancer Epidemiology, Biomarkers & Prevention* (3) with the annualized average cost estimates, using previously described methods (1).

## Healthy People 2030 Target

- There is no Healthy People 2030 target for the financial burden of cancer care.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

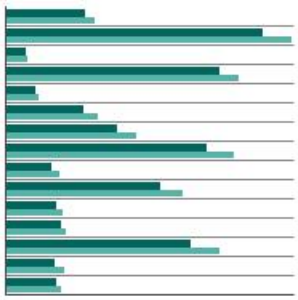
## Data Source

1. Mariotto AB, Enewold L, Zhao JX, Zeruto CA, Yabroff KR. Medical Care Costs Associated with Cancer Survivorship in the United States. Cancer Epidemiol Biomarkers Prev. 2020;29(7):1304-12.
2. 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.
3. Bluethmann SM, Mariotto AB, Rowland JH. Anticipating the "Silver Tsunami": Prevalence Trajectories and Comorbidity Burden among Older Cancer Survivors in the United States. Cancer Epidemiol Biomarkers Prev. 2016;25(7):1029-36.

## Trends and Most Recent Estimates
### National Expenditures
### Total Cost

Estimates of national expenditures for cancer care (in billions of dollars) by cancer site and year

Overview graph

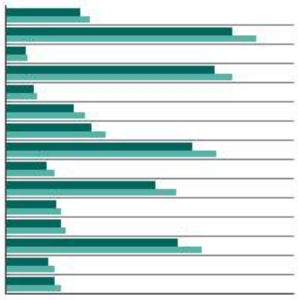


| Cancer Site | 2015 | 2020 |
|---|---|---|
| All sites | $190.2 | $208.9 |
| Bladder | $8.3 | $9.4 |
| Female Breast | $26.8 | $29.8 |
| Cervix Uteri | $2.2 | $2.3 |
| Colorectal | $22.3 | $24.3 |
| Hodgkin Lymphoma | $3.2 | $3.5 |
| Kidney | $8.2 | $9.7 |
| Leukemia | $11.7 | $13.6 |
| Lung | $21.1 | $23.8 |
| Melanoma | $4.9 | $5.7 |
| Non-Hodgkin Lymphoma | $16.2 | $18.6 |
| Oral Cavity | $5.4 | $6.0 |
| Ovary | $5.9 | $6.4 |
| Prostate | $19.4 | $22.3 |
| Thyroid | $5.2 | $6.1 |
| Uterus | $5.3 | $5.8 |

### Medical Services

Estimates of national expenditures for medical services related to cancer care (in billions of dollars) by cancer site and year

Overview graph

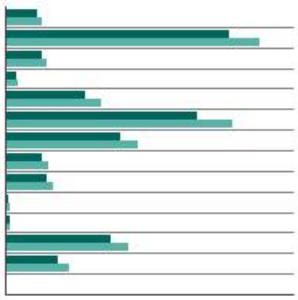


| Cancer Site | 2015 | 2020 |
|---|---|---|
| All sites | $171.6 | $188.1 |
| Bladder | $7.9 | $8.9 |
| Female Breast | $23.7 | $26.2 |
| Cervix Uteri | $2.2 | $2.3 |
| Colorectal | $21.8 | $23.7 |
| Hodgkin Lymphoma | $3.0 | $3.3 |
| Kidney | $7.1 | $8.4 |
| Leukemia | $9.1 | $10.5 |
| Lung | $19.4 | $21.9 |
| Melanoma | $4.4 | $5.1 |
| Non-Hodgkin Lymphoma | $15.6 | $17.9 |
| Oral Cavity | $5.3 | $5.9 |
| Ovary | $5.8 | $6.3 |
| Prostate | $17.9 | $20.6 |
| Thyroid | $4.5 | $5.3 |
| Uterus | $5.3 | $5.8 |

**Prescription Drugs**

Estimates of national expenditures for prescription drugs related to cancer care (in billions of dollars) by cancer site and year

Overview graph



| Cancer Site | 2015 | 2020 |
|---|---|---|
| **All sites** | $18.6 | $20.9 |
| **Bladder** | $0.4 | $0.5 |
| **Female Breast** | $3.1 | $3.5 |
| **Cervix Uteri** | - | - |
| **Colorectal** | $0.5 | $0.6 |
| **Hodgkin Lymphoma** | $0.2 | $0.2 |
| **Kidney** | $1.1 | $1.3 |
| **Leukemia** | $2.7 | $3.2 |
| **Lung** | $1.6 | $1.8 |
| **Melanoma** | $0.5 | $0.6 |
| **Non-Hodgkin Lymphoma** | $0.6 | $0.7 |
| **Oral Cavity** | $0.1 | $0.1 |
| **Ovary** | $0.1 | $0.1 |
| **Prostate** | $1.5 | $1.7 |
| **Thyroid** | $0.7 | $0.9 |
| **Uterus** | $0.0 | $0.0 |

*- Cancer-attributable oral prescription drug costs for cancer of the cervix uteri are not available.*

**Per Patient Cost**
**Medical Services**

Average (per patient) annualized 2007-2013 cancer-attributable costs in 2020 US dollars for medical services related to cancer care by cancer site and phase of care

