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 and where attention is demanded. A new measure this year is Adolescent Physical Activity.

Read our Division Director's Message and learn more about the report.



## Prevention

Tobacco, Physical Activity, Diet, Sun, Environment, HPV Vaccination, Genetic Testing, Sleep, Weight

## Early Detection

Breast, Cervical, Colorectal, Lung, Prostate Cancer Screening



## Diagnosis

Incidence, Stage at Diagnosis

## Treatment

Trends in Cancer Treatment



## Life After Diagnosis

Financial Burden of Cancer Care, Cancer Survivorship

# End of Life

Mortality, Person-years of Life Lost

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

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Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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[Home](#)

## About the Report

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.

**CTPR Fact Sheet**



Cancer Trends Progress Report

• Prevention        • Treatment
• Early Detection    • Life After Diagnosis
• Diagnosis          • End of Life

NIH NATIONAL CANCER INSTITUTE Division of Cancer Control & Population Sciences        progressreport.cancer.gov

Read the Factsheet

- 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 Diagnosis](). 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.

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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 way that we fulfill this responsibility. As 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. It also includes 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, such as 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 ground in some areas. 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 cancer sites and for early onset cancer, and important differences among subpopulations reflect chronic health disparities that are substantial for some groups. Along with mortality rates and other standard measures of cancer control, this report includes new and updated measures that address current issues like adolescent physical activity. We frequently update relevant graphs with the latest information. We look forward to continuing to improve this report as we add more measures to inform readers.

Researchers and cancer control professionals can use the *Cancer Trends Progress Report* to advance cancer control progress by stimulating research ideas and setting priorities for cancer control program planning. We at NCI, along with our partners in this initiative, intend for 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 people. NCI remains committed to advancing scientific progress and facilitating the application of scientific evidence. This report reflects our overarching mission: the support of cancer research to help all people live longer, healthier lives.

*Kat Gddd*

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National Cancer Institute

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Highlights

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

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# 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 monitoring began in 1965. In 2022, 11.7% of adults aged 18 and older reported currently smoking cigarettes.
- Cigarette smoking prevalence among adolescents has declined since 1996/1997. In 2020, 3.3% of middle and high school students reported smoking cigarettes in the past 30 days.
- Initiation of the use of cigarettes among adolescents and young adults aged 12 to 25 years has fallen. As of 2022, it was 2%.
- Cigarette smoking cessation among adults has risen since 2003. In 2022, 9.6% of adult who smoked quit successfully in the prior 6-12 months, approaching the Healthy People 2030 target of 10.2%.
- Indoor tanning has decreased significantly among female high school students since 2013 in the U.S. 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).
- Inorganic arsenic exposure overall has been decreasing since 2009/2010, except among individuals who get their drinking water from private wells; their arsenic exposure has remained relatively constant. 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 total percentage of adolescents aged 13-15 up-to-date on recommended HPV vaccinations has been rising over the past 5 years, to nearly 60% of those eligible in 2022. Slightly more females than males were vaccinated (60.7% versus 56.6%), but the difference has shrunk over time. Disparities in HPV vaccination rates between those at ≤ 200% of the poverty level versus those at >200% of the poverty level have also been closing within the past 5 years.

### Diagnosis

- Lung cancer incidence (new cases) rates have continued to fall since at least 1989 among males, and since 2006 among females.
- Recent incidence trends show a decline of 2% or more a year in the cancer of the larynx, ovary, and of thyroid, as well as smaller but still statistically significant decreases in brain, colon and rectum, esophagus (squamous cell), lung and bronchus, stomach, and urinary bladder, as well as Hodgkin and non-Hodgkin lymphomas.
- 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, and a modest absolute increase in early-onset cases (i.e., under age 50 years) has been observed. 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.
- Trends for distant-stage colon cancer have been decreasing since 2004.

- Trends for distant-stage lung cancer have been decreasing since 2008, with a larger decline since 2014.

**Treatment**

- The proportion of patients diagnosed with muscle-invasive and metastatic bladder cancer who received intravesical therapy and of systemic therapy has increased significantly from 2009 to 2019.
- The proportion of patients with kidney cancer who received systemic therapy increased from 2009 to 2019 for patients in each examined age groups.
- The proportion of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer receiving any chemotherapy has increased from 2015 to 2017/2018. In 2017/2018, 61.9% of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer received chemotherapy.
- The proportion of patients aged 20 years and older diagnosed with advanced-stage melanoma of the skin receiving any chemotherapy increased from 2001 to 2011 and increased further from 2011 to 2018. In 2018, 79.4% of patients aged 20 years and older diagnosed with stage III or IV melanoma of the skin received chemotherapy.

**Life After Diagnosis**

- The proportion of adult cancer survivors who currently smoke continues to have a downward trend in every age group.
- The percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time has had a downward trend since 2005. Likewise, the percentage of survivors who meet current federal guidelines for aerobic and muscle-strengthening physical activity continues to improve.

**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 the four most common types of cancer (colorectal, female breast, lung, and prostate) continues to fall.
- Recent trends show a decline of 2% or more a year in mortality for cancers of the colon and rectum, larynx, lung and bronchus, ovary, stomach and urinary bladder, as well as Hodgkin and non-Hodgkin lymphomas, leukemia and melanoma of the skin. There have also been smaller but still statistically significant decreases for myeloma and cancers of the cervix uteri, female breast, kidney and renal pelvis, liver and prostate.

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# Areas of Concern

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

**Prevention**

- The prevalence of adults who attempted smoking cessation in the past year has risen since 2005 and was 53.0% in 2022; however, this prevalence is still well below the Healthy People 2030 target of 65.7%.
- The proportion of adults who quit smoking successfully has increased among all subgroups, except among people with less than a high school education.
- Progress has been made in reducing exposure to secondhand smoke among all populations; however, non-Hispanic black individuals still have higher rates of exposure than individuals of other races and ethnicities. Additionally, people of lower socioeconomic status and with lower educational attainment remain less likely to be covered by smokefree laws in worksites, restaurants, and bars. Since 2014, e-cigarettes have been the most commonly used tobacco product among youth. In 2020, 19.6% of high school students and 4.7% of middle school students reported current use of e-cigarettes.
- As of 2023, only 22 U.S. states provided comprehensive insurance coverage of all evidence-based cessation treatments (all seven FDA-approved smoking cessation medications, individual and group cessation counseling) for standard Medicaid enrollees, well below the Healthy People 2023 target of all 50 U.S. states and the District of Columbia.
- Although more than 69.4% of adults reported practicing sun-protective behaviors in 2020, more than 29% 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 2015-2017 for adults and between 2015-2017 among teens. Non-Hispanic whites were more likely to experience sunburn than other racial/ethnic groups, and sunburn occurred more often among those aged 18 to 24 years (40.6% in 2020) than among those aged 25 years and older (27.4%).

- Outdoor tanning also poses significant risk for skin cancer; intentional outdoor tanning appears to be more prevalent than indoor tanning and warrants public health monitoring.
- Sun sensitivity occurs in all racial/ethnic groups. Sun-sensitive adults, who are at greatest risk for melanoma, continue to report slightly higher rates of tanning bed use, outdoor tanning, and higher sunburn incidence than those without sun sensitivity (45.3% for sun-sensitive individuals versus 13.5% among those who are not sun-sensitive in 2020).
- 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 capita alcohol consumption, which can increase the risk of some cancers, has risen slightly since the mid-1990s.
- Excess weight and obesity are associated with elevated cancer risk. Obesity prevalence continues to increase, with an estimated 42.4% of adults with obesity and an additional 31.2% with overweight.
- Despite modest increases over time, neither adults nor adolescents 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 targets.
- 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 Pap testing since 1987. To accommodate the addition of HPV testing and Pap/HPV co-testing as recommended approaches to cervical cancer screening, the current report tracks the percentage of females who were up-to-date with current U.S. Preventive Services Task Force (USPSTF) cervical cancer screening recommendations. In 2021, 72.4% 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 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 March 2021, the USPSTF published revised guidelines recommending annual low-dose radiation CT (LDCT) screening for lung cancer in adults aged 50 to 80 years who 1) have a 20 pack-year smoking history or more and 2) who currently smoke or have quit within the past 15 years. The 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 was 4.5% in 2015. The Healthy People 2030 target is to increase to 7.5 percent the proportion of adults aged 55 to 8- years who receive lung cancer screening based on the 2013 USPSTF recommendations.

### Diagnosis

- The incidence of several cancers, including esophageal adenocarcinoma, melanoma of the skin, myeloma and cancers of the corpus uteri (endometrium), female breast, kidney and renal pelvis, oral cavity and pharynx, pancreas, prostate and testis 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.
- Although the incidence rates for late-stage prostate cancer remain low, the rates of late-stage cases have been increasing since 2011.
- Trends for distant stage cancers of the cervix uteri, rectum and prostate have been increasing.

### Treatment

- The proportions of patients with earlier stage bladder cancer (i.e., non-muscle invasive disease) receiving intravesical or systemic therapy has not increased since 2009.
- While the proportion of patients with kidney cancer who received systemic therapy increased from 2009 to 2019 among all patients combined, the proportion receiving systemic therapy did not increase among non-Hispanic Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native patients.
- The proportion of patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy has not increased since 2012.

### Life After Diagnosis

- 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.
- The proportion of adult cancer survivors who are obese has been rising and is now 35.9%. Efforts are needed to help cancer survivors adopt or maintain a healthy weight after diagnosis, which has the potential to reduce both cancer- and non-cancer-related morbidity.

### End of Life

- Recent trends in the death rates have been increasing for several cancers, including cancers of the brain and other nervous system, corpus uteri (endometrium), oral cavity and pharynx, pancreas and thyroid.

## 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

- 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, USPSTF recommended against prostate cancer screening. In 2018, the task force changed its recommendation to call for an individualized, shared decision-making approach. Prostate cancer testing rates in the year prior to being surveyed fell between 2010 and 2013 (from 46.1% to 38.2%), probably as a result of the 2012 USPSTF guidelines, but have been fairly stable since. 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

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**
**On this table, "Most recent trend" refers to latest data available.**

| Measure | Desired Trend | Most Recent Trend | Year Range of Most Recent Trend |
|---|---|---|---|
| **Prevention** | | | |
| **Tobacco Use Initiation (Ages 12-17)** | | | |
| **Any Tobacco Product** | Falling ⬇ | Non-Significant Change | 2021-2022 |
| **Cigarettes** | Falling ⬇ | Non-Significant Change | 2021-2022 |
| **Smokeless Tobacco** | Falling ⬇ | Non-Significant Change | 2021-2022 |
| **Cigars** | Falling ⬇ | Non-Significant Change | 2021-2022 |
| **Youth Tobacco Use** | | | |
| **All Tobacco** | Falling ⬇ | Falling ⬇ | 2019-2021 |
| **Cigarettes** | Falling ⬇ | Falling ⬇ | 2019-2021 |
| **E-Cigarettes** | Falling ⬇ | Falling ⬇ | 2019-2021 |
| **Smokeless Tobacco** | Falling ⬇ | Falling ⬇ | 2019-2021 |
| **Cigars** | Falling ⬇ | Falling ⬇ | 2019-2021 |

[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 Trend | Most Recent Trend | Year Range of Most Recent Trend |
|---|---|---|---|
| **Adult Tobacco Use** | | | |
| **Cigarettes** | Falling ⇩ | Falling 🟢⬇ | 2018-2022 |
| **Smokeless Tobacco** | Falling ⇩ | Non-Significant Change | 2018-2022 |
| **Cigars** | Falling ⇩ | Stable | 2018-2022 |
| **E-Cigarettes** | Falling ⇩ | Rising 🔴⬆ | 2018-2022 |
| **Quitting Smoking** | | | |
| **Attempted to quit smoking** | Rising ⇧ | Stable | 2018-2022 |
| **Successfully quit smoking** | Rising ⇧ | Rising 🟢⬆ | 2018-2022 |
| **Evidence-based Cessation Aids** | Rising ⇧ | Stable | 2010-2019 |
| **Clinicians' Advice to Quit Smoking** | Rising ⇧ | Rising 🟢⬆ | 2014-2019 |
| **Medicaid Coverage of Tobacco Cessation Treatments** | Rising ⇧ | Rising 🟢⬆ | 2019-2023 |
| **Secondhand Smoke Exposure** | Falling ⇩ | Falling 🟢⬇ | 2013-2018 |
| **Smokefree Home Rules and Workplace Laws** | | | |
| **Smokefree home** | Rising ⇧ | Rising 🟢⬆ | 2014-2019 |
| **Smokefree workplace** | Rising ⇧ | Non-Significant Change | 2014-2019 |
| **Indoor air laws for workplaces** | Rising ⇧ | Non-Significant Change | 2019-2023 |
| **Indoor air laws for restaurants** | Rising ⇧ | Non-Significant Change | 2019-2023 |
| **Indoor air laws for bars** | Rising ⇧ | Stable | 2019-2023 |
| **Healthy Eating Index** | Rising ⇧ | Rising 🟢⬆ | 2013-2018 |
| **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 ⇩ | Falling 🟢⬇ | 2013-2018 |
| **Fat Consumption** (Saturated fat) | Falling ⇩ | Non-Significant Change | 2013-2018 |
| **Alcohol Consumption** | Falling ⇩ | Rising 🔴⬆ | 2017-2021 |
| **Adolescent Physical Activity** | | | |
| **Aerobic physical activity** | Rising ⇧ | Non-Significant Change | 2017-2021 |
| **Muscle strengthening activity** | Rising ⇧ | Falling 🔴⬇ | 2017-2021 |
| **Adult Physical Activity** | | | |
| **No physical activity in leisure time** | Falling ⇩ | Falling 🟢⬇ | 2018-2022 |
| **Meet physical activity guidelines** | Rising ⇧ | Rising 🟢⬆ | 2018-2022 |
| **Weight** | | | |
| **Healthy Weight** | Rising ⇧ | Falling 🔴⬇ | 2013-2018 |
| **Overweight** | Falling ⇩ | Rising 🔴⬆ | 2013-2018 |