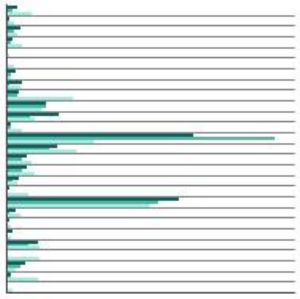
Overview graph

| Cancer Site | Initial care | Continuing care | Last year of life |
|---|---|---|---|
| **All Sites** | $43,516.1 | $5,517.6 | $109,727.3 |
| **Bladder** | $26,442.8 | $6,350.4 | $95,985.4 |
| **Brain** | $139,813.8 | $17,385.6 | $176,354.9 |
| **Breast** | $34,979.5 | $3,539.6 | $76,101.2 |
| **Cervix Uteri** | $58,715.6 | $3,956.0 | $97,026.4 |
| **Colorectal** | $66,523.5 | $6,246.3 | $110,143.7 |
| **Esophagus** | $89,947.2 | $9,785.9 | $120,033.8 |
| **Hodgkin Lymphoma** | $75,372.5 | $9,785.9 | $128,986.8 |
| **Kidney** | $41,121.7 | $8,536.7 | $95,985.4 |
| **Leukemia** | $47,263.9 | $12,700.9 | $169,588.0 |
| **Acute Myeloid Leukemia** | $190,305.0 | $21,758.1 | $249,124.7 |
| **Chronic Lymphocytic Leukemia** | $25,505.9 | $12,076.3 | $94,111.5 |
| **Chronic Myeloid Leukemia** | $34,875.4 | $13,950.2 | $122,428.2 |
| **Liver** | $62,775.7 | $18,218.5 | $92,133.5 |
| **Lung** | $68,293.3 | $12,388.6 | $110,247.8 |
| **Lung: Non-small Cell Carcinoma** | $67,148.1 | $12,284.5 | $109,102.7 |
| **Lung: Small Cell Carcinoma** | $85,366.6 | $14,783.0 | $118,055.8 |
| **Melanoma** | $8,536.7 | $2,706.8 | $78,912.0 |
| **Myeloma** | $77,038.1 | $28,524.9 | $123,365.1 |
| **Non-Hodgkin Lymphoma** | $75,164.2 | $12,805.0 | $144,706.8 |
| **Oral Cavity** | $58,715.6 | $5,934.0 | $110,039.6 |
| **Ovary** | $79,120.3 | $14,158.4 | $112,017.6 |
| **Pancreas** | $108,165.7 | $18,426.7 | $125,030.8 |
| **Prostate** | $28,108.5 | $2,602.6 | $74,227.3 |
| **Stomach** | $79,120.3 | $7,079.2 | $122,011.8 |
| **Thyroid** | $24,881.2 | $4,060.1 | $107,437.0 |
| **Uterus** | $39,039.6 | $3,019.1 | $93,590.9 |

## Oral Prescription Drugs

Average (per patient) annualized 2007-2013 cancer-attributable costs in 2020 US dollars for oral prescription drugs related to cancer care by cancer site and phase of care

Overview graph



| Cancer Site | Initial care | Continuing care | Last year of life |
|---|---|---|---|
| **All Sites** | $1,873.9 | $1,041.1 | $4,372.4 |
| **Bladder** | $624.6 | $520.5 | $1,353.4 |
| **Brain** | $2,394.4 | $1,353.4 | $1,873.9 |
| **Breast** | $1,145.2 | $832.8 | $2,706.8 |
| **Cervix Uteri** | $0.0 | $0.0 | $520.5 |
| **Colorectal** | $416.4 | $208.2 | $1,353.4 |
| **Esophagus** | $1,561.6 | $832.8 | $937.0 |
| **Hodgkin Lymphoma** | $2,810.9 | $520.5 | $2,602.6 |
| **Kidney** | $2,290.3 | $1,873.9 | $11,763.9 |
| **Leukemia** | $6,871.0 | $6,871.0 | $6,038.1 |
| **Acute Myeloid Leukemia** | $9,057.2 | $4,164.2 | $4,893.0 |
| **Chronic Lymphocytic Leukemia** | $728.7 | $728.7 | $2,915.0 |
| **Chronic Myeloid Leukemia** | $32,481.0 | $46,743.4 | $15,303.5 |
| **Liver** | $8,849.0 | $7,599.7 | $12,180.4 |
| **Lung and Bronchus** | $3,643.7 | $2,706.8 | $4,580.7 |
| **Lung: Non-small Cell Carcinoma** | $3,747.8 | $2,810.9 | $4,997.1 |
| **Lung: Small Cell Carcinoma** | $2,290.3 | $1,145.2 | $1,873.9 |
| **Melanoma** | $624.6 | $312.3 | $3,956.0 |
| **Myeloma** | $29,878.3 | $26,442.8 | $24,985.3 |
| **Non-Hodgkin Lymphoma** | $1,561.6 | $624.6 | $2,602.6 |
| **Oral Cavity** | $520.5 | $0.0 | $937.0 |
| **Ovary** | $1,041.1 | $104.1 | $937.0 |
| **Pancreas** | $5,517.6 | $3,851.9 | $5,829.9 |
| **Prostate** | $312.3 | $312.3 | $5,829.9 |
| **Stomach** | $3,435.5 | $2,498.5 | $1,769.8 |
| **Thyroid** | $937.0 | $937.0 | $5,517.6 |
| **Uterus** | $104.1 | $0.0 | $1,145.2 |

# Survival

## Data Up to Date as of:

July 2021

## Background

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 cancer survivors in a cohort of cancer patients relative to the proportion of expected survivors.

## Healthy People 2030 Target

- The Healthy People 2030 Target for survival is pending revisions. This measure will be updated once the Healthy People 2030 target is finalized.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## Data Source

SEER Program, National Cancer Institute, 1975–2013 with follow-up through 2018.