[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 Trend | Most Recent Trend | Year Range of Most Recent Trend |
|---|---|---|---|
| **Obesity** | Falling ⬇ | Rising 🔴⬆ | 2013-2018 |
| **Sleep** | Rising ⬆ | Rising 🟢⬆ | 2016-2020 |
| **Sun-Protective Behavior** | | | |
| **Use sun protective measures** | Rising ⬆ | Falling 🔴⬇ | 2015-2020 |
| **Use sunscreen (SPF 15+)** | Rising ⬆ | Rising 🟢⬆ | 2015-2020 |
| **Wear protective clothing** | Rising ⬆ | Falling 🔴⬇ | 2015-2020 |
| **Seek shade** | Rising ⬆ | Stable | 2015-2020 |
| **Indoor and Outdoor Tanning** | | | |
| **Adolescents** | Falling ⬇ | Falling 🟢⬇ | 2015-2019 |
| **Adults** | Falling ⬇ | Falling 🟢⬇ | 2010-2015 |
| **Sunburn** | | | |
| **Adolescents** | Falling ⬇ | Rising 🔴⬆ | 2017-2021 |
| **Adults** | Falling ⬇ | Falling 🟢⬇ | 2015-2020 |
| **HPV Vaccination (Up-to-date on HPV vaccination)** | | | |
| **Females, Ages 13-15** | Rising ⬆ | Rising 🟢⬆ | 2018-2022 |
| **Males, Ages 13-15** | Rising ⬆ | Rising 🟢⬆ | 2018-2022 |
| **Female** | Rising ⬆ | Rising 🟢⬆ | 2018-2022 |
| **Genetic Testing (Received Genetic Counseling)** | Rising ⬆ | Non-Significant Change | 2010-2015 |
| **Arsenic Exposure** | Falling ⬇ | Non-Significant Change | 2013-2018 |
| **Benzene Exposure** | Falling ⬇ | Non-Significant Change | 2013-2018 |
| **Cadmium Exposure** | Falling ⬇ | Falling 🟢⬇ | 2013-2018 |
| **Nitrate Exposure** | Falling ⬇ | Stable | 2013-2018 |
| **Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Exposure** | Falling ⬇ | Falling 🟢⬇ | 2013-2018 |
| Early Detection | | | |
| **Breast Cancer Screening** | Rising ⬆ | Stable | 2019-2021 |
| **Cervical Cancer Screening** | Rising ⬆ | Falling 🔴⬇ | 2019-2021 |
| **Colorectal Cancer Screening** | Rising ⬆ | Rising 🟢⬆ | 2018-2021 |
| **Lung Cancer Screening** | Rising ⬆ | Non-Significant Change | 2010-2015 |
| **Prostate Cancer Screening** | Indeterminate[1] | Falling 🟣⬇ | 2018-2021 |
| Diagnosis | | | |
| **Incidence** | | | |
| **All cancer sites combined** | Falling ⬇ | Rising 🔴⬆ | 2017-2021 |
| **Colon and rectum** | Falling ⬇ | Falling 🟢⬇ | 2017-2021 |
| **Lung and bronchus** | Falling ⬇ | Falling 🟢⬇ | 2017-2021 |
| **Female breast** | Indeterminate[1] | Rising 🟣⬆ | 2017-2021 |
| **Prostate** | Falling ⬇ | Rising 🔴⬆ | 2017-2021 |

[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 Trend | Most Recent Trend | Year Range of Most Recent Trend |
|---|---|---|---|
| **Stage at Diagnosis** | | | |
| **Late stage breast cancer** | Falling ⬇ | Rising 🔺 | 2017-2021 |
| **Distant stage colon cancer** | Falling ⬇ | Rising 🔺 | 2017-2021 |
| **Distant stage rectum cancer** | Falling ⬇ | Rising 🔺 | 2017-2021 |
| **Distant stage cervix cancer** | Falling ⬇ | Non-Significant Change | 2017-2021 |
| **Distant stage lung cancer** | Falling ⬇ | Falling ⬇ | 2017-2021 |
| **Distant stage prostate cancer** | Falling ⬇ | Rising 🔺 | 2017-2021 |
| Treatment | | | |
| **Bladder Cancer Treatment** (Intravesical therapy for disease Ta G1-2) | Rising ⬆ | Non-Significant Change | 2009-2019 |
| **Breast Cancer Treatment** (Breast conserving surgery with radiation) | Falling ⬇ | Stable | 2016-2020 |
| **Colorectal Cancer Treatment** (Guideline therapy) | Rising ⬆ | Rising ⬆ | 2010-2015 |
| **Kidney Cancer Treatment** (Partial nephrectomy) | Rising ⬆ | Non-Significant Change | 2016-2020 |
| **Lung Cancer Treatment** (Chemotherapy) | Rising ⬆ | Rising ⬆ | 2010-2018 |
| **Melanoma of the Skin Treatment** (Chemotherapy) | Rising ⬆ | Rising ⬆ | 2011-2018 |
| **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 ⬆ | Rising ⬆ | 2001-2020 |
| **Colon and rectum** | Rising ⬆ | Stable | 2002-2020 |
| **Lung and bronchus** | Rising ⬆ | Rising ⬆ | 2012-2020 |
| **Female breast** | Rising ⬆ | Rising ⬆ | 1998-2020 |
| **Prostate** | Rising ⬆ | Rising ⬆ | 2014-2020 |
| **Cancer Survivors and Smoking** | Falling ⬇ | Falling ⬇ | 2018-2022 |
| **Cancer Survivors and Physical Activity** | Falling ⬇ | Non-Significant Change | 2018-2022 |
| **Cancer Survivors and Weight** | Falling ⬇ | Falling ⬇ | 2018-2022 |
| End of Life | | | |
| **Mortality** | | | |
| **All cancer sites combined** | Falling ⬇ | Falling ⬇ | 2018-2022 |
| **Colon and rectum** | Falling ⬇ | Falling ⬇ | 2018-2022 |
| **Lung and bronchus** | Falling ⬇ | Falling ⬇ | 2018-2022 |

[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 Trend | Most Recent Trend | Year Range of Most Recent Trend |
|---|---|---|---|
| **Female breast** | Falling ⬇ | Falling ⬇ | 2018-2022 |
| **Prostate** | Falling ⬇ | Falling ⬇ | 2018-2022 |

[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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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

[Home](#) / [About the Report](#)

## 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 home rules and workplace laws.

## 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 and processed meat consumption, Fat consumption.

## 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. The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at [NHANES Questionnaires, Datasets, and Related Documentation](#).

**Measures:** Secondhand smoke exposure, Fruit and vegetable consumption, Red meat and processed meat consumption, Fat consumption, Weight, Arsenic, Benzene, Cadmium, Nitrate, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).

## National Health Interview Survey Cancer Control Supplement

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. The National Cancer Institute sponsors an annual Cancer Control Supplement (CCS) to the NHIS, which is administered to the sample adult in the selected household. The CCS focuses on issues pertaining to knowledge, attitudes, and practices of cancer-related health behaviors, screening, and risk assessment. In 2019 the NHIS questionnaire was redesigned to increase relevance, enhance data quality, and minimize respondent burden.

In addition, the COVID-19 pandemic created challenges conducting in-person interviews for the 2020 NHIS, requiring changes to field procedures to conduct most surveys by telephone, and response rates subsequently declined. To augment data from the 2020 sample, followback interviews were conducted with 2019 NHIS participants. Estimates presented here for 2020 use this sample, which includes both new 2020 respondents and re-interviewed 2019 respondents. For details, please refer to "[Potential Impact of NHIS Redesign and COVID-19 on the Cancer Trends Progress Report](#)".

Measures: Adult tobacco use, Quitting smoking, Adult physical activity, Sleep, Sun protective behavior, Indoor tanning and outdoor 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 weight, Cancer survivors and UV exposure.

## 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 vaccination.

## 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 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: Tobacco use initiation.

## 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, Years of life lost.

## 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.

## 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. Each year, NCI selects different cancer sites to be included in the POC studies and randomly samples cases from those ascertained by the SEER registries.

**Measures:** Bladder cancer treatment, Breast cancer treatment, Colorectal cancer treatment, Kidney cancer treatment, Lung cancer treatment, Melanoma of the skin 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 insurance coverage of tobacco cessation treatments.

## 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 and workplace laws.

## 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, Adolescent Physical Activity, Indoor Tanning, Sunburn.

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Online Summary of Trends in U.S. Cancer Control Measures

# 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.

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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

## Frequently Asked Questions

Expand All

**What is the Cancer Trends Progress Report?**

**Why is the report important?**

**What is the main message of the report?**

**What is in the report?**

**How is the information displayed and explained?**

**Where does the data come from?**

**How are the data selected?**

**What data are not in the report?**

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

**Who can use the report?**

**How often will the report be updated?**

**What is the rationale for the report?**

**How can I get a copy of the report?**

**Where can more information on cancer be found?**

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

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

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[Home](#)

## 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.

## Tobacco

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.

## Diet and Alcohol

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.

- [Healthy Eating Index](#)
- [Fruit and Vegetable Consumption](#)
- [Red Meat and Processed Meat Consumption](#)
- [Fat Consumption](#)
- [Alcohol Consumption](#)

## Physical Activity

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 lower a person's risk of health problems such as heart disease, high blood pressure, diabetes, and osteoporosis (bone thinning). Being active may help to prevent weight gain and obesity, which can reduce the risk of developing cancers that have been linked to excess body weight.

- [Adolescent Physical Activity](#)
- [Adult Physical Activity](#)

## Weight

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.

## Sleep

Sleep health – including sleep duration, efficiency, and quality, as well as sleep timing and regularity – is important to overall health. Poor sleep may directly affect mortality risk and influence risk for cancer and other non-communicable diseases through its impact on immune function, stress response and inflammation, DNA repair, and metabolic and hormonal activity. It may also impact mortality through its effect on modifiable risk factors, including physical activity, diet, alcohol, and tobacco use.

## 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 and Outdoor 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.

## 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.

## 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
- PFAS

**Last Reviewed: March 2024**

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Tobacco

## 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](#)
- [Evidence-based Cessation Aids](#)
- [Clinicians' Advice to Quit Smoking](#)

## Tobacco Policy/Regulatory Factors

Effective tobacco control policy and tobacco product regulation are necessary to reduce the burden of cancer on the U.S. Federal law regulates advertising, marketing, manufacturing, and distribution of tobacco products. Moreover, Federal and state laws determine coverage of tobacco dependence treatment under individual state Medicaid programs.

- [Medicaid Insurance Coverage of Tobacco Cessation Treatments](#)

## Secondhand Smoke

Conclusive scientific evidence shows that secondhand smoke causes premature death and disease in children and adults who do not smoke, including lung cancer in adults. Eliminating smoking in indoor spaces protects nonsmokers from exposure to secondhand smoke.

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

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Tobacco Use Initiation

## On This Page:

In 2022, 2.0% of adolescents and young adults aged 12 to 25 began smoking cigarettes in the past year.
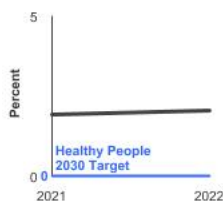


See Graph Details

## Background

Because cigarette smoking typically begins during adolescence, tobacco use is often described as a "pediatric disease." Nearly 90 percent of adults in the United States who smoke daily began smoking by age 18, and 98 percent first smoked by age 26. Nicotine is highly addictive; initiation of smoking during adolescence is linked to persistent smoking in adulthood and the many adverse health effects caused by smoking. Further, exposure to nicotine during adolescence may harm normal brain development, which continues until about age 25. Specifically, nicotine exposure during adolescence may impair development of brain regions involved in attention, learning, and impulse control, and it may prime the brain for addiction to other drugs.

Understanding trends in youth initiation of tobacco products – including cigarettes, electronic cigarettes, cigars, and smokeless tobacco – helps policy makers determine how to allocate 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, legislation was enacted 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 cigars, and cigarillos.

## Data Source

Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health, 2021-2022.

**Note:** This report includes available data points from 2021 to 2022. NSDUH, like many surveys, experienced significant challenges and changes during the 2020 fielding. The COVID-19 pandemic interrupted data collection in mid-March, and the survey did not resume until September of 2020. In the interim, many aspects of daily life were drastically altered, and these may have affected substance use behaviors. Beginning in October of 2020, data collection became almost entirely web-based, with very few in-person interviews. Overall response rates, and particularly youth interview response rates, dropped, and many interviews were not completed. As a result, 2020 data may not be internally consistent (i.e., Q1 to Q4) or comparable with previous survey years. During the 2021 fielding, data collection remained multimodal, with responses collected either in person or online. Estimates differed significantly based on the mode of data collection, diminishing the comparability of the 2021 survey to previous years. Therefore, data points prior to 2021 are not included in this report.

## Healthy People 2030 Target

- Eliminate the initiation of the use of cigarettes among adolescents and young adults.
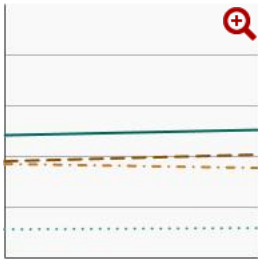
Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.
**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

## Trends and Most Recent Estimates

— By Type of Tobacco Product

**Initiation of the use of any tobacco product among adolescents and young adults aged 12-25 years by type of tobacco product, 2021-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
|---|---|---|---|
| | | Percent | 95% Confidence Interval |
| | Any Tobacco Product ⌁ | 2.5 | 2.3 - 2.8 |
| | Cigarettes ⌁ | 2.0 | 1.8 - 2.3 |
| | Smokeless Tobacco ⌁ | 0.6 | 0.5 - 0.7 |
| | Cigars ⌁ | 1.8 | 1.5 - 2.0 |

+ Any Tobacco Product

+ Cigarettes

+ Smokeless Tobacco

+ Cigars

+ Previous Trends, 2008-2019

## Related Cancers

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

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

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

## Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

**Suggested citation:**

Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Youth Tobacco Use

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2020, 15.9% of adolescents in grades 6-12 were current tobacco users.
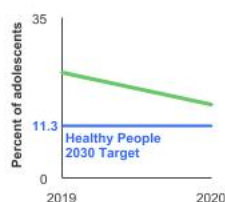


See Graph Details

## 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 (voice box), mouth, throat, kidney, bladder, liver, pancreas, stomach, cervix, colon and rectum, as well as acute myeloid leukemia. Tobacco use is initiated and established primarily during adolescence (defined as ages 10-19): nearly 90 percent of adults in the U.S. who smoke daily first tried cigarettes by age 18, and 98 percent first tried cigarettes by age 26. Each day in the U.S., around 1,500 youth aged 17 or younger smoke their first cigarette.

Electronic cigarettes (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. In addition to 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 may also increase the risk for future addiction to other drugs.

Youth 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/waterpipe. According to data from the 2023 National Youth Tobacco Survey (NYTS), 2.80 million (10.0%) middle and high school students reported current use of a tobacco product. 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, and, in 2018, former U.S. Surgeon General Jerome Adams issued an advisory declaring youth e-cigarette use an epidemic.

According to data from the NYTS, in 2023, more than 2.13 million U.S. youth, including 10.0% of high school students and 4.6% of middle school students, currently used e-cigarettes. Moreover, among high school students who reported current e-cigarette use, 39.7% reported using the products frequently (on 20 or more of the past 30 days) and 29.2% reported daily use. Flavors are an important aspect of appeal to middle and high school students who use e-cigarettes, with 89.4% reporting having used flavored e-cigarettes (e.g., fruit, candy, menthol flavors).

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 and use of tobacco products – including cigarettes, e-cigarettes, cigars, and smokeless tobacco – helps policy makers determine how to allocate prevention resources. 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, legislation was enacted 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.

The percentage of middle and high school students who reported use of any tobacco product (cigarettes, e-cigarettes, cigars, smokeless tobacco—including chewing tobacco, snuff, dip—hookah, pipe tobacco, bidis, dissolvable tobacco, or snus) on at least 1 day during the 30 days before the survey.

## Data Source

Centers for Disease Control and Prevention, National Youth Tobacco Survey (NYTS), 2019-2021.[1, 2]

[1] Between 1999 and 2018, the NYTS was conducted using paper-and-pencil questionnaires. In 2019, the mode of administration changed to an electronic survey, making prior years' estimates incomparable. This Report focuses on data from 2019 and later.

[2] Because NYTS is administered in schools, to accommodate students learning under varying instructional models (in-person, distance/virtual, and hybrid), the 2021 NYTS was administered using a web URL. Approximately half of respondents reported completing the survey at school or in the classroom, and half reported completing the survey at home or some other place. Prevalence estimates from 2021 should be interpreted with caution, as the proportion of students reporting any tobacco use differed greatly between those who completed the survey at school vs. at another location.

## 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.

## Trends and Most Recent Estimates

— By Type of Tobacco Product

**Percentage of adolescents in grades 6 to 12 who reported current tobacco product use by type of tobacco product, 2019-2020**

| 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 |

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | 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

+ Cigarettes

+ E-Cigarettes

+ Smokeless Tobacco

+ Cigars

+ Previous Trends, 2011-2018

## Related Cancers

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

- Acute Myeloid Leukemia (AML)
- Anus
- Bladder
- Cervix Uteri
- Colon and Rectum
- Esophagus
- Kidney and Renal Pelvis
- Larynx
- Liver and Intrahepatic Bile Duct
- Lung and Bronchus
- Oral Cavity and Pharynx
- Pancreas
- Stomach

## Additional Information

**Last Reviewed: March 2024**
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**Suggested citation:**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Adult Tobacco Use

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2022, 11.7% of adults aged 18 and older reported current cigarette use.
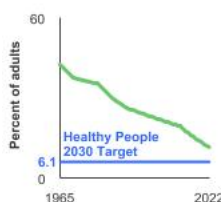


See Graph Details

# 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, as well as acute myeloid leukemia. Altogether, smoking causes approximately 30 percent of all U.S. cancer deaths each year. The American Cancer Society estimated that, in 2022, almost 182,808 of the estimated 609,360 cancer-related deaths will be caused by cigarette smoking.

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, and the average number of cigarettes smoked per day among those who smoke daily has decreased, the prevalence of nondaily smoking has remained relatively stable regardless of the number of cigarettes smoked on a given day. 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 those who have never smoked, according to research published in the journal *JAMA Network Open*.

Moreover, while the prevalence of cigarette smoking has declined overall, there remain notable disparities between different subpopulations defined by income, level of educational attainment, race and ethnicity, and other sociodemographic characteristics. For example, according to 2020 National Health Interview Survey (NHIS) data, 27.1% of American Indian or Alaska Native individuals reported current cigarette use, compared to only 13.3% among non-Hispanic White individuals. Another area where disparities remain is among people who smoke menthol cigarettes. Although the overall prevalence of menthol cigarette smoking has declined over time among U.S. adults, prevalence of non-menthol cigarette smoking has declined more quickly, and, subsequently, menthol use among people who smoke has continued to increase over time. Young adults, women and non-Hispanic Black individuals are more likely to smoke menthol cigarettes compared to their respective counterparts.

Other tobacco products such as cigars, smokeless tobacco, and e-cigarettes are also used by U.S. adults, and many individuals report using multiple products.

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. Cigarillos are short (3-4 inches), narrow cigars that contain approximately 3 grams of tobacco and typically do not include a filter. Little cigars are about the same size as a cigarette and often include a filter. The marketplace of cigar products 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 Black adults. Cigars, especially little cigars and cigarillos, come in a variety of flavors, including menthol, fruit and alcohol flavors, such as grape and wine, which appeal to adolescents and young adults.

Like cigarette smoke, cigar smoke contains toxic and carcinogenic compounds that are harmful to both people who smoke and people exposed to secondhand smoke. 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 people who smoke cigars heavily or inhale deeply may further be at increased risk of developing coronary heart disease. Smoking cigars heavily also increases the risk for serious lung diseases that cause difficulty breathing, such as emphysema and chronic bronchitis. These diseases can, in turn, 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. The prevalence of smokeless tobacco use tends to be higher among men, compared with women, and residents of rural areas, compared with residents of urban areas.

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 (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. In addition to 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. Furthermore, almost a quarter of those who use e-cigarettes report never having smoked, and the majority of this group is 18-24 years old.

## Measure

**Cigarettes:** Percentage of adults aged 18 years and older who had smoked at least 100 cigarettes in their lifetime and, at the time of the interview, smoked cigarettes every day or some days.

**Smokeless Tobacco:** Percentage of adults aged 18 years and older who used smokeless tobacco at least once in their lifetime and, at the time of the interview, used smokeless tobacco every day or some days.

**Cigars:** Percentage of adults aged 18 years and older who smoked cigars at least once in their lifetime and, at the time of the interview, smoked cigars every day or some days.

**E-cigarettes:** Percentage of adults aged 18 years and older who used e-cigarettes at least once in their lifetime and, at the time of the interview, used e-cigarettes every day or some days.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1965–2022.

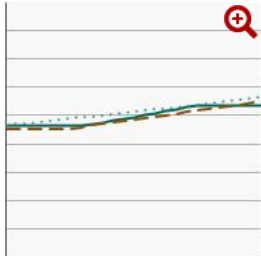Refer to the Data Sources page for more information about data collection years 2019+.

## Healthy People 2030 Target

- Reduce to 6.1 percent the proportion of adults who currently smoke cigarettes.

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.

# Trends and Most Recent Estimates

**—** By Type of Tobacco Product

**Percentage of adults aged 18 years and older who reported current tobacco product use by type of tobacco product used, 1991-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Cigarettes ⌇ | 11.7 | 11.2 - 12.2 |
| | Smokeless Tobacco ⌇ | 2.2 | 2.0 - 2.5 |
| | Cigars ⌇ | 3.8 | 3.5 - 4.1 |
| | E-Cigarettes ⌇ | 6.6 | 6.2 - 7.0 |

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

**+** Cigarettes

**+** Smokeless Tobacco

**+** Cigars

**+** E-Cigarettes

# Related Cancers

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

- [Acute Myeloid Leukemia (AML)](#)
- [Anus](#)
- [Bladder](#)
- [Cervix Uteri](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Kidney and Renal Pelvis](#)
- [Larynx](#)
- [Liver and Intrahepatic Bile Duct](#)
- [Lung and Bronchus](#)
- [Oral Cavity and Pharynx](#)
- [Pancreas](#)
- [Stomach](#)

# Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.
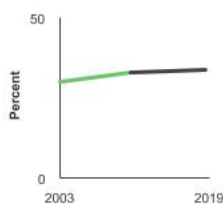
Quitting Smoking

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2022, 53.0% of adults who smoke attempted to quit smoking within the past year.
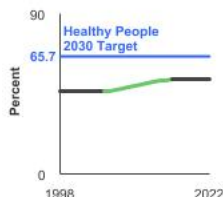
See Graph Details

## Background

Quitting smoking has major and immediate health benefits for people of all ages. Quitting smoking dramatically reduces the risk of lung and other cancers caused by smoking, coronary heart disease, stroke, and chronic obstructive pulmonary disease (COPD). 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 they will avoid the devastating health effects of continued tobacco use. Few people who smoke quit successfully on their first attempt; most will require many attempts before they are able to permanently quit. This emphasizes the need for those who smoke to begin trying to quit as early in life as possible.

A number of strategies can increase the likelihood of successful smoking cessation. For example, comprehensive, barrier-free, and widely promoted access to insurance coverage for smoking cessation treatment increases treatment use and successful cessation. Treatments that support successful cessation include FDA approved smoking cessation medications and behavioral counseling; the combination of medication and counseling is especially effective. 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 adopting population-level policies, such as tobacco product price increases, comprehensive smokefree policies, implementing anti-tobacco mass media campaigns, requiring pictorial health warnings on tobacco products, and maintaining comprehensive statewide tobacco control programs.

Recently, the FDA announced a proposal to prohibit menthol as a characterizing flavor in cigarettes and all characterizing flavors (other than tobacco) in cigars. These proposed rules have the potential to significantly reduce the death and disease caused by smoking by reducing youth use and experimentation, and by increasing the number of people that quit. In addition, the FDA also announced plans to develop a proposed product standard that would establish a maximum nicotine level to reduce the addictiveness of cigarettes and some other combustible tobacco products. The goal of this proposed product standard would be to reduce youth use, addiction, and death.

## Measure

**Attempt to quit:** The percentage of adults (aged 18 years and older) who attempted to quit smoking within the past 12 months. The numerator of this measure includes both people who currently 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 people who quit smoking less than

or equal to 1 year ago. The denominator of this measure includes all adults who smoked 12 months prior to the survey.

**Successful quitting:** The percentage of adults (aged 18 years and older) who smoke and successfully quit smoking in the past 12 months. The numerator of this measure includes adults who quit smoking 6-12 months prior to the survey. The denominator of this measure includes adults who:

1. Formerly smoked and had quit smoking 6-12 months prior to the survey.
2. Formerly smoked and had quit smoking less than 6 months prior to the survey.
3. Currently smoked at the time of the survey and who initiated smoking at least 2 years prior to the survey.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1998-2022.

Refer to the Data Sources page for more information about data collection years 2019+.

## Healthy People 2030 Target

- Increase to 65.7 percent the proportion of adults who currently smoked (aged 18 years and older) who stopped smoking for a day or longer because they were trying to quit.
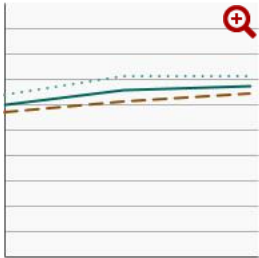- Increase to 10.6 percent the proportion of adults who smoked (aged 18 years and older) who successfully quit smoking.

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.

## Trends and Most Recent Estimates

### — Attempted to Quit Smoking

Expand Section +   Collapse Section -

#### — By Sex

**Percentage of adults aged 18 years and older that smoke and attempted to stop smoking for one day or longer in the past year by sex, 1998-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Percent | 95% Confidence Interval |
| | Both Sexes | 53.0 | 50.9 - 55.2 |
| | Male | 52.9 | 50.1 - 55.6 |
| | Female | 53.1 | 49.4 - 56.8 |

+ By Race/Ethnicity

+ By Age

+ By Poverty Income Level

+ By Education Level

+ Successfully Quit Smoking

## Additional Information

**Last Reviewed: March 2024**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Evidence-based Cessation Treatment

## On This Page:

In 2018/2019, 33.7% of adults aged 18 years and older who smoke and attempted to quit in the past year used a smoking cessation treatment in the quit attempt.

See Graph Details

## Background

Quitting smoking has major and immediate health benefits for people of all ages. It dramatically reduces the risk of lung and other cancers caused by smoking, as well as the risk of coronary heart disease, stroke, and chronic obstructive pulmonary disease.

Cessation success is increased by the use of evidence-based treatment, including the use of behavioral counseling and medications. The combination of behavioral counseling and medication is especially effective. FDA-approved cessation medications include various forms of nicotine replacement therapy (NRT), and two medications that do not contain nicotine: bupropion (also known as Zyban), and varenicline (also known as Chantix). Behavioral support can be delivered in person, in group settings, over the phone (quitlines and telehealth sessions), and with other mobile technology tools and methods (i.e., mHealth). However, few people who smoke use evidence-based cessation treatments when attempting to quit, which decreases their likelihood of success.

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. In addition to 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. Many people who smoke report using e-cigarettes in an effort to quit smoking. However, the Surgeon General has concluded that there is presently inadequate evidence to conclude that e-cigarettes, in general, increase smoking cessation, and no e-cigarette has been approved by FDA as a therapeutic product for smoking cessation treatment.

## Measure

The three measures presented here ("Any Cessation Treatment," "Any Cessation Medication," and "Any Cessation Counseling") use a common denominator consisting of people who smoke at the time of interview and report a quit attempt during the past 12 months as well as people who formerly smoked but quit smoking within the past 12 months. The numerators for each measure consist of individuals reporting the following behaviors:

Any Cessation Medication Use: people who reported using any NRT(s) (patch, gum, lozenge, nasal spray or oral inhaler) and/or reported using any of the following medications: Bupropion (Zyban®) and/or Varenicline (Chantix®).

Any Cessation Counseling Use: people who reported using any of the following type(s) of behavioral counseling: from a quit-line; one-on-one with a clinician; at a clinic, class or support group; or from the internet (i.e., web-based), a smartphone app, or a texting program. (Note: The 2020 Surgeon General's Report on Smoking Cessation concluded that evidence is inadequate to infer that smartphone apps for smoking cessation are independently effective in increasing smoking cessation.)

Any Cessation Treatment Use: people who reported using one or more of the cessation medications and/or cessation counseling types included in the above two measures.

## Data Source

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

US Department of Commerce, Census Bureau (2005, 2013, 2020). Tobacco Use Supplement to the Current Population Survey-National Cancer Institute sponsored in 2003 and 2010-11 and National Cancer Institute and Food and Drug Administration co-sponsored in 2018-19.

## Healthy People 2030 Target

- Healthy People 2030 includes a goal to increase the use of smoking cessation counseling and medication in adults who smoke (TU-13) which relies on National Health Interview Survey (NHIS) data. In 2015, 32.1 percent of adults who smoke and who tried to quit during the past year (and adults who formerly smoked and who quit during the past 2 years) reported using cessation counseling and/or medication as part of a quit attempt. The 2030 target for this goal is 43.8%. In contrast, the data presented in the Cancer Trends Progress Report are drawn from the Tobacco Use Supplement to the Current Population Survey (TUS-CPS). Therefore, the data presented in this report cannot be directly compared to the HP2030 objective.

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

## Trends and Most Recent Estimates

Expand All +   Collapse All -

─ **Any Cessation Treatment**

**Percentage of adults aged 18 years and older who smoke and used a smoking cessation treatment (counseling and/or medication) in an attempt to quit smoking in the past year, 2003-2019**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018/2019) | |
| --- | --- | --- | --- |
| | | Percent | 95% Confidence Interval |
| | Both Sexes 〜 | 33.7 | 32.5 - 34.9 |
| | Male 〜 | 32.0 | 30.4 - 33.7 |
| | Female 〜 | 35.4 | 33.6 - 37.2 |

+  **Cessation Medication**

+  **Cessation Counseling**

## Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

---

**Suggested citation:**

Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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# Clinicians' Advice to Quit Smoking

## On This Page:

In 2018/2019, 69.5% of adult who smoked and had seen a physician during the past 12 months reported being advised by that doctor to quit smoking.
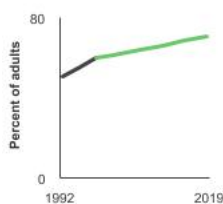


See Graph Details

## Background

Clinicians' advice to quit smoking can, by itself, increase quit attempts and quit success and can have even greater impact if coupled with cessation counseling and/or medication. In addition, even brief clinical interventions have been shown to be cost effective for increasing the motivation of people who smoke to quit.