## Trends and Most Recent Estimates
### All Cancer Sites Combined
### By Sex

5-year relative survival for all cancer sites combined by sex, 1975-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | Both Sexes | 69.3 | 69.0 - 69.6 |
| | Male | 67.6 | 67.1 - 68.1 |
| | Female | 71.0 | 70.5 - 71.4 |

### By Race/Ethnicity

5-year relative survival for all cancer sites combined by race/ethnicity, 2000-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | All Races | 67.1 | 66.9 - 67.3 |
| | White | 67.4 | 67.2 - 67.6 |
| | Black | 62.3 | 61.7 - 62.8 |
| | Hispanic | 65.9 | 65.4 - 66.5 |
| | Asian/Pacific Islander | 64.7 | 64.0 - 65.4 |
| | American Indian/Alaska Native | 60.2 | 57.4 - 62.9 |

## Top 4 Cancer Sites
### Comparison of Top Cancer Sites
5-year relative survival for the most common cancers, 1975-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | Colon and Rectum | 66.1 | 64.9 - 67.2 |
| | Lung and Bronchus | 22.0 | 21.2 - 22.8 |
| | Female Breast | 91.8 | 91.2 - 92.4 |
| | Prostate | 97.9 | 97.2 - 98.4 |

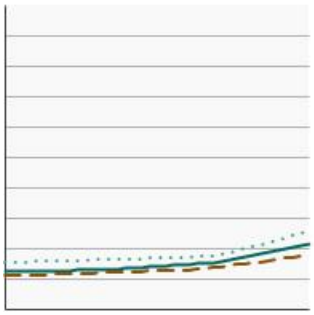
### Colon and Rectum Cancer by Sex
5-year relative survival for colon and rectum cancer by sex, 1975-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | Both Sexes | 66.1 | 64.9 - 67.2 |
| | Male | 65.3 | 63.7 - 66.9 |
| | Female | 67.0 | 65.3 - 68.6 |

### Colon and Rectum Cancer by Race/Ethnicity
5-year relative survival for colon and rectum cancer by race/ethnicity, 2000-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | All Races | 64.3 | 63.7 - 65.0 |
| | White | 64.8 | 64.0 - 65.5 |
| | Black | 58.7 | 56.8 - 60.5 |
| | Hispanic | 62.4 | 60.5 - 64.2 |
| | Asian/Pacific Islander | 65.1 | 63.0 - 67.1 |
| | American Indian/Alaska Native | 69.3 | 60.6 - 76.5 |

### Lung and Bronchus Cancer by Sex
5-year relative survival for lung and bronchus cancer by sex, 1975-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
|  | Both Sexes | 22.0 | 21.2 - 22.8 |
| | Male | 17.3 | 16.3 - 18.4 |
| | Female | 26.9 | 25.7 - 28.2 |

### Lung and Bronchus Cancer by Race/Ethnicity

5-year relative survival for lung and bronchus cancer by race/ethnicity, 2000-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | All Races | 20.3 | 19.9 - 20.8 |
| | White | 20.3 | 19.8 - 20.8 |
| | Black | 18.4 | 17.2 - 19.7 |
| | Hispanic | 18.9 | 17.2 - 20.6 |
| | Asian/Pacific Islander | 22.4 | 20.7 - 24.1 |
| | American Indian/Alaska Native | 18.2 | 12.0 - 25.6 |

### Female Breast Cancer by Race/Ethnicity

5-year relative survival for female breast cancer by race/ethnicity, 2000-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | All Races | 90.3 | 89.9 - 90.7 |
| | White | 91.5 | 91.1 - 91.9 |
| | Black | 81.4 | 80.1 - 82.6 |
| | Hispanic | 88.5 | 87.5 - 89.4 |
| | Asian/Pacific Islander | 90.8 | 89.8 - 91.8 |
| | American Indian/Alaska Native | 89.3 | 83.0 - 93.3 |

### Prostate Cancer by Race/Ethnicity

5-year relative survival for prostate cancer by race/ethnicity, 2000-2013

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2013) | |
|---|---|---|---|
| | | Percent surviving | 95% Confidence Interval |
| | All Races | 97.1 | 96.7 - 97.4 |
| | White | 96.9 | 96.4 - 97.3 |
| | Black | 95.8 | 94.7 - 96.7 |
| | Hispanic | 94.1 | 92.7 - 95.2 |
| | Asian/Pacific Islander | 95.8 | 93.9 - 97.1 |
| | American Indian/Alaska Native | 90.5 | 76.9 - 96.3 |

## Additional Information on Survival

# Cancer Survivors and Smoking

## Data Up to Date as of:

July 2021

## Background

Despite their increased risk for chronic health conditions and premature death, many cancer survivors continue to smoke after their diagnosis. 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 are becoming an important focus of attention. Behavioral risk factors, such as smoking, affect survival. Tracking these behaviors permits evaluation of how well cancer control efforts are working to reduce preventable 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 2030 Target

- There is no Healthy People 2030 target for smoking rates among cancer survivors, though Healthy People does include a national objective to increase the mental and physical health-related quality of life of cancer survivors; however, the goal for the general population is to decrease to 5 percent the proportion of people who are current cigarette smokers.

Healthy People 2030 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.

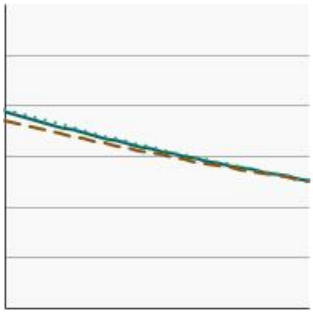
## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2019.

## Trends and Most Recent Estimates

### By Sex

Percentage of cancer survivors aged 18 years and older who were current cigarette users by sex, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes | 13.3 | 11.9 - 14.9 |
| | Male | 13.2 | 10.9 - 16.0 |
| | Female | 12.9 | 11.2 - 14.8 |

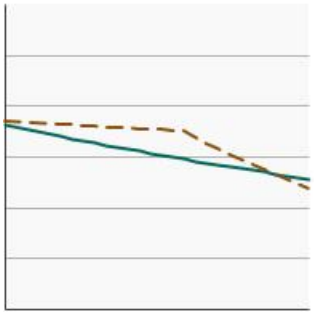
### By Age

Percentage of cancer survivors aged 18 years and older who were current cigarette users by age, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
| | Ages 18-44 | 23.9 | 17.8 - 31.2 |
| | Ages 45-64 | 20.3 | 17.1 - 23.9 |
| | Ages 65 and older | 7.6 | 6.3 - 9.1 |

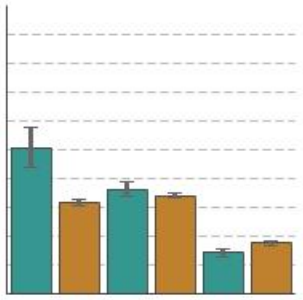
### By Time Since Cancer Diagnosis

Percentage of cancer survivors aged 18 years and older who were current cigarette users by time since cancer diagnosis, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | 5 years or less | 13.9 | 11.6 - 16.6 |
| | 6+ years | 12.8 | 11.1 - 14.8 |

### 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 current cigarette users by age, 2015-2019

| Overview graph | Age Group | Cancer Survivor | | Remaining U.S. Population | |
|---|---|---|---|---|---|
| | | Percent of population | Confidence Interval | Percent of population | Confidence Interval |
|  | **Ages 18-44** | 25.2 | 21.8 - 28.8 | 15.8 | 15.4 - 16.3 |
| | **Ages 45-64** | 18.2 | 16.9 - 19.5 | 17.0 | 16.6 - 17.5 |
| | **Ages 65 and older** | 7.1 | 6.5 - 7.8 | 8.8 | 8.4 - 9.1 |

## 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

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# Cancer Survivors and Weight

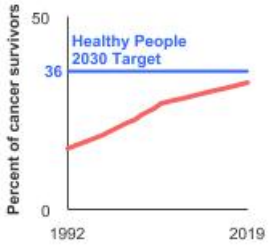
### Data Up to Date as of:

July 2021

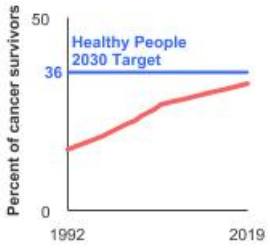
### On This Page:



In 2019, 33.0% of cancer survivors aged 20 years and older were obese.




See Graph Details




## Background

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), endometrial, 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.

## 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 2030 Target

- There is no Healthy People 2030 target for obesity rates among cancer survivors, though Healthy People does include a national objective to increase the mental and physical health-related quality of life of cancer survivors; however, the goal for the general population is to reduce the proportion of adults with obesity to 36.0 percent.

Healthy People 2030 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, 1992–2019.

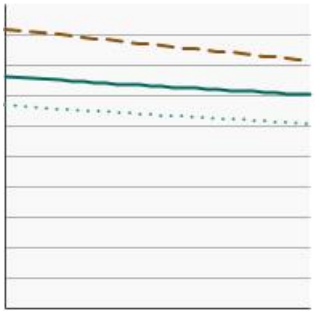
## Trends and Most Recent Estimates

### Overweight

Expand Section + Collapse Section -

**By Sex**

Percentage of cancer survivors aged 20 years and older who were overweight by sex, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes | 36.1 | 34.1 - 38.2 |
| | Male | 40.9 | 37.5 - 44.4 |
| | Female | 32.2 | 29.8 - 34.7 |

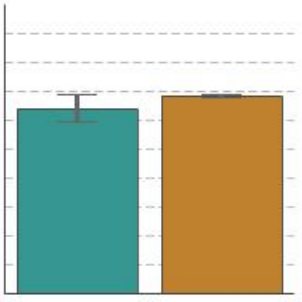
### By Time Since Cancer Diagnosis

Percentage of cancer survivors aged 20 years and older who were overweight by time since cancer diagnosis, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) Percent of cancer survivors | 95% Confidence Interval |
|---|---|---|---|
| | 5 years or less | 34.2 | 30.8 - 37.7 |
| | 6+ years | 37.9 | 35.4 - 40.4 |

### 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 overweight, 2015-2019

| Overview graph | Age Group | Cancer Survivor | | Remaining U.S. Population | |
|---|---|---|---|---|---|
| | | Percent of population | Confidence Interval | Percent of population | Confidence Interval |
|  | Ages 18 and older | 32.0 | 29.7 - 34.3 | 34.2 | 33.9 - 34.6 |

## Obese

Expand Section + Collapse Section -

### By Sex

Percentage of cancer survivors aged 20 years and older who were obese by sex, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) Percent of cancer survivors | 95% Confidence Interval |
|---|---|---|---|
| | Both Sexes | 33.0 | 31.0 - 35.0 |
| | Male | 32.7 | 29.4 - 36.1 |
| | Female | 33.3 | 30.9 - 35.9 |

### By Time Since Cancer Diagnosis

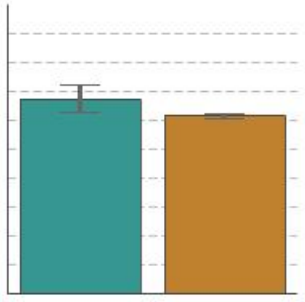
Percentage of cancer survivors aged 20 years and older who were obese by time since cancer diagnosis, 1992-2019

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) Percent of cancer survivors | 95% Confidence Interval |
|---|---|---|---|

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
| | 5 years or less | 35.9 | 32.3 - 39.6 |
| | 6+ years | 31.8 | 29.3 - 34.3 |

**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, 2015-2019

| Overview graph | Age Group | Cancer Survivor | | Remaining U.S. Population | |
|---|---|---|---|---|---|
| | | Percent of population | Confidence Interval | Percent of population | Confidence Interval |
|  | **Ages 18 and older** | 33.7 | 31.3 - 36.2 | 30.8 | 30.3 - 31.2 |

## 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 Weight

### General Public Resources

- 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.
- 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.
- Obesity and Overweight.. National Heart, Lung, and Blood Institute.
- Living Beyond Cancer. National Coalition for Cancer Survivorship.