Clinical guidelines recommend clinicians utilize the "5 A's" (ask, advise, assess, assist, and arrange) when screening for tobacco use and providing cessation interventions. For patients ready to quit, clinicians can provide cessation assistance and support, including medication, counseling, referral to treatment extenders, and follow-up. For patients who are not yet ready to quit, clinicians can instead provide a brief intervention designed to promote the motivation to quit. A wide variety of clinicians, including dentists, physicians, nurses, and other health professionals such as pharmacists, can effectively implement brief strategies to increase future quit attempts.

## Measure

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

## Data Source

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

## Healthy People 2030 Target

- Increase to 58.1 percent the proportion of adults who smoke that receive advice to quit from a health professional.

This Healthy People 2030 (HP2030) goal is focused on smoking cessation advice from any health professional, including a physician, dentist, or other health professional. Data for this HP2030 goal are from the National Health Interview Survey. In contrast, the data presented in the Cancer Trends Progress Report only use reports of smoking cessation advice from a physician. Data for this report are from the Tobacco Use Supplement to the Current Population Survey. Therefore, the data presented in this report cannot be directly compared to the HP2030 objective.

[Healthy People 2030](#) is a set of goals set forth by the Department of Health and Human Services.
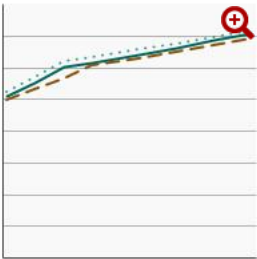
Note: Goals are indicated as blue line on Detailed Trend Graphs.

# Trends and Most Recent Estimates

— **By Sex**

**Percentage of adults aged 18 years and older who smoke and 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 (2018/2019) | |
|---|---|---|---|
| | | 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**

+ **By Age**

+ **By Sex and Age**

+ **By Poverty Income Level**

+ **By Education Level**

# Additional Information

**Last Reviewed: March 2024**

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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Online Summary of Trends in U.S. Cancer Control Measures

Home / Prevention / Tobacco

## Medicaid Insurance Coverage of Tobacco Cessation Treatments

### On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2023, 22 states provided comprehensive insurance coverage of evidence-based tobacco cessation treatments (seven FDA-approved smoking cessation medications plus individual and group cessation counseling) for all standard Medicaid enrollees.
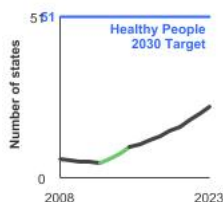


See Graph Details

## Background

Medicaid enrollees have a higher smoking prevalence than the general population. Smoking-related diseases are a major contributor to Medicaid costs. Providing people who use tobacco with access to evidence-based tobacco cessation treatments can reduce morbidity and mortality from cancers and other tobacco-related diseases and reduce Medicaid costs. Individual, group, and telephone counseling are effective in helping people who use tobacco to quit. In addition, the U.S. Food and Drug Administration (FDA) has approved seven medications for smoking cessation, including five nicotine replacement therapies (the nicotine patch, gum, lozenge, nasal spray, and oral inhaler) and two non-nicotine medications (bupropion and varenicline). The U.S. Surgeon General has concluded that, with adequate promotion, comprehensive, barrier-free, insurance coverage of evidence-based cessation treatment increases both the availability and use of cessation services, leads to higher rates of successful quitting, and is cost-effective.

There is considerable variation in states' Medicaid insurance coverage of tobacco cessation treatments for standard (vs. expansion) Medicaid enrollees. All state Medicaid programs are required to cover tobacco cessation services (both counseling and medications) 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 FDA. Telephone counseling is available for free to callers to state quitlines (including Medicaid enrollees) in all 50 states and the District of Columbia via 1-800-QUIT-NOW. However, coverage of individual and group cessation counseling for non-pregnant standard Medicaid enrollees varies widely by state. As of December 31, 2023, only 22 states provided comprehensive insurance coverage of all evidence-based cessation treatments (all seven FDA-approved smoking cessation medications, individual and group cessation counseling) for standard Medicaid enrollees. Expansion of treatment coverage while reducing barriers to treatment access (e.g., copays, duration limits on treatment) is still needed.

## Measure

The number of state Medicaid programs that provide comprehensive insurance coverage of evidence-based tobacco cessation treatments (all seven FDA-approved smoking cessation medications plus individual and group cessation counseling) for standard Medicaid enrollees.

The number of state Medicaid programs that provide insurance coverage for individual or group tobacco cessation counseling for standard Medicaid enrollees.[1]

The number of state Medicaid programs that provide insurance coverage for all seven FDA-approved smoking cessation medications including the nicotine patch, nicotine gum, nicotine lozenge, nicotine oral inhaler, nicotine nasal spray, bupropion (Zyban®) and varenicline (Chantix®) for standard Medicaid enrollees.[1]

[1]*Definitions*

*Standard Medicaid Enrollees: Persons who are enrolled in Medicaid under standard Medicaid eligibility criteria; does not include enrollees who are eligible under the income-only eligibility criteria for expanded Medicaid coverage.*
*Covered (individual counseling, group counseling): Service was covered for all standard Medicaid enrollees, including those enrolled in fee-for-service and managed care plans.*
*Varies (individual counseling, group counseling): Service coverage was different between managed care and fee-for-service plans, coverage varied among fee-for-service plans or among managed care plans, or coverage varied by pregnancy status.*
*Not Covered (individual counseling, group counseling): This service was not covered under applicable fee-for-service and managed care plans, or information was not available for both plans.*
*Covered (smoking cessation medications): All seven FDA-approved smoking cessation medications were covered for all standard Medicaid enrollees, including those enrolled in fee-for-service and managed care plans.*
*Varies (smoking cessation medications): Coverage of all seven FDA-approved smoking cessation medications was different between managed care and fee-for-service plans, coverage varied among fee-for-service plans or among managed care plans, or coverage varied by pregnancy status.*
*Not Covered (smoking cessation medications): Any of the seven FDA-approved smoking cessation medications was not covered under applicable fee-for-service and managed care plans, or information was not available for both plans.*

## Data Source

Centers for Disease Control and Prevention. State Tobacco Activities Tracking and Evaluation (STATE) System. Annual quarter 4 estimates.

## Healthy People 2030 Target

- Increase comprehensive Medicaid insurance coverage of evidence-based treatment for nicotine dependency to include all 50 U.S. states and the District of Columbia.

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

## Trends and Most Recent Estimates

Expand All +   Collapse All -

___

**— Comprehensive Coverage of Cessation Treatments**

**Number of states (including the District of Columbia) with comprehensive Medicaid insurance coverage for evidence-based tobacco cessation treatments, 2008-2023**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2023) | |
| --- | --- | --- | --- |
| | | Number of states | 95% Confidence Interval |
|  | Comprehensive Coverage of Cessation Treatments | 22.0 | Not available |

+ **Group Cessation Counseling**

+ **Individual Cessation Counseling**

+ **Smoking Cessation Medications**

# Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

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Secondhand Smoke Exposure

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Related Cancers](#)
[Additional Information](#)

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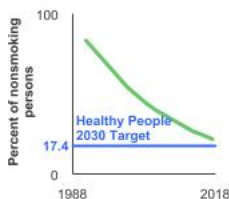


[See Graph Details](#)

# Background

Secondhand smoke (SHS) is a mixture of the sidestream smoke released by a smoldering cigarette, pipe, hookah/waterpipe, or cigar, and the mainstream smoke exhaled by a person who is smoking. 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, stroke, 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 eliminating smoking in indoor spaces is the only way to fully protect people who do not smoke from exposure to SHS. Exposure to SHS among nonsmoking persons 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 people who do not smoke.

## Measure

The percentage of nonsmoking persons exposed to secondhand smoke. (The percentage of nonsmoking persons 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.)

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at [NHANES Questionnaires, Datasets, and Related Documentation](#).

## Healthy People 2030 Target

- Reduce the proportion of people who do not smoke but are exposed to secondhand smoke to 17.4%.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.
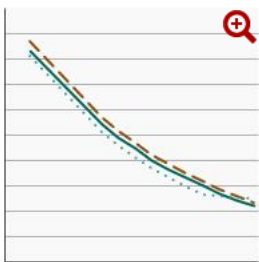
**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

## Trends and Most Recent Estimates

Expand All +    Collapse All -

### — By Sex

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017/2018) | |
|---|---|---|---|
| | | Percent of nonsmoking persons | 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**

+ **By Age**

+ **By Poverty Income Level**

+ **By Education Level**

## Related Cancers

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

- Lung and Bronchus

## Additional Information

**Last Reviewed: March 2024**
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Smokefree Home Rules and Workplace Laws

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Related Cancers](#)
[Additional Information](#)

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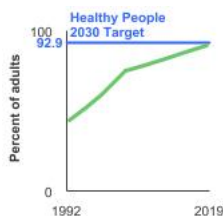


[See Graph Details](#)

## Background

Secondhand smoke (SHS) is a mixture of the sidestream smoke released by a smoldering cigarette, pipe, hookah or waterpipe, or cigar, and the mainstream smoke exhaled by a person who smokes. 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, stroke, 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. Eliminating smoking in indoor spaces, including homes and workplaces, is the only way to fully protect people who do not smoke from exposure to SHS.

Many individuals and families, including both people who smoke and people who don't, have voluntarily adopted smokefree rules for their homes, reflecting a change in community social norms. Studies have found that adoption of smokefree home rules is a significant predictor of smoking cessation success. For children, smoking in the home is the main source of exposure to SHS. About 80 million (1 in 4) people in the US live in multiunit housing, such as apartments, including about 7 million living in government-subsidized housing. Secondhand smoke can travel between units and into common areas in multiunit housing. To protect nonsmokers living within public housing, the U.S. Department of Housing and Urban Development adopted a rule making all public housing smokefree. This rule was implemented in July 2018.

Smokefree laws in workplaces not only protect people from SHS exposure, but also reduce youth initiation and encourage people who smoke to quit. As of January 1, 2024, 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 1,194 cities and counties have a 100% smokefree provision in effect in the following venues: non-hospitality workplaces, restaurants, and bars. In 2021, the Navajo Nation become the first tribe to pass [legislation](#) to create a comprehensive commercial tobacco free environment for all public places (including the four Navajo casinos, pow wows, annual festivals, and sports and rodeos). This will protect people living within and visiting the Navajo Nation who do not smoke.

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. In addition to 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 1, 2024, 27 states, including the territories of Guam, the Northern Mariana Islands, and Puerto Rico, and 1,054 municipalities have prohibited the use of e-cigarettes in 100% smokefree locations.

## Measure

The percentage of respondents reporting a smokefree home rule (i.e., that smoking was not allowed anywhere in their home).

The percentage of indoor workers reporting a smokefree worksite rule (i.e., no smoking allowed in any indoor public/common or work areas).

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.

## Data Source

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

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

## Healthy People 2030 Target

- Increase the proportion of smokefree homes to 92.9 percent.
- Increase the proportion of worksites that are covered by indoor worksite policies that prohibit smoking (Developmental Objective)
- Increase the number of states, territories, and DC that prohibit smoking in worksites, restaurants, and bars to 58.

While the Healthy People 2030 (HP2030) developmental objective focuses on the proportion of worksites covered by indoor worksite policies that prohibit smoking, data presented in the Cancer Trends Progress Report focus on the proportion of indoor workers reporting that smoking is prohibited in all indoor public/common or work areas. Therefore, the data presented in this report cannot be directly compared to the HP2030 developmental objective.
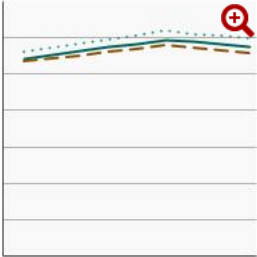
Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.
Note: Goals are indicated as blue line on Detailed Trend Graphs.

## Trends and Most Recent Estimates

| — Smokefree Home Rule |
| --- |

Expand Section +   Collapse Section -

| — By Sex |
| --- |

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

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018/2019) | |
| --- | --- | --- | --- |
| | | Percent of adults | 95% Confidence Interval |
| | Female ⟋ | 90.9 | 90.6 - 91.2 |

+ By Race/Ethnicity

+ By Age

+ By Sex and Age

+ By Poverty Income Level

+ By Education Level

+ Smokefree Workplace Rules

+ Indoor Air Laws

## Related Cancers

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

- [Lung and Bronchus](Lung%20and%20Bronchus)

## Additional Information

**Last Reviewed: March 2024**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

# Diet and Alcohol

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.

- Healthy Eating Index
- Fruit and Vegetable Consumption
- Red Meat and Processed Meat Consumption
- Fat Consumption
- Alcohol Consumption

**Last Reviewed: March 2024**

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Healthy Eating Index

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

From 2017.5, people aged 2 years and older scored 57.4 on the Healthy Eating Index score range of 0 - 100.
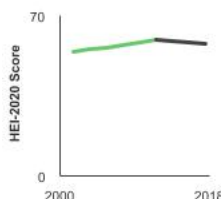


See Graph Details

## Background

Poor diet quality is associated with an increased risk of cancer. Measuring total diet quality is complex, so some analyses have focused only on individual dietary constituents. However, such a reductionist approach may provide limited information, so a more integrated approach that captures the total diet, or dietary pattern, is useful. The Healthy Eating Index (HEI) is a measure of overall diet quality, independent of diet quantity, that measures alignment with the Dietary Guidelines for Americans.

## Measure

The HEI is a measure of overall diet quality, independent of quantity, that can be used to assess alignment with the most current Dietary Guidelines for Americans. Through a collaboration with NCI and USDA, the HEI is revised and updated every five years to reflect updates in dietary guidance. The HEI is a scoring metric that has been used widely in surveillance, epidemiologic, and intervention research to study diet quality among populations, the associations between diet quality and health outcomes, and the impact of interventions on diet quality, as well as in economic and food environment-based research.

Here, the HEI is applied to nationally representative data from the National Health and Nutrition Examination Survey (NHANES) to estimate a total HEI score on a scale from 0 to 100 points. The total HEI score is made up of 13 components, each of which reflects an important aspect of diet quality. Nine components focus on adequacy (foods we should eat enough of to get the nutrients we need and for overall good health). Four components focus on moderation (dietary components that should be limited or consumed in small amounts). View more information about the HEI.

## Data Source

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

## Healthy People 2030 Target

- There is no Healthy People target for the Healthy Eating Index.

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

# Trends and Most Recent Estimates

Expand All +   Collapse All -

— **By Sex**

**Average Healthy Eating Index score among persons aged 2 years and older by sex, 2001-2018**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017.5) | |
| --- | --- | --- | --- |
| | | HEI-2020 Score | 95% Confidence Interval |
| | Both Sexes | 57.4 | 55.6 - 59.3 |
| | Male | 55.8 | 53.9 - 57.7 |
| | Female | 59.5 | 57.5 - 61.4 |

+ **By Race/Ethnicity**

+ **By Poverty Income Level**

# Related Cancers

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

# Additional Information

**Last Reviewed: March 2024**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Fruit and Vegetable Consumption

## On This Page:

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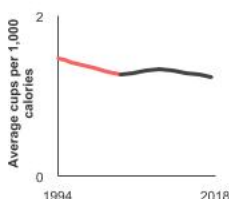
See Graph Details

## 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.

## 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 (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at NHANES Questionnaires, Datasets, and Related Documentation.