### Public Health Resources

- American Society of Clinical Oncology Obesity Initiative: Rationale, Progress, and Future Directions. Ligibel JA, Wollins D. J Clin Oncol. 2016 Dec 10;34(35):4256-4260.
- Obesity in Adults: Screening and Management. U.S. Preventive Services Task Force.
- Obesity in Children and Adolescents: Screening (June 2017). 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, Ogden CL. JAMA 2012;307(5):491–7.
- Helping Patients Eat Better During and Beyond Cancer Treatment: Continued Nutrition Management Throughout Care to Address Diet, Malnutrition, and Obesity in Cancer. Greenlee H, Santiago-Torres M, McMillen KK, Ueland K, Haase AM. Cancer J. 2019 Sep/Oct;25(5):320-328.
- 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, Patel AV, McCullough 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.
- American College of Sports Medicine Roundtable Report on Physical Activity, Sedentary Behavior, and Cancer Prevention and Control. Patel AV, Friedenreich CM, Moore SC, et al. Med Sci Sports Exerc. 2019 Nov;51(11):2391-2402.
- 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, Flatt SW, Byers TE, et al. J Clin Oncol. 2015 Oct 1;33(28):3169-76.
- Weight management and physical activity throughout the cancer care continuum. Demark-Wahnefried W, Schmitz KH, Alfano CM, et al. CA Cancer J Clin. 2018 Jan;68(1):64-89.
- Diet and supplements in cancer prevention and treatment: clinical evidences and future perspectives. Vernieri C, Nichetti F, Raimondi A, et al. Critical Reviews in Oncology/Hematology. Volume 123, March 2018, 57-73.
- Obese Breast Cancer Patients and Survivors: Management Considerations. Sheng JY, Sharma D, Jerome G, Santa-Maria CA. Oncology (Williston Park). 2018 Aug 15;32(8):410-7.

**Statistics**

- National Center for Health Statistics – Obesity and Overweight. Centers for Disease Control and Prevention.

### Year Range

1992-2019

### Recent Summary Trend Year Range

2015-2019

### Summary Tables

Survival, Smoking, Obesity, Physical Activity

### Recent Summary Trend

Rising

### Desired Direction

Falling

## Life After Cancer

Financial Burden of Cancer Care
Survival
Cancer Survivors and Smoking
Cancer Survivors and Physical Activity
Cancer Survivors and Weight

## Life After Cancer

- Financial Burden of Cancer Care
- Survival

- Cancer Survivors and Smoking
- Cancer Survivors and Physical Activity
- Cancer Survivors and Weight

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# Cancer Trends Progress Report

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## Life After Cancer





# Cancer Survivors and Physical Activity

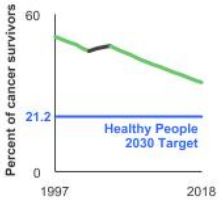
### Data Up to Date as of:

July 2021

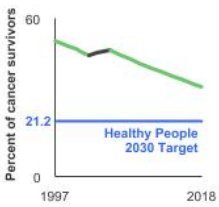
### On This Page:



In 2018, 34.0% of cancer survivors aged 18 years and older reported no physical activity in their leisure time.




See Graph Details



## Background

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

## 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 2030 Target

- There is no Healthy People 2030 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 goals determined for the general population, which are to reduce the proportion of adults who engage in no leisure time physical activity to 21.2 percent and increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity to 28.4 percent.

Healthy People 2030 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, 1997–2018.

## Trends and Most Recent Estimates

### No Leisure Time Physical Activity

Expand Section + Collapse Section -

**By Sex**

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
| | Both Sexes | 34.0 | 31.7 - 36.4 |
| | Male | 32.6 | 29.0 - 36.4 |
| | Female | 34.9 | 32.0 - 37.9 |

**By Age**

**By Time Since Cancer Diagnosis**

**Compared to Remaining U.S. Population**

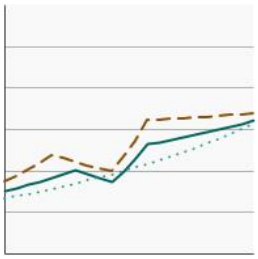
### Meet Federal Guidelines

Expand Section + Collapse Section -

**By Sex**

Percentage of cancer survivors aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by sex, 1997-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes | 15.7 | 14.0 - 17.5 |
| | Male | 16.7 | 13.8 - 19.9 |
| | Female | 14.8 | 12.7 - 17.1 |

**By Age**

**By Time Since Cancer Diagnosis**

**Compared to Remaining U.S. Population**

## 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

### General Public Resources

- 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.
- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention. American Cancer Society.
- Coping With Cancer. American Cancer Society.
- Survivorship: During and After Treatment. American Cancer Society.
- Living Beyond Cancer. National Coalition for Cancer Survivorship.
- Be Active. Springboard Beyond Cancer.

### Public Health Resources

- Exercise Guidelines for Cancer Survivors: Consensus Statement from International Multidisciplinary Roundtable. Campbell KL, Winters-Stone KM, Wiskemann J, et al. Med Sci Sports Exerc. 2019 Nov;51(11):2375-2390.

### Scientific Reports

- Pre- to postdiagnosis leisure-time physical activity and prognosis in postmenopausal breast cancer survivors. Jung AY, Behrens S, Schmidt M, et al. Breast Cancer Res. 2019 Nov 7;21(1):117.
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- Posttreatment trajectories of physical activity in breast cancer survivors. Lucas AR, Levine BJ, Avis NE. Cancer. 2017 Jul 15;123(14):2773-2780.
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- Postdiagnosis sedentary behavior and health outcomes in cancer survivors: A systematic review and meta-analysis. Swain CTV, Nguyen NH, Eagles T, et al. Cancer. 2019 Nov 12.
- Interventions for promoting habitual exercise in people living with and beyond cancer. Turner RR, Steed L, Quirk H, et al. Cochrane Database Syst Rev. 2018 Sep 19;9:CD010192.
- The Role of Physical Activity in Managing Fatigue in Cancer Survivors. Serdà I Ferrer BC, van Roekel E, Lynch BM. Curr Nutr Rep. 2018 Sep;7(3):59-69.

## Year Range

1997-2018

## Recent Summary Trend Year Range

2014-2018

### Summary Tables

Survival, Smoking, Obesity, Physical Activity

### Recent Summary Trend

Falling

### Desired Direction

Falling

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# Cancer Trends Progress Report

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Online Summary of Trends in US Cancer Control Measures

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# 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
- Years of Life Lost

### Home description:

Mortality,
Person - years of life lost

# End of Life

Mortality
Years of Life Lost

# End of Life

- Mortality
- Years of Life Lost

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- National Institutes of Health
- National Cancer Institute
- USA.gov

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# Mortality

## Data Up to Date as of:

July 2021

## Background

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, colorectal, breast, and prostate cancers. The Annual Report to the Nation on the Status of Cancer shows that the death rate from all cancers combined is continuing the decline that began in the early 1990s.

Still, in 2018 cancers of the female breast, prostate, lung, colorectal, and pancreas accounted for over one-half (52 percent) of all cancer deaths in the United States. Lung cancer alone claimed nearly 24 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 2030 Target

- Reduce the overall cancer death rate to 122.7 cancer deaths per 100,000 people per year.

### Top 4 Cancer Sites

- Reduce the colorectal cancer death rate to 8.9 deaths per 100,000 people per year.
- Reduce the lung cancer death rate to 25.1 deaths per 100,000 people per year.
- Reduce the female breast cancer death rate to 15.3 deaths per 100,000 females per year.
- Reduce the prostate cancer death rate to 16.9 deaths per 100,000 males per year.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

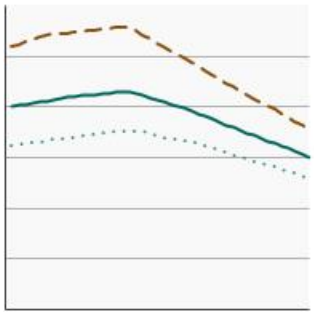
**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, 1975–2018.

## Trends and Most Recent Estimates
### All Cancer Sites Combined
### By Sex

U.S. death rates for all cancers by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
|  | Both Sexes | 149.1 | 148.7 - 149.5 |
| | Male | 176.8 | 176.1 - 177.4 |
| | Female | 128.6 | 128.1 - 129.1 |

### By Race/Ethnicity

U.S. death rates for all cancers by race/ethnicity, 1992-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
| | All Races | 149.1 | 148.7 - 149.5 |
| | White | 150.4 | 149.9 - 150.8 |
| | Black | 168.7 | 167.4 - 170.0 |
| | Hispanic | 107.4 | 106.3 - 108.5 |
| | Asian/Pacific Islander | 92.5 | 91.2 - 93.9 |
| | American Indian/Alaska Native | 133.0 | 127.6 - 138.6 |

## Top 4 Cancer Sites
## Comparison of Top Cancer Sites

U.S. death rates for the most common cancers, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
| | Colon and Rectum | 13.1 | 13.0 - 13.3 |
| | Lung and Bronchus | 34.8 | 34.6 - 34.9 |
| | Female Breast | 19.7 | 19.6 - 19.9 |
| | Prostate | 18.8 | 18.6 - 19.0 |

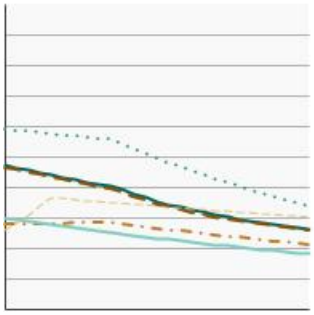
### Colon and Rectum Cancer by Sex

U.S. death rates for colon and rectum cancer by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
| | Both Sexes | 13.1 | 13.0 - 13.3 |
| | Male | 15.8 | 15.6 - 16.0 |
| | Female | 10.9 | 10.8 - 11.1 |

### Colon and Rectum Cancer by Race/Ethnicity

U.S. death rates for colon and rectum cancer by race/ethnicity, 1992-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
|  | All Races | 13.1 | 13.0 - 13.3 |
| | White | 13.0 | 12.8 - 13.1 |
| | Black | 16.8 | 16.4 - 17.2 |
| | Hispanic | 10.8 | 10.4 - 11.1 |
| | Asian/Pacific Islander | 8.8 | 8.4 - 9.2 |
| | American Indian/Alaska Native | 13.9 | 12.2 - 15.8 |

### Lung and Bronchus Cancer by Sex

U.S. death rates for lung and bronchus cancer by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
| | Both Sexes | 34.8 | 34.6 - 34.9 |
| | Male | 41.7 | 41.4 - 42.0 |
| | Female | 29.3 | 29.1 - 29.5 |

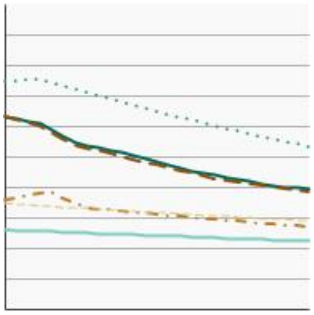
### Lung and Bronchus Cancer by Race/Ethnicity

U.S. death rates for lung and bronchus cancer by race/ethnicity, 1992-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
| | All Races | 34.8 | 34.6 - 34.9 |
| | White | 35.7 | 35.5 - 35.9 |
| | Black | 35.8 | 35.2 - 36.4 |
| | Hispanic | 15.1 | 14.7 - 15.5 |
| | Asian/Pacific Islander | 18.8 | 18.2 - 19.5 |
| | American Indian/Alaska Native | 29.4 | 26.9 - 32.1 |

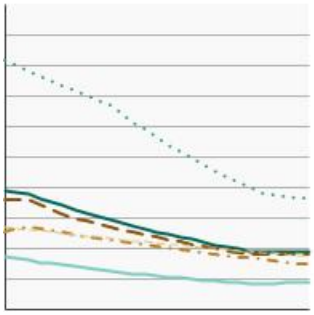
### Female Breast Cancer by Race/Ethnicity