## 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.

## 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 |
| | Vegetables 〰 | 0.7 | 0.7 - 0.8 |

| + Fruit and Vegetables Combined |

| + Fruit |

| + Vegetables |

## Related Cancers

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](#)

## Additional Information

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Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Red Meat and Processed Meat Consumption

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

From 2017 to 2018, people aged 2 years and older consumed, on average, 1.0 ounces of red meat per 1,000 calories.
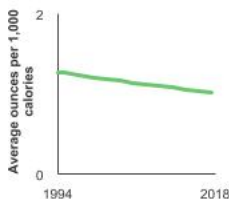


See Graph Details

## 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 red meat and poultry 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 meats. Additionally, when meat is cooked at high temperatures, substances are formed that may cause cancer.

## Measure

Average daily ounce equivalents of total red meat (includes processed and unprocessed red meat) and processed red meat and poultry (includes processed red meat and processed poultry) per 1000 calories for people aged 2 years and older.

The Standardized Method for Estimating Intakes of Processed Red Meat and Processed Poultry 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.

## 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 (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at NHANES Questionnaires, Datasets, and Related Documentation.
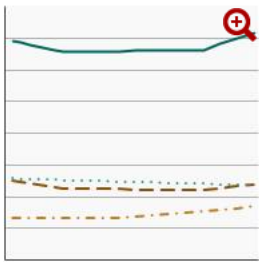
# Healthy People 2030 Target

- There is no Healthy People 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.
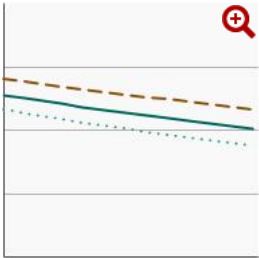
# Trends and Most Recent Estimates

## — Total Red Meat

Expand Section +    Collapse Section -

### — By Sex

**Average ounces of total 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 ⤳ | 1.0 | 0.9 - 1.1 |
| | Male ⤳ | 1.2 | 1.1 - 1.3 |
| | Female ⤳ | 0.8 | 0.8 - 0.9 |

+ **By Race/Ethnicity**

+ **By Poverty Income Level**

## + Processed Red Meat and Poultry

# Related Cancers

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

- Colon and Rectum
- Prostate
- Pancreatic
- Stomach

# Additional Information

Fat Consumption

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Related Cancers](#)
[Additional Information](#)

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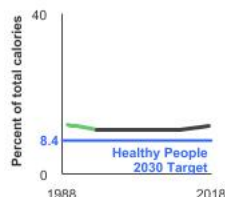


[See Graph Details](#)

## 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 2020-2025 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.

## 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 (NHANES).

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## 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.

## 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 |
| | Polyunsaturated Fat 〽 | 8.4 | 8.2 - 8.6 |

| + Total Fat Intake |
|---|

| + Saturated Fat Intake |
|---|

| + Monosaturated Fat Intake |
|---|

| + Polyunsaturated Fat Intake |
|---|

## Related Cancers

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

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

## Additional Information

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Online Summary of Trends in U.S. Cancer Control Measures

Alcohol Consumption

## On This Page:

In 2021, the annual per capita alcohol consumption was 2.5 gallons.
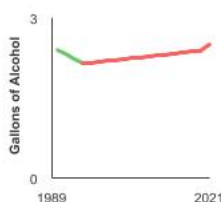
See Graph Details

## 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.

## Data Source

National Institute on Alcohol Abuse and Alcoholism. Surveillance report #120 – Apparent per capita alcohol consumption: national, state, and regional trends, 1977–2021. April 2023.

## Healthy People 2030 Target

- There are no Healthy People 2030 targets regarding per capita alcohol consumption, but there are other goals related to reducing the misuse of alcohol and reducing alcohol addiction.

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

## Trends and Most Recent Estimates

— Alcohol Consumption

**Apparent per capita alcohol consumption in gallons by individuals aged 14 years and older, 1990-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | **Gallons of Alcohol** | **95% Confidence Interval** |
| | All Types of Alcoholic Beverages | 2.5 | Not available |

## Related Cancers

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

**Last Reviewed: March 2024**
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[Home](#) / [Prevention](#)

# Physical Activity

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.

- [Adolescent Physical Activity](#)
- [Adult Physical Activity](#)

**Last Reviewed: March 2024**
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Online Summary of Trends in U.S. Cancer Control Measures

# Adolescent Physical Activity

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2021, 23.9% of adolescents in grades 9-12 were physically active at least 60 minutes per day.
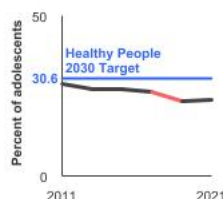


See Graph Details

## Background

Regular physical activity is fundamental for the growth, health, and well-being of children and adolescents. The importance of incorporating physical activity into the daily lives of young people is underscored by its long-term health benefits. Inactive children are at a greater risk of developing chronic conditions such as obesity, cardiovascular diseases, and type 2 diabetes in the future. Moreover, current studies indicate that insufficient physical activity in the early years may be linked to an increased risk of certain types of cancer in adulthood. Regular physical activity in children helps to regulate hormones, boost the immune system, and maintain a healthy weight—each a vital component in minimizing cancer risks.

For childhood cancer survivors, the role of physical activity is equally important. Consistent evidence shows that exercise contributes significantly to improved physical and emotional well-being, reduced fatigue, and enhanced overall health outcomes in childhood.

Several groups offer recommendations for physical activity in children and adolescents. The U.S. Department of Health and Human Services recommends that children ages 3-17 years old engage in at least 60 minutes of moderate-to-vigorous physical activity daily. As part of the 60 minutes or more of daily activity, children and adolescents should also include muscle-strengthening physical activity on at least 3 days a week.

## Measure

Percentage of adolescents in grades 9 through 12 who reported engaging in physical activity for at least 60 minutes on all days of the past week.

Percentage of adolescents in grades 9 through 12 who participated in muscle-strengthening activity on 3 or more days of the past week.

## Data Source

Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance System, 1991-2021.

## Healthy People 2030 Target

- Increase the proportion of adolescents in grades 9 through 12 who meet the current guideline for aerobic physical activity to 30.6 percent.

- Increase the proportion of adolescents in grades 9 through 12 who meet the current muscle-strengthening activity guideline to 56.1 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.
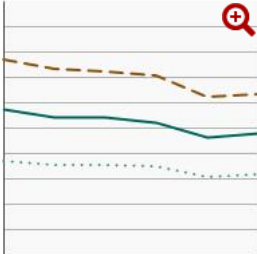
## Trends and Most Recent Estimates

### ▬ Aerobic Physical Activity

Expand Section +   Collapse Section -

#### ▬ By Sex

**Percentage of adolescents in high school (grades 9-12) who were physically active at least 60 minutes per day by sex, 2011-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
|---|---|---|---|
| | | Percent of adolescents | 95% Confidence Interval |
| | Both Sexes ∿ | 23.9 | 22.8 - 25.0 |
| | Male ∿ | 31.7 | 30.3 - 33.2 |
| | Female ∿ | 15.7 | 14.1 - 17.4 |

+ **By Race/Ethnicity**

+ **By High School Grade**

### ＋ Muscle Strengthening Activity

## Related Cancers

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

- Bladder
- Breast
- Colon and Rectum
- Esophagus
- Kidney and Renal Pelvis
- Stomach
- Uterus

## Additional Information

**Last Reviewed: March 2024**
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Adult Physical Activity

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2022, 26.3% of adults reported no physical activity in their leisure time.
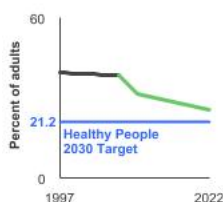


See Graph Details

# 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. Being active may 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 may also lower a person's risk of health problems such as heart disease, high blood pressure, diabetes, and osteoporosis (bone thinning).

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 that adults get at least 2.5 hours of moderate-intensity or 1 hour and 15 minutes of vigorous-intensity aerobic activity 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.

# Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1992–2022.

Refer to the Data Sources page for more information about data collection years 2019+.

# 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.

## Trends and Most Recent Estimates

### — No Leisure Time Physical Activity

Expand Section +   Collapse Section -

#### — By Sex

**Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 26.3 | 25.4 - 27.2 |
| | Male | 24.4 | 23.3 - 25.5 |
| | Female | 28.1 | 27.0 - 29.3 |

+ By Race/Ethnicity

+ By Poverty Income Level

+ By Education Level

+ Meet Federal Guidelines

## Related Cancers

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

- [Breast](#)
- [Bladder](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Kidney and Renal Pelvis](#)
- [Stomach](#)
- [Uterus](#)

## Additional Information

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[Home](#) / [Prevention](#)

Weight

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[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Related Cancers](#)
[Additional Information](#)

During 2017.5, 42.4% of adults had obesity.
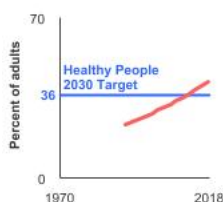


[See Graph Details](#)

# 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, or colon cancer. Excess body weight is thought to contribute to as many as one in five cancer-related deaths in the United States.

Among children, obesity is linked to a higher risk for obesity, metabolic diseases, and other chronic diseases and conditions later in adulthood, including cancer risk.

While there is still much to be learned about the link between excess weight and cancer, people with overweight or obesity 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

Adults: The percentage of adults aged 20 years and older with a healthy weight, overweight, or obesity. These weight groups are defined by 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 as healthy weight, a BMI between 25 and 29.9 as overweight, and a BMI of 30 and above as having obesity.

Children and adolescents: The percentage of children and adolescents aged 2-19 years with a healthy weight, overweight, or obesity. These weight groups are defined by a measurement called the body mass index (BMI) z-score, which is calculated based on BMI sex- and age-specific percentiles (from the [CDC Growth Charts](#)). For most children, experts consider BMI-for-age percentiles between 5-84% as healthy weight, between 85-94% as overweight, and 95% or above as having obesity.

# Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

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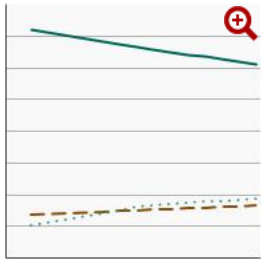
## Healthy People 2030 Target

- Reduce the proportion of children and adolescents with obesity to 15.5 percent.
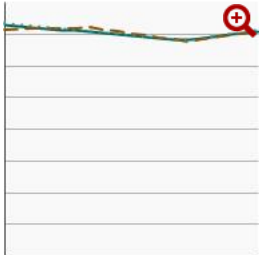- Reduce the proportion of adults with obesity to 36.0 percent.

[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.

## Trends and Most Recent Estimates

**— Body Weight Comparison**

Expand Section +    Collapse Section -

**— Children and Adolescents**

**Percentage of children and adolescents aged 2-19 years with a healthy weight, overweight, or obesity, 1988-2018**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
| --- | --- | --- | --- |
| | | Percent of children and adolescents | 95% Confidence Interval |
| | Healthy Weight 〰 | 60.8 | 58.5 - 63.1 |
| | Overweight 〰 | 15.9 | 14.2 - 17.6 |
| | Obesity 〰 | 19.4 | 17.4 - 21.4 |

+ Adults

+ Children and Adolescents, Healthy Weight

+ Children and Adolescents, Overweight

+ Children and Adolescents, Obesity

+ Adults, Healthy Weight

+ Adults, Overweight

+ Adults, Obesity

## Related Cancers

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

- [Brain and Other Nervous System](#)
- [Breast](#)
- [Colon and Rectum](#)
- [Esophagus](#)
- [Gallbladder](#)
- [Myeloma](#)
- [Ovary](#)
- [Pancreas](#)
- [Stomach](#)
- [Thyroid](#)

- [Kidney and Renal Pelvis](#)
- [Liver and Intrahepatic Bile Duct](#)

- [Uterus](#)

## Additional Information

**Last Reviewed: March 2024**

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Sleep

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

In 2022, 69.6% of adults 18 and older reported getting sufficient sleep.
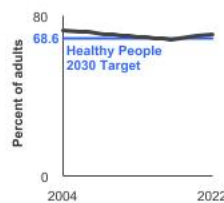


[See Graph Details](#)

## Background

Sleep health – including sleep duration, efficiency, and quality, as well as sleep timing and regularity – is important to overall health. Poor sleep may directly affect mortality risk and influence risk for cancer and other non-communicable diseases through its impact on immune function, stress response and inflammation, DNA repair, and metabolic and hormonal activity. It may also impact mortality through its effect on modifiable risk factors, including physical activity, diet, alcohol, and tobacco use.

Existing evidence indicates that sleep duration is associated with cancer mortality. However, across sites, risk may vary by sleep duration – both short (<7 hours/night) and long (>9 hours/night) sleep duration. Findings are also mixed regarding the association between sleep duration and cancer risk. Other aspects of poor sleep health, including poor sleep quality and irregular sleep timing due to shift work, have also been linked to increased risk of cancer, highlighting the need for future research in these areas.

Additionally, poor sleep health is associated with poorer treatment efficacy, adverse physical and mental health outcomes, and increased mortality in cancer survivors. The mechanisms connecting sleep health and cancer survivorship are not fully understood and are an evolving area of study.

The recommendations stratified by age are 7 or more hours/night for adults 18-60 years, 7-9 hours for adults 31-64 years, and 7–8 hours for adults 65 years and older.

## Measure

Percentage of adults aged 18 years and older who report getting sufficient sleep, defined as an average of 7 or more hours of sleep per day.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 2004-2022.

Refer to the [Data Sources](#) page for more information about data collection years 2019+.

## Healthy People 2030 Target

- Increase the proportion of adults who get sufficient sleep to 68.6 percent.

## Trends and Most Recent Estimates

Expand All +   Collapse All -

— **By Sex**

**Percentage of adults aged 18 years and older who report getting sufficient sleep, defined as an average of 7 or more hours of sleep per day by sex, 2004-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
|  | Both Sexes | 69.6 | 68.8 - 70.3 |
| | Male | 70.0 | 68.9 - 71.0 |
| | Female | 69.2 | 68.3 - 70.2 |

+ **By Race/Ethnicity**

+ **By Poverty Income Level**

+ **By Education Level**

## Additional Information

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## 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 and Outdoor Tanning](#)
- [Sunburn](#)

**Last Reviewed: March 2024**
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Online Summary of Trends in U.S. Cancer Control Measures

Sun-Protective Behavior

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2020, 69.4% of adults said they usually or always protect themselves from the sun by practicing at least one of three sun protection behaviors.
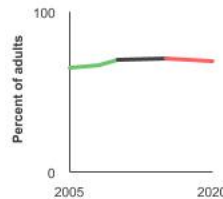


See Graph Details

## 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.

## 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.

Refer to the Data Sources page for more information about data collection years 2019+.

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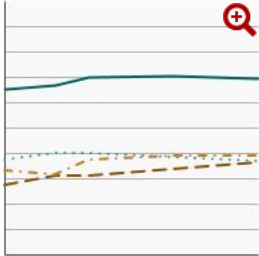
- There are no Healthy People 2030 targets regarding protective measures that may reduce the risk of skin cancer.