U.S. death rates for female breast cancer by race/ethnicity, 1992-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
|  | All Races | 19.7 | 19.6 - 19.9 |
| | White | 19.3 | 19.1 - 19.5 |
| | Black | 26.7 | 26.1 - 27.4 |
| | Hispanic | 13.4 | 12.9 - 13.9 |
| | Asian/Pacific Islander | 12.1 | 11.5 - 12.8 |
| | American Indian/Alaska Native | 14.1 | 11.8 - 16.6 |

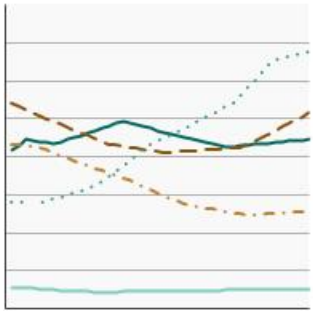
### Prostate Cancer by Race/Ethnicity

U.S. death rates for prostate cancer by race/ethnicity, 1992-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
|  | All Races | 18.8 | 18.6 - 19.0 |
| | White | 17.6 | 17.4 - 17.8 |
| | Black | 36.3 | 35.3 - 37.3 |
| | Hispanic | 15.1 | 14.4 - 15.8 |
| | Asian/Pacific Islander | 9.2 | 8.5 - 9.9 |
| | American Indian/Alaska Native | 16.6 | 13.5 - 20.2 |

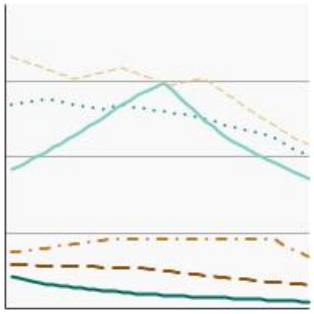
### Selected Cancer Sites with Increasing Trends

U.S. death rates for selected cancer sites that are increasing annually^, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
|  | Brain and Other Nervous System | 4.4 | 4.3 - 4.5 |
| | Corpus Uteri and NOS | 5.0 | 4.9 - 5.1 |
| | Liver and Intrahepatic Bile Duct | 6.7 | 6.6 - 6.8 |
| | Oral Cavity and Pharynx | 2.5 | 2.4 - 2.5 |
| | Thyroid | 0.5 | 0.5 - 0.5 |

### Selected Cancer Sites with Decreasing Trends
### Decreasing Greater than 2% Annually

U.S. death rates for selected cancer sites that are decreasing by 2% per year or greater^, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
|  | Hodgkin Lymphoma | 0.3 | 0.3 - 0.3 |
| | Larynx | 0.9 | 0.9 - 0.9 |
| | Leukemia | 6.0 | 5.9 - 6.1 |
| | Melanoma of the Skin | 2.1 | 2.0 - 2.1 |
| | Non-Hodgkin Lymphoma | 5.1 | 5.0 - 5.2 |
| | Ovary | 6.3 | 6.2 - 6.4 |

### Decreasing Less than 2% Annually

U.S. death rates for selected cancer sites that are decreasing by less than 2% per year^, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Rate per 100,000 | 95% Confidence Interval |
| | Cervix Uteri | 2.2 | 2.1 - 2.2 |
| | Esophagus | 3.8 | 3.7 - 3.8 |
| | Kidney and Renal Pelvis | 3.5 | 3.5 - 3.6 |
| | Myeloma | 3.1 | 3.0 - 3.1 |
| | Stomach | 2.8 | 2.8 - 2.9 |

## Additional Information on Mortality

# Years of Life Lost

## Data Up to Date as of:

July 2021

## Background

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 years of life lost (YLL)—the years of life lost because of early death from a particular cause or disease. YLL caused by cancer helps to describe the extent to which the lives of people with cancer are cut short.

## Measure

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 Years of Life Lost divided by the number of people who lost their lives.

## Healthy People 2030 Target

There is no Healthy People 2030 target for this measure.

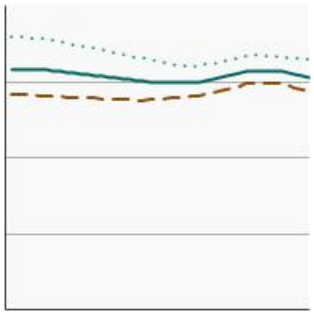
Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, 1975-2018.

## Trends and Most Recent Estimates
### Average Years of Life Lost
### By Sex

Average-years of life lost due to cancer by sex, 1975-2018

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
|---|---|---|---|
| | | Average-years of life lost | 95% Confidence Interval |
|  | Both Sexes | 15.3 | Not available |
| | Male | 14.3 | Not available |
| | Female | 16.4 | Not available |

### Cancer, All Races, Both Sexes

Average-years of life lost in 2018 due to cancer, total U.S., all races, both sexes

| Overview graph | Cause of death | Years of life lost |
|---|---|---|
| | Childhood Ages (0-14) | 71.4 |
| | Testis | 34.7 |
| | Cervix Uteri | 26.1 |
| | Brain & ONS | 21.5 |
| | Hodgkin Lymphoma | 19.1 |
| | Breast (Female) | 18.7 |
| | Ovary | 17.6 |
| | Corpus & Uterus, NOS | 17.4 |
| | Oral Cavity & Pharynx | 16.9 |
| | Liver & IBD | 16.7 |
| | Melanoma of the Skin | 16.5 |
| | Stomach | 16.4 |
| | Esophagus | 15.9 |
| | Colon & Rectum | 15.6 |
| | Leukemia | 15.6 |
| | All Sites Combined | 15.5 |
| | Kidney & Renal Pelvis | 15.4 |
| | Pancreas | 15.0 |
| | Lung & Bronchus | 14.9 |
| | Non-Hodgkin Lymphoma | 13.6 |
| | Myeloma | 13.4 |
| | Urinary Bladder | 11.0 |
| | Prostate | 9.9 |

## Person-years of Life Lost
## All Causes of Death, All Races, Both Sexes

Person-years of life lost in 2018 by cause of death, total U.S., all races, both sexes

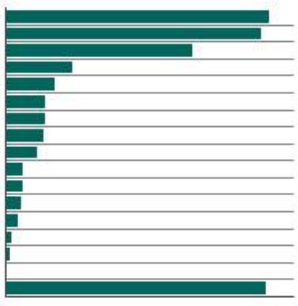
Overview graph

| Cause of death | Years of life lost (in thousands) |
|---|---|
| Malignant Cancers | 9,275 |
| Heart Disease | 7,592 |
| Accidents | 4,811 |
| Chronic Lung Disease | 1,870 |
| Suicide & Self-Inflicted Injury | 1,539 |
| Cerebrovascular | 1,528 |
| Diabetes Mellitus | 1,218 |
| Cirrhosis | 919 |
| Homicide | 869 |
| Alzheimers Disease | 741 |
| Pneumonia & Influenza | 610 |
| Nephritis & Nephrosis | 602 |
| Septicemia | 587 |
| HIV | 174 |
| Aortic Aneurysm & Dissection | 140 |
| Atherosclerosis | 49 |
| All Other Causes | 8,986 |

## All Causes of Death, All Races, Males

Person-years of life lost in 2018 by cause of death, total U.S., all races, males

Overview graph

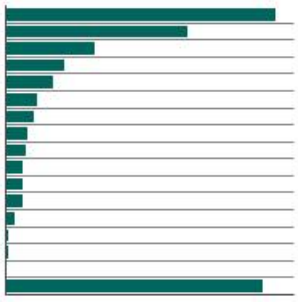


| Cause of death | Years of life lost (in thousands) |
|---|---|
| Malignant Cancers | 4,588 |
| Heart Disease | 4,436 |
| Accidents | 3,244 |
| Suicide & Self-Inflicted Injury | 1,158 |
| Chronic Lung Disease | 856 |
| Cerebrovascular | 702 |
| Homicide | 691 |
| Diabetes Mellitus | 673 |
| Cirrhosis | 569 |
| Pneumonia & Influenza | 303 |
| Nephritis & Nephrosis | 302 |
| Septicemia | 282 |
| Alzheimers Disease | 229 |
| HIV | 123 |
| Aortic Aneurysm & Dissection | 89 |
| Atherosclerosis | 24 |
| All Other Causes | 4,514 |

### All Causes of Death, All Races, Females

Person-years of life lost in 2018 by cause of death, total U.S., all races, females

Overview graph



| Cause of death | Years of life lost (in thousands) |
|---|---|
| Malignant Cancers | 4,687 |
| Heart Disease | 3,156 |
| Accidents | 1,566 |
| Chronic Lung Disease | 1,014 |
| Cerebrovascular | 826 |
| Diabetes Mellitus | 546 |
| Alzheimers Disease | 512 |
| Suicide & Self-Inflicted Injury | 382 |
| Cirrhosis | 350 |
| Pneumonia & Influenza | 307 |
| Septicemia | 305 |
| Nephritis & Nephrosis | 300 |
| Homicide | 178 |
| HIV | 52 |
| Aortic Aneurysm & Dissection | 51 |
| Atherosclerosis | 25 |
| All Other Causes | 4,471 |

### Cancer, All Races, Both Sexes

Person-years of life lost in 2018 due to cancer, total U.S., all races, both sexes

Overview graph

| Cause of death | Years of life lost (in thousands) |
|---|---|
| Lung & Bronchus | 2,218 |
| Colon & Rectum | 816 |
| Breast (Female) | 775 |
| Pancreas | 640 |
| Liver & IBD | 445 |
| Leukemia | 362 |
| Brain & ONS | 361 |
| Prostate | 300 |
| Non-Hodgkin Lymphoma | 277 |
| Ovary | 251 |
| Esophagus | 247 |
| Kidney & Renal Pelvis | 213 |
| Stomach | 188 |
| Corpus & Uterus, NOS | 187 |
| Urinary Bladder | 184 |
| Oral Cavity & Pharynx | 171 |
| Myeloma | 164 |
| Melanoma of the Skin | 135 |
| Cervix Uteri | 109 |
| Childhood Ages (0-14) | 94 |
| Hodgkin Lymphoma | 19 |
| Testis | 15 |

**Cancer, All Races, Males**
Person-years of life lost in 2018 due to cancer, total U.S., all races, males

Overview graph

| Cause of death | Years of life lost (in thousands) |
|---|---|
| Lung & Bronchus | 1,149 |
| Colon & Rectum | 431 |
| Pancreas | 326 |
| Liver & IBD | 302 |
| Prostate | 300 |
| Leukemia | 202 |
| Brain & ONS | 199 |
| Esophagus | 197 |
| Non-Hodgkin Lymphoma | 157 |
| Kidney & Renal Pelvis | 139 |
| Urinary Bladder | 129 |
| Oral Cavity & Pharynx | 122 |
| Stomach | 109 |
| Myeloma | 88 |
| Melanoma of the Skin | 85 |
| Childhood Ages (0-14) | 51 |
| Testis | 15 |
| Hodgkin Lymphoma | 11 |

**Cancer, All Races, Females**
Person-years of life lost in 2018 due to cancer, total U.S., all races, females

Overview graph

| Cause of death | Years of life lost (in thousands) |
|---|---|
| Lung & Bronchus | 1,069 |
| Breast (Female) | 775 |
| Colon & Rectum | 385 |
| Pancreas | 314 |
| Ovary | 251 |
| Corpus & Uterus, NOS | 187 |
| Brain & ONS | 163 |
| Leukemia | 161 |
| Liver & IBD | 143 |
| Non-Hodgkin Lymphoma | 119 |
| Cervix Uteri | 109 |
| Stomach | 79 |
| Myeloma | 76 |
| Kidney & Renal Pelvis | 74 |
| Urinary Bladder | 55 |
| Melanoma of the Skin | 50 |
| Oral Cavity & Pharynx | 50 |
| Esophagus | 50 |
| Childhood Ages (0-14) | 44 |
| Hodgkin Lymphoma | 8 |

## Additional Information on Years of Life Lost