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

## 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, 2005-2020**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of adults | 95% Confidence Interval |
| | Total ∿ | 69.4 | 68.5 - 70.3 |
| | Sunscreen (SPF 15+) ∿ | 36.5 | 35.7 - 37.3 |
| | Protective Clothing ∿ | 36.7 | 35.8 - 37.6 |
| | Seek Shade ∿ | 39.1 | 38.1 - 40.0 |

| + Use Some Type of Protection |
|---|

| + Use Sunscreen |
|---|

| + Wear Protective Clothing |
|---|

| + Seek Shade |
|---|

## Related Cancers

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

- Melanoma of the Skin

## Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

Indoor and Outdoor Tanning

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

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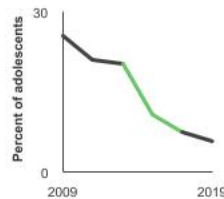


See Graph Details

## 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.

While reduction of indoor tanning is estimated to significantly reduce melanoma, outdoor sun exposure is the primary modifiable melanoma risk factor and includes intentional outdoor tanning and unintentional sun exposure. Among US adolescents, outdoor tanning (15.6%) appears to be more prevalent than indoor tanning (3%). The 2020 National Health Interview Survey provides the most recent intentional outdoor tanning data for US adults. Overall, 33.7% of US adults reported intentional outdoor tanning in the last 12-months, and outdoor tanning was more common among women (38.7%) than men (28.7%) and among adults aged under 25 years (45.1%) than those aged 25 years and over (32%), and among sun-sensitive adults (39.9%) than adults who are not sun-sensitive (29.2%). Considering the context of sunburn, other data indicate, leisure pursuits near water, physical activity, and work around the home as the most frequent contexts of sunburn in addition to intentional outdoor tanning.

## 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.

The percentage of adults aged 18 years and older who reported spending time outdoors for the purpose of developing a tan (i.e., always, most times, sometimes, or rarely) during the past 12 months

*Note: 2020 data point included above; graph will be included when more data points become available.*

## 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. Outdoor tanning only available for 2020.

Refer to the Data Sources page for more information about data collection years 2019+.

## Healthy People 2030 Target

There are no Healthy People 2030 targets regarding indoor or outdoor tanning.

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

## 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**

+ **Females by Race/Ethnicity**

+ **By High School Grade**

+ **Females by High School Grade**

+ **Non-Hispanic White Female by High School Grade**

+ Adults

## Related Cancers

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

- Melanoma of the Skin

# Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

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Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Sunburn

## On This Page:

In 2021, 64.4% of students in grades 9-12 were sunburned in the past year.
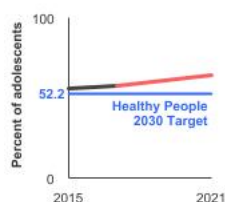


See Graph Details

## 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.

## 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, 2010-2020.

Refer to the Data Sources page for more information about data collection years 2019+.

## Healthy People 2030 Target

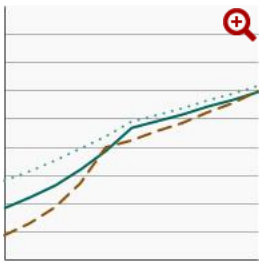- Reduce to 52.2 percent the proportion of adolescents in grades 9 through 12 who report sunburn.

[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.

## Trends and Most Recent Estimates

### — Adolescents

Expand Section +   Collapse Section -

#### — By Sex

**Percentage of students in grades 9-12 who were sunburned in the past year by sex, 2015-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Percent of adolescents | 95% Confidence Interval |
|  | Both Sexes | 64.4 | 61.3 - 67.4 |
| | Male | 61.5 | 58.6 - 64.3 |
| | Female | 67.9 | 64.3 - 71.4 |

+ **By Race/Ethnicity**

+ **By High School Grade**

### + Adults

## Related Cancers

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

- [Melanoma of the Skin](#)

## Additional Information

**Last Reviewed: March 2024**
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Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

HPV Vaccination

## On This Page:

In 2022, 58.6% of adolescents aged 13-15 years had received 2 or 3 doses of human papillomavirus (HPV) vaccine as recommended.
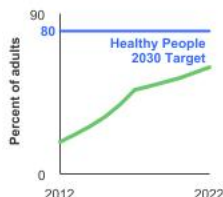


See Graph Details

## 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. 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

Percentage 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.

From 2008-2011, the recommendation by the CDC's Advisory Committee on Immunization Practices (ACIP) was for a 3-dose series for females only. From 2011-2016, the recommendation included both males and females using a 3-dose series. Beginning in 2016, ACIP recommended males and females beginning their vaccination series before 15 years of age receive a 2-dose, rather than 3-dose series.

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.

## Data Source

Centers for Disease Control and Prevention, The National Immunization Surveys (NIS), 2008-2022.

## 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.

## Trends and Most Recent Estimates

| — By Sex |
|---|

**Percentage 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, 2012-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
|---|---|---|---|
| | | Percent vaccinated | 95% Confidence Interval |
|  | Both Sexes | 58.6 | 56.7 - 60.5 |
| | Male | 56.6 | 53.9 - 59.2 |
| | Female | 60.7 | 57.9 - 63.4 |

| + By Race/Ethnicity |
|---|

| + By Poverty Income Level |
|---|

## Related Cancers

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

- Anus
- Cervix Uteri
- Oral Cavity and Pharynx
- Vulva

## Additional Information

**Last Reviewed: March 2024**
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**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Genetic Testing

## On This Page:

In 2015, 22.9% of females aged 18 years and older with a family history of breast and/or ovarian cancer had discussed the possibility of getting a genetic test for cancer risk.
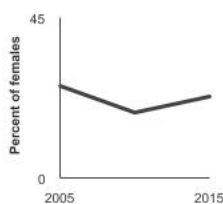


See Graph Details

## 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.

## 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.

Refer to the Data Sources page for more information about data collection years 2019+.

## 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 there is no target line on the Detailed Trend Graphs. Learn more about *different types of Healthy People Objectives*.

## 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 U.S. Preventive Services Task Force (USPSTF) guidelines based on family history of breast and ovarian cancer.

+ Colorectal Cancer

## Related Cancers

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

- Bone and Joint
- Brain and Other Nervous System
- Breast
- Colon and Rectum
- Kidney and Renal Pelvis
- Leukemia
- Liver and Intrahepatic Bile Duct
- Melanoma of the Skin

- Ovary
- Pancreas
- Prostate
- Small Intestine
- Soft Tissue including Heart
- Stomach
- Thyroid
- Uterus

## Additional Information

**Last Reviewed: March 2024**
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**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

## Chemical and Environmental Exposures

Exposure to carcinogens that exist as chemical pollutants or radioactive gas in our air, food, water, and soil also influences 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).

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

- [Nitrate](#)
- [PFAS](#)

## 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.

**Last Reviewed: March 2024**
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**Suggested citation:**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Arsenic

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2017 to 2018, the 95th percentile for urinary (creatinine corrected) concentration of arsenic among persons aged 6 years and older was 52.2 µg/g.
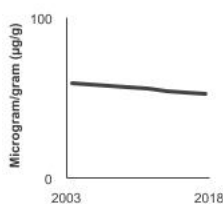


See Graph Details

## Background

Arsenic is a tasteless, odorless element in the environment that can be found naturally in rocks and soil, water, air, 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 is also 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). Major dietary sources of inorganic arsenic include 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. For more information, see the [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 are statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, which publishes the National Report on Human Exposure to Environmental Chemicals from which our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [[Methodology](#)]

Because arsenic is measured from urine, the concentration of arsenic may be affected by urine diluteness. Analyte concentrations within urine also may vary with time, due to changes in the water concentration within urine. We use creatinine as a reference analyte to adjust for urine concentration and obtain measures of arsenic that are comparable, whether they are from concentrated or dilute urine samples.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at [NHANES Questionnaires, Datasets, and Related Documentation](#).

## 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.
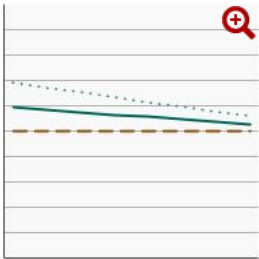
## Trends and Most Recent Estimates

### ▬ 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, 2003-2018**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
| --- | --- | --- | --- |
| | | Microgram/gram (μg/g) | 95% Confidence Interval |
|  | Both Sexes 〰 | 52.2 | 40.3 - 71.9 |
| | Male 〰 | 47.9 | 34.2 - 72.6 |
| | Female 〰 | 58.7 | 39.0 - 75.5 |

   +  **By Race/Ethnicity**

   +  **By Age**

   +  **By Poverty Income Level**

   +  **By Education Level**

   +  **By Smoking Status**

+ Inorganic Arsenic Exposure

## Related Cancers

- [Bladder](#)
- [Kidney and Renal Pelvis](#)
- [Liver and Intrahepatic Bile Duct](#)
- [Lung and Bronchus](#)
- [Prostate](#)

## Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Online Summary of Trends in U.S. Cancer Control Measures

Benzene

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

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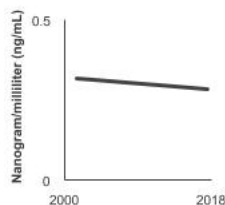


See Graph Details

## 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 is widely used as a component of plastics, rubber, resins, and synthetic fabrics; an additive in motor fuels; 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. An article published in *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, 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 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 are statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, which publishes the National Report on Human Exposure to Environmental Chemicals, from which our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at NHANES Questionnaires, Datasets, and Related Documentation.

## Healthy People 2030 Target

There are no Healthy People 2030 targets regarding blood concentration of benzene.
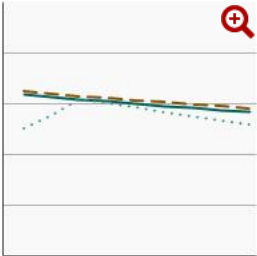
Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

## 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) | |
| --- | --- | --- | --- |
| | | Nanogram/milliliter (ng/mL) | 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**

+ **By Poverty Income Level**

+ **By Education Level**

+ **By Smoking Status**

## Related Cancers

- Leukemia
- Lung and Bronchus
- Myeloma
- Non-Hodgkin Lymphoma

## Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the Data Sources page.

Online Summary of Trends in U.S. Cancer Control Measures

Home / Prevention / Chemical and Environmental Exposures

Cadmium

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2017 to 2018, 95th percentile for the blood concentration of cadmium among persons aged 1 year and older was 1.3 µg/L.
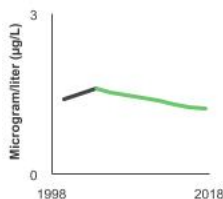


See Graph Details

## 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; anthropogenic (human) sources; 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. For more information, see the 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, which 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]

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at NHANES Questionnaires, Datasets, and Related Documentation.

## 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.

## Trends and Most Recent Estimates

Expand All +    Collapse All -

### — 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) | |
|---|---|---|---|
| | | Microgram/liter (µg/L) | 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**

+ **By Age**

+ **By Poverty Income Level**

+ **By Education Level**

+ **By Smoking Status**

## Related Cancers

- Bladder
- Breast
- Kidney and Renal Pelvis
- Lung and Bronchus
- Pancreatic
- Prostate

# Additional Information

**Last Reviewed: March 2024**
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Nitrate

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2017 to 2018, the 95th percentile for urinary (creatinine corrected) concentration of nitrate among persons aged 6 years and older was 113.0 mg/g of creatinine.
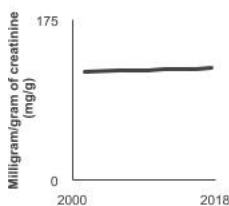
See Graph Details

## 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 (NOCs), which are known to cause cancer in animals and may cause cancer in humans. Excessive nitrate or nitrite exposure can also result in acute acquired methemoglobinemia, a blood abnormality that causes blood to lose its ability to carry oxygen to tissues (anoxia). This is especially dangerous in infants younger than 4 months of age.

The biggest source of nitrate exposure is dietary consumption of certain types of vegetables that are naturally high in nitrate, especially green, leafy, and root vegetables (although processed meats can also contain high levels of nitrite). However, many vegetables also contain compounds, such as vitamin C and other antioxidants, that can inhibit 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, 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 a minor source 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. For more information, see the 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, which publishes the National Report on Human Exposure to Environmental Chemicals, from which our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

As nitrate is measured from urine, the concentration of nitrate may be affected by urine diluteness. Analyte concentrations within urine also may vary with time due to changes in the water concentration within urine. We use creatinine as a reference analyte to adjust for urine concentration and obtain measures of nitrate that are comparable, whether they are from concentrated or dilute urine samples.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at NHANES Questionnaires, Datasets, and Related Documentation.

## 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.

## 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, 2001-2018**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
| --- | --- | --- | --- |
| | | Milligram/gram of creatinine (mg/g) | 95% Confidence Interval |
| | Both Sexes ⌇ | 113.0 | 99.3 - 126.4 |
| | Male ⌇ | 99.4 | 87.5 - 114.3 |
| | Female ⌇ | 124.5 | 109.0 - 160.7 |

+ By Race/Ethnicity

+ By Age

+ By Poverty Income Level

+ By Education Level

## Related Cancers

- Colorectal
- Kidney and Renal Pelvis

- [Ovarian](#)
- [Stomach](#)
- [Thyroid](#)

# Additional Information

**Last Reviewed: March 2024**
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Online Summary of Trends in U.S. Cancer Control Measures

Home  /  Prevention  /  Chemical and Environmental Exposures

# Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Related Cancers
Additional Information

In 2017 to 2018, the 95th percentile for blood concentration of serum perfluorooctanoic acid (PFOA) among persons aged 12 years and older was 3.8 ng/mL.
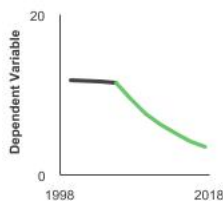


See Graph Details

## Background

Per- and poly-fluorylaklyl substances (PFAS) are a group of manufactured compounds that consist of carbon-fluoride bonds that make PFAS highly stable and resistant to degradation by metabolic or environmental means. First developed in the 1940s, PFAS became widely popular and are used in a number of commercial, industrial, and consumer applications and products. Some current examples include pesticides, firefighting foams, flame retardants, additives in coatings and paints for buildings, textile products such as repellent coatings, personal care products such as cosmetics and makeup, home products such as non-stick coatings for pans, and the development of electronic and semiconductor products.

With its unique chemical and physical properties, PFAS have been designated as "forever chemicals." Biomonitoring studies have shown that PFAS are ubiquitous in soil and water, and detected in humans. In both occupational and non-occupational settings, the routes of exposures are ingestion of contaminated food and drinking water, inhalation via air or dust particulate, or dermal contact. PFAS exposure has been reported to be associated with hepatic, cardiovascular, immune, reproductive, and developmental effects in humans and animals. Perfluorooctanoic acid (PFOA), one of the most well-studied PFAS chemicals, is associated with kidney and testicular cancers.

However, much of the scientific knowledge of the risk to humans from PFAS exposure is limited by the nature of how previous studies have been conducted. For example, some human studies did not collect any information on historical exposure. Among those that may have historical exposures, collected biological specimens such as blood, and/or have information of specific outcomes of interest, many were cross-sectional in design and thus were only able to evaluate the associations at one specific point in time. These aspects limit the ability to assess any potential relationships between PFAS exposure and health outcomes in terms of establishing causality. Despite this, the growing evidence and awareness of PFAS and detrimental health effects have motivated physicians, scientists, and public health officials about the importance of additional research and regulatory measures on PFAS.

## Measure

Over the years, many epidemiologic studies have primarily examined specific PFAS compounds such as PFOA and perfluorooctane sulfonate (PFOS) due to their early discovery and past industrial usage. While other PFAS compounds exist, we focus on PFOA and PFOS due to the existing assessment within the National Health and Nutritional Examination Survey.

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 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 are statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, which publishes the National Report on Human Exposure to Environmental Chemicals, from which our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES).

The Cancer Trends Progress Report uses NHANES data through 2017-2018. The 2019-2020 cycle was not completed due to the COVID-19 pandemic. More information is available at NHANES Questionnaires, Datasets, and Related Documentation.

## Healthy People 2030 Target

There are no Healthy People 2030 targets regarding PFAS as a whole or specific PFAS compounds.

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

## Trends and Most Recent Estimates

— Serum Perfluorooctanoic Acid (PFOA)

Expand Section +   Collapse Section -

— **By Sex**

**95th percentile for blood concentrations (ng/mL) of serum perfluorooctanoic acid (PFOA) among persons aged 12 years and older by sex, 1999-2018**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
| --- | --- | --- | --- |
| | | Dependent Variable | 95% Confidence Interval |
|  | Both Sexes 〰 | 3.8 | 3.3 - 4.9 |
| | Male 〰 | 3.8 | 3.4 - 5.1 |
| | Female 〰 | 3.8 | 3.1 - 5.0 |

+  **By Race/Ethnicity**

+  **By Poverty Income Level**

+  **By Education Level**

+ Serum Perfluorooctane Sulfonic (PFOS)

## Related Cancers

- [Kidney and Renal Pelvis](#)
- [Testicular](#)

## Additional Information

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**Suggested citation:**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

[Home](#)

## 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](#)

**Last Reviewed: March 2024**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Online Summary of Trends in U.S. Cancer Control Measures

Breast Cancer Screening

## On This Page:

In 2021, 75.9% of women aged 50-74 years had a mammogram within the past 2 years.
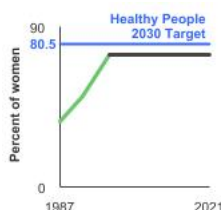


See Graph Details

## 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. Our measure captures general receipt of a mammogram (yes/no) more accurately than its underlying purpose, and the population may include those with a prior diagnosis of breast cancer. 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.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2021.

Refer to the Data Sources page for more information about data collection years 2019+.

## Healthy People 2030 Target

- Increase to 80.5 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.
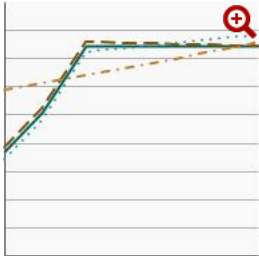
## Trends and Most Recent Estimates

Expand All +    Collapse All -

— **By Race/Ethnicity**

**Percent of females aged 50-74 years who had mammography within the past 2 years by race/ethnicity, 1987-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Percent of women | 95% Confidence Interval |
|  | All Races/Ethnicities | 75.9 | 74.7 - 77.1 |
| | Non-Hispanic White | 76.3 | 74.8 - 77.6 |
| | Non-Hispanic Black | 82.1 | 78.7 - 85.2 |
| | Hispanic | 74.0 | 70.1 - 77.6 |

+ **By Poverty Income Level**

+ **By Education Level**

## Additional Information

**Last Reviewed: March 2024**
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**Suggested citation:**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Cervical Cancer Screening

## On This Page:

In 2021, 72.4% of women aged 21-65 years were up-to-date with cervical cancer screening.
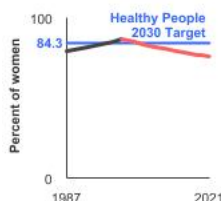


See Graph Details

## 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.

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.

### 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.

It can be challenging to determine by self-report alone which type of cervical cancer screening 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 know if informed by her healthcare provider. People may also not always accurately recall the specific time they received a particular test. Additionally, 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, guidelines for cervical cancer screening have increased in complexity over time, which results in a greater likelihood for missing or incomplete self-reported information about the screening tests women received. Different approaches by researchers for handling this missing information can result in somewhat varied estimates presented for up-to-date cervical cancer screening status, depending on publication.

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. It 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 U.S.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2021.

Refer to the Data Sources page for more information about data collection years 2019+.

## 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.

## Trends and Most Recent Estimates

Expand All +   Collapse All -

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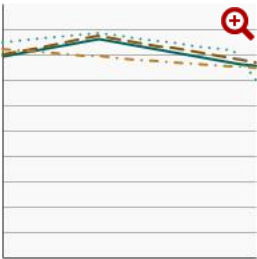
### — By Race/Ethnicity

**Percentage of females aged 21-65 years who were up-to-date with cervical cancer screening by race/ethnicity, 1987-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Percent of women | 95% Confidence Interval |
|  | All Races/Ethnicities ⌁ | 72.4 | 71.2 - 73.5 |
| | Non-Hispanic White ⌁ | 75.7 | 74.2 - 77.1 |
| | Non-Hispanic Black ⌁ | 71.6 | 68.1 - 74.9 |
| | Hispanic ⌁ | 67.9 | 65.1 - 70.5 |

+ By Poverty Income Level

+ By Education Level

## Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

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**Suggested citation:**

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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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## Colorectal Cancer Screening

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

In 2021, 71.8% of adults aged 50-75 had received colorectal cancer screening based on the most recent guidelines.
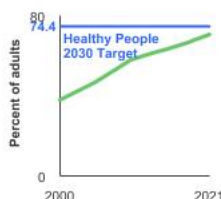


[See Graph Details](#)

## Background

There are multiple approaches used to screen for colorectal cancer. They can be divided into stool-based tests (fecal occult blood testing [FOBT], fecal immunochemical testing [FIT], stool DNA testing [FIT-DNA]) and optical or visualization tests (sigmoidoscopy, colonoscopy, virtual colonoscopy [CT-colonography]). These screening tests can detect colorectal cancer prior to symptoms, which, when followed by timely treatment, can reduce deaths due to the disease.

In 2016, the U.S. Preventive Services Task Force (USPSTF) recommended screening for colorectal cancer for adults aged 50 to 75 years, and that adults aged 76 to 85 years should make an individual decision about screening. In May 2021, the USPSTF updated their guidance to lower the recommended screening start age to 45 years. This was based on evidence indicating a trend for increasing risk of colorectal cancer in adult birth cohorts younger than 50 years and statistical modeling suggesting that starting at age 45 years may increase life years gained compared to 50 years.

## Measure

### Optical or visualization screening tests

**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.

**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.

### Stool-based screening tests

**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 FOBT or FIT annually, using a home-based 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.

**Measurement challenges**

We track colorectal cancer screening rates in the U.S. 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 screening, it may be challenging to determine by self-report alone if a colonoscopy was received for screening purposes, i.e., to look for asymptomatic, previously undetected cancer, or for diagnostic purposes, i.e., as a follow up on symptoms or suspicious findings from a prior test. It can also be difficult to determine by self-report alone which type of colorectal cancer screening test a person received, as several testing options appear similar to the person experiencing them. People may also not always accurately recall the specific time they received a particular test. Additionally, 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.

Options for colorectal cancer screening have increased over time, which results in a greater likelihood for missing or incomplete self-reported information about the screening tests people received. Different approaches by researchers for handling this missing information can result in somewhat varied estimates presented for up-to-date colorectal cancer screening status, depending on publication.

Our measure captures general receipt of a colorectal cancer screening test (yes/no) more accurately than its underlying purpose or the specific screening test received, and the population may include those with a prior diagnosis of colorectal cancer. This serves as a reasonable approximation of the true U.S. colorectal cancer screening rate, but the measure is not perfectly comparing the actual frequency of people's use of colorectal cancer screening to national recommendations.

Even though the National Health Interview Survey 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.

# Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2021.

Please note that these data were collected while the 2016 USPSTF recommendations were in place. Therefore, the estimates include adults aged 50 to 75 years.

Refer to the Data Sources page for more information about data collection years 2019+.

# 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.

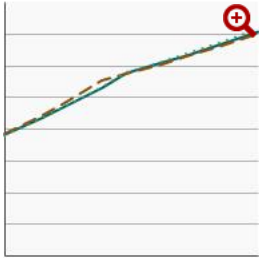Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.
**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

# Trends and Most Recent Estimates

| ━ By Sex |
|---|

**Percentage of adults aged 50-75 years who were up-to-date¹ with colorectal cancer screening by sex, 2000-2021**

| Detailed Trend Graphs | Most Recent Estimates (2021) |
|---|---|

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Percent of adults | 95% Confidence Interval |

| | Detailed Trend Graphs | Percent of adults | 95% Confidence Interval |
| --- | --- | --- | --- |
| | Both Sexes 〰 | 71.8 | 70.8 - 72.8 |
| | Male 〰 | 70.8 | 69.3 - 72.2 |
| | Female 〰 | 72.7 | 71.4 - 74.0 |

+ By Race/Ethnicity

+ By Poverty Income Level

+ By Education Level

+ By Screening Location

+ By Contributing Test Type

# Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the Data Sources page.

**Suggested citation:**

Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Online Summary of Trends in U.S. Cancer Control Measures

Lung Cancer Screening

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

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.
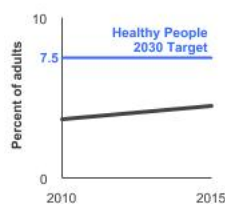


See Graph Details

## Background

Lung cancer screening uses a type of chest computed tomography (CT), known as low radiation dose CT (LDCT), to create detailed pictures of the lungs. Doctors use lung cancer screening for early detection of disease in adults who currently or previously smoked and who do not have symptoms. Another name for LDCT is low-dose helical CT.

In 2013, the U.S. Preventive Services Task Force's (USPSTF)  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. 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.

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 the National Health Interview Survey (NHIS), 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). Note that the most recent estimate available through the NHIS is 2015, which is nearly a decade ago. This likely does not accurately predict current U.S. lung cancer screening rates Questions about lung cancer screening use are being asked on the 2024 NHIS, and updated findings will be available in 2025.

There are important limitations to surveys like the NHIS 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 from our measurement of lung cancer screening rates, 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 to adults in the age range who smoked heavily currently or formerly. 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.

## 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.

Refer to the Data Sources page for more information about data collection years 2019+.

## 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 USPSTF recommendations. Recommendations are restricted to individuals who have never had lung cancer, have smoked at least 30 pack-years, and if not currently smoking, have quit no more than 15 years ago.

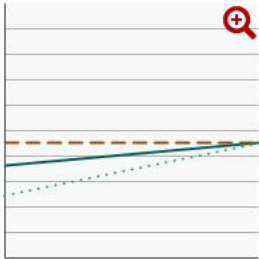*Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.*

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

## 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 |

[1] Includes adults who have smoked for 30+ pack years and who currently smoke or have quit within the past 15 years. Excludes adults who reported a previous diagnosis of lung cancer.

+ **By Race/Ethnicity**

+ **By Poverty Income Level**

+ **By Education Level**

+ **By Age**

+ **By Smoking Pack Years**

# Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the Data Sources page.

**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Prostate Cancer Screening

## On This Page:

In 2021, 37.1% of men aged 55-69 years had a PSA test within the past year.
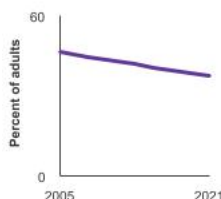


See Graph Details

## 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.

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 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 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, i.e., as a follow up on symptoms or suspicious findings from a prior test. 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. In some cases, because PSA testing is a blood test, it may be bundled by a clinician with other tests, and a man may be unaware he even had the test. Finally, men may also not always accurately recall the specific time they received a particular test. As such,

our measure captures any type of PSA test received by a man, and the population may include those with a prior diagnosis of prostate cancer. This serves as a reasonable approximation, although an overestimate, of the true U.S. prostate cancer screening rate.

Even though the National Health Interview Survey prostate cancer screening measures have limitations, it is the best nationally representative data we have available to assess prostate cancer screening rates.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005-2021.

Refer to the Data Sources page for more information about data collection years 2019+.

## 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.*

## Trends and Most Recent Estimates

Expand All +   Collapse All -

— **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, 2005-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Percent of adults | 95% Confidence Interval |
|  | All Races/Ethnicities | 37.1 | 35.1 - 39.1 |
| | Non-Hispanic White | 40.7 | 38.5 - 42.9 |
| | Non-Hispanic Black | 32.7 | 27.0 - 38.9 |
| | Hispanic | 29.1 | 23.0 - 36.1 |

+ **By Poverty Income Level**

+ **By Education Level**

+ **By Age**

## Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the Data Sources page.

**Suggested citation:**

Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

# 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](#)

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Incidence

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

In 2021, the rate of new cases of all cancers combined was 461.4 per 100,000 people per year.
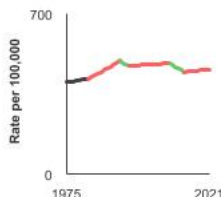


[See Graph Details](#)

## 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 2024, 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 2,001,140 new cases of cancer are expected to be diagnosed in 2024, including 299,010 cases of prostate cancer, 313,510 cases of breast cancer, 234,580 cases of lung and bronchus cancer, and 152,810 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.

**Trend lines:** calculated from the underlying rates using the [Joinpoint Trend Analysis Software](#).
The 2020 incidence rate is displayed but not used in the fit of the trends line(s). [Impact of COVID on SEER Incidence 2020 data](#).

## Data Source

SEER Program, National Cancer Institute, 1975–2021.
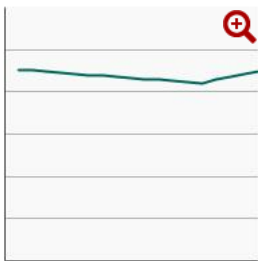
## Healthy People 2030 Target

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.

## 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, 1975-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Rate per 100,000 | 95% Confidence Interval |
| | Both Sexes 〰 | 461.4 | 459.0 - 463.9 |
| | Male 〰 | 492.8 | 489.2 - 496.4 |
| | Female 〰 | 443.2 | 439.9 - 446.5 |

+ By Race/Ethnicity

+ Top 4 Cancer Sites

+ Recent Trends for Common Cancer Sites

## Additional Information

**Last Reviewed: August 2024**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Stage at Diagnosis

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

In 2021, the rate of new regional and distant stage female breast cancer cases was 44.7 per 100,000 females.
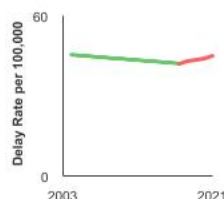


[See Graph Details](#)

# 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. Late stage is defined as the stages which screening tends to reduce and differs by cancer site (i.e. when screening is initiated the proportion diagnosed with late state disease goes down).

**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.

**Trend lines:** calculated from the underlying rates using the [Joinpoint Trend Analysis Software](#).
The 2020 incidence rate is displayed but not used in the fit of the trends line(s). [Impact of COVID on SEER Incidence 2020 data](#).

# Data Source

SEER Program, National Cancer Institute, 2004–2021.

# 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.

## Trends and Most Recent Estimates

**—** Late Stage Female Breast Cancer Rates

**Rates of new cases of late stage female breast cancer, delay-adjusted incidence, 2004-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2021) | |
| --- | --- | --- | --- |
| | | Delay Rate per 100,000 | 95% Confidence Interval |
| | Late Stage Breast Cancer 〰 | 44.7 | 44.3 - 45.2 |

**+** Distant Stage Cancer Rates

**+** Stage Distribution

## Additional Information

**Last Reviewed: August 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

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[Home](#)

# 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, and melanoma of the skin.

- [Bladder Cancer Treatment](#)
- [Breast Cancer Treatment](#)
- [Colorectal Cancer Treatment](#)
- [Kidney Cancer Treatment](#)
- [Lung Cancer Treatment](#)
- [Melanoma of the Skin Treatment](#)
- [Ovarian Cancer Treatment](#)
- [Prostate Cancer Treatment](#)

**Last Reviewed: March 2024**

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Home / Treatment

Bladder Cancer Treatment

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2019, 35.5% of patients with non-muscle invasive disease received intravesical therapy.
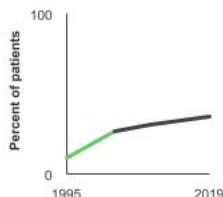


See Graph Details

## 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 have been no significant increases in the use of intravesical therapy for patients diagnosed with non-muscle invasive in the most recent time period, while use of intravesical therapy has increased significantly in the most recent time period for those diagnosed with muscle-invasive and metastatic disease. There have been no significant increases in the use of systemic therapy for patients diagnosed with non-muscle invasive in the most recent time period, while use of systemic therapy has increased significantly in the most recent time period for those diagnosed with muscle-invasive and metastatic disease. For the bladder cancer treatment figures presented here, please note that Ta G1-2 means non-invasive papillary carcinoma (Ta) that is Grade 1 (well differentiated) or Grade 2 (moderately differentiated). This is a subgroup of non-muscle invasive bladder cancer.

## Measure

Percentage of individuals receiving intravesical therapy.

Percentage of individuals receiving systemic therapy.

## Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1995-2019.
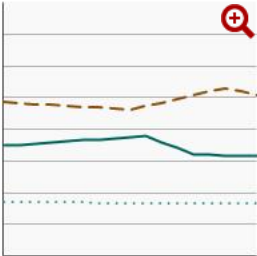
## Healthy People 2030 Target

- 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.

## Trends and Most Recent Estimates

Expand All +   Collapse All -

## — Intravesical Therapy

**Percent of bladder cancer patients receiving intravesical therapy by extent of disease, 1995-2019**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2019) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | Ta G1-2 | 35.5 | 30.7 - 40.7 |
| | Other non-muscle invasive disease | 64.6 | 60.3 - 68.6 |
| | Muscle invasive/metastatic disease | 28.3 | 22.5 - 35.0 |

## + Systemic Therapy

# Additional Information

**Last Reviewed: March 2024**
While this report is updated on an annual basis, not all data is available every year. See more information on the Data Sources page.

**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Home / Treatment

Breast Cancer Treatment

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2015, 64.2% of women diagnosed with node positive breast cancer, received multi-agent chemotherapy.
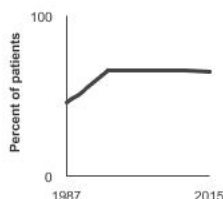


See Graph Details

## 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 and is not included in the data presented on this page.

## Measure

Percentage of women aged 20 and older, diagnosed with early stage breast cancer (stage I or II), 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.

*Note*: This measure includes women with both hormone receptor positive and negative breast cancer.

## Data Source

Breast-conserving surgery and radiation treatment estimates: SEER 17 Registries, National Cancer Institute, 2004–2019.

Multi-agent chemotherapy estimates: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987-2015.

## Healthy People 2030 Target

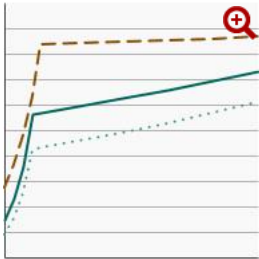- There are no Healthy People 2030 targets for cancer treatment, including breast cancer treatment and multi-agent chemotherapy.

[Healthy People 2030](#) is a set of goals set forth by the Department of Health and Human Services.

## Trends and Most Recent Estimates

<span style="color:red">Expand All +</span>  <span style="color:red">Collapse All -</span>

### — Treatment Distribution

**Treatment distribution for invasive stage I or II female breast cancer patients aged 20 years and older, 2004-2020**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
| --- | --- | --- | --- |
| | | Percent of patients | 95% Confidence Interval |
|  | Mastectomy ⌇ | 31.8 | 31.7 - 32.0 |
| | BCS with radiation ⌇ | 50.4 | 50.2 - 50.6 |
| | BCS without radiation ⌇ | 17.7 | 17.6 - 17.9 |

### + Chemotherapy

## Additional Information

**Last Reviewed: March 2024**
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Colorectal Cancer Treatment

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2015, 70.3% of stage III colon and stage II and III rectal patients received adjuvant chemotherapy.
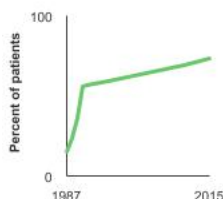


See Graph Details

## 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.

## Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987-2015.

## 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.

## 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

**Last Reviewed: March 2024**

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**Suggested citation:**

Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Kidney Cancer Treatment

## On This Page:

In 2020, 35.3% of patients diagnosed with localized/regional kidney cancer received a partial nephrectomy.
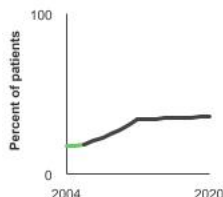


See Graph Details

# 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.

Systemic therapy also may be used as a treatment among individuals diagnosed with kidney cancer. The proportion of patients with kidney cancer who received systemic therapy increased from 2009 to 2019 for patients in each examined age group. While the proportion of patients with kidney cancer who received systemic therapy increased from 2009 to 2019 among all patients combined, the proportion receiving systemic therapy did not increase among non-Hispanic Black, Hispanic, Asian/Pacific Islander, or American Indian/Alaska Native patients.

# Measure

Partial nephrectomy or complete nephrectomy in patients with localized/regional kidney cancer.

Receipt of systemic therapy among patients with kidney cancer.

# Data Source

Nephrectomy estimates: SEER 17 Registries, National Cancer Institute, 2004–2019.

Systemic therapy estimates: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 2004-2019.

# 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.

# Trends and Most Recent Estimates

| — Nephrectomy |
|---|

Expand Section +   Collapse Section -

— **All Races/Ethnicities, Ages 20+**

**Percent of patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2004-2020**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of patients | 95% Confidence Interval |
|  | Partial nephrectomy ⬩ | 35.3 | 34.9 - 35.7 |
| | Complete nephrectomy ⬩ | 43.4 | 42.9 - 43.8 |

+ **All Races/Ethnicities, Ages 20-64**

+ **All Races/Ethnicities, Ages 65 and Older**

+ **Non-Hispanic White, Ages 20+**

+ **Non-Hispanic Black, Ages 20+**

+ **Hispanic, Ages 20+**

+ **Non-Hispanic Asian/Pacific Islander, Ages 20+**

| + Systemic Therapy |
|---|

# Additional Information

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Lung Cancer Treatment

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2017 to 2018, 61.9% of stage IIIB or IV non-small cell lung cancer patients aged 20 years and older received chemotherapy.
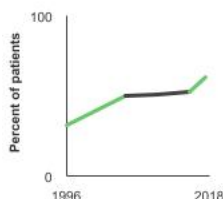


See Graph Details

# 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.

# Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1996-2018.

# Healthy People 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including lung cancer treatment.

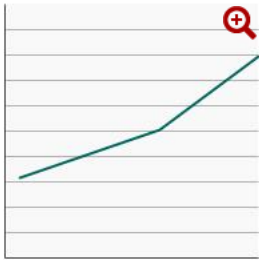Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

# Trends and Most Recent Estimates

# Trends and Most Recent Estimates

— **Chemotherapy**

**Distribution of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer receiving any chemotherapy by age at diagnosis, 1996-2018**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2017 to 2018) | |
| --- | --- | --- | --- |
| | | Percent of patients | 95% Confidence Interval |
|  | Ages 20 and older | 61.9 | 59.9 - 63.8 |
| | Ages 20-49 | 88.6 | 83.4 - 93.8 |
| | Ages 50-59 | 74.6 | 70.4 - 78.7 |
| | Ages 60-69 | 62.1 | 58.7 - 65.4 |
| | Ages 70-79 | 59.2 | 55.5 - 62.9 |
| | Ages 80 and older | 40.6 | 35.4 - 45.9 |

# Additional Information

## Additional Information on Lung Cancer Treatment

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Melanoma of the Skin Treatment

## On This Page:

In 2018, 79.4% of stage III or IV melanoma of the skin patients aged 20 years and older received chemotherapy.
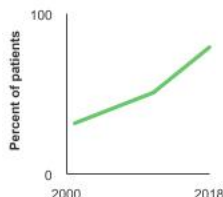


[See Graph Details](#)

## Background

Melanoma is a type of skin cancer in which malignant cells form in melanocytes (cells that color the skin).  While less common than other types of skin cancer, it is more likely to spread to other parts of the body and to be a cause of death.  Melanoma may also occur in mucous membranes (thin tissue layers that cover surfaces such as the lips).  Standard treatment for melanoma can include surgery, chemotherapy, radiation therapy, immunotherapy, or targeted therapy.  Surgery to remove the tumor is the primary treatment for all stages of melanoma; this may include determining whether the melanoma has spread to neighboring lymph nodes.  Systemic therapies and/or radiation therapy may be used following surgery.  Newer treatments including vaccine therapy are being explored in clinical trials.

## Measure

Percentage of individuals with advanced (stage III or IV) melanoma of the skin receiving chemotherapy.

## Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 2001-2018.

## Healthy People 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including melanoma of the skin treatment.

[Healthy People 2030](#) is a set of goals set forth by the Department of Health and Human Services.

## Trends and Most Recent Estimates

— **Chemotherapy**

**Distribution of patients aged 20 years and older diagnosed with stage III or IV melanoma of the skin receiving any chemotherapy , 2001-2018**

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

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2018) | |
| --- | --- | --- | --- |
| | | Percent of patients | 95% Confidence Interval |
|  | Received Chemotherapy 〽 | 79.4 | 76.2 - 82.6 |

# Additional Information

**Last Reviewed: March 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the [Data Sources](#) page.

**Suggested citation:**

Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

[Home](#) / [Treatment](#)

Ovarian Cancer Treatment

## On This Page:

[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

In 2011, 79.9% of stage III or IV ovarian cancer patients received chemotherapy.
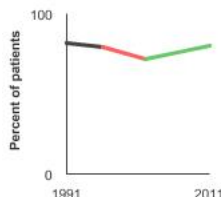


[See Graph Details](#)

# 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.

# Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute,1991-2011.

# Healthy People 2030 Target

- There are no Healthy People 2030 targets for cancer treatment, including ovarian cancer treatment.
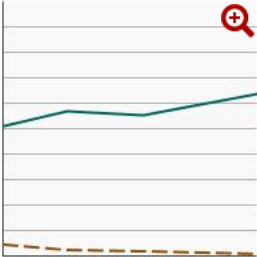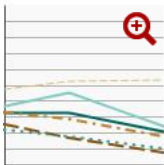
[Healthy People 2030](#) is a set of goals set forth by the Department of Health and Human Services.

# Trends and Most Recent Estimates

Expand All +   Collapse All -

―   **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**

+   **Distribution of Chemotherapeutic Agents**

# Additional Information

**Last Reviewed: March 2024**

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**Suggested citation:**

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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Prostate Cancer Treatment

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2008, 21.1% of localized/regional prostate cancer patients aged 40 years and older were given hormonal therapy.
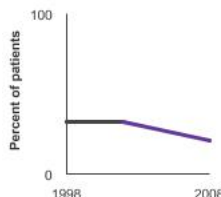
See Graph Details

# 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.

# Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1998-2008.

# 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.

# 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

**Last Reviewed: March 2024**

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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

# Life After Diagnosis

More and more people are benefiting from the early detection of cancer and its successful treatment. These advances are improving both quality of life and length of survival among people diagnosed with cancer, permitting many survivors to lead full and productive lives at home and at work.

National data regarding life after cancer diagnosis track the financial burden of cancer care and survival rates, as well as the health behaviors of cancer survivors, including survivors' physical activity, weight management, UV exposure, and smoking status.

- [Financial Burden of Cancer Care](#)
- [Survival](#)
- [Cancer Survivors and Smoking](#)

- [Cancer Survivors and Physical Activity](#)
- [Cancer Survivors and Weight](#)
- [Cancer Survivors and UV Exposure](#)

**Last Reviewed: March 2024**
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Financial Burden of Cancer Care

## On This Page:

## 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. Assuming constant future costs, we project costs to be $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 those diagnosed with female breast, colorectal, lung, and prostate cancers and non-Hodgkin lymphomas. National oral prescription drug costs were highest for those diagnosed with female breast, leukemia, lung, and prostate cancers. The differences in national costs reflect prevalence of the disease, treatment patterns, and costs for different types of care for the different cancer sites.

If cancer diagnosis and treatment is divided into phases of care: initial (first year after diagnosis), end-of-life (year before cancer death) and continuing (the time in between), per-patient annualized average costs were highest in the last year of life, 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).

# 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.

# 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.

# Trends and Most Recent Estimates

## — National Expenditures

Expand Section +     Collapse Section -

### — 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

+ Prescription Drugs

+ Per Patient Cost

# Additional Information

**Last Reviewed: March 2024**

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Survival

## On This Page:
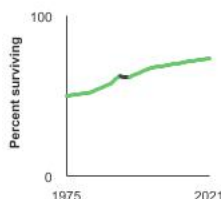
[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

For patients diagnosed with cancer in 2016, 71.7% survived the cancer for at least five years.



[See Graph Details](#)

## Background

Advances in the ways that cancer is diagnosed and treated have increased the number of people who live for long periods of time after a cancer diagnosis. This report looks at trends in 5-year survival rates for cancer, a common timeframe used by statisticians to measure survival rates. It is important to note that while many people may live without evidence of cancer during and beyond this period, some people may live long-term with their cancer, or experience a recurrence or progression of their cancer.

## 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. The relative survival ratio is defined as the observed survival in the patient group divided by the expected survival of a comparable group from the general population. This ratio represents survivors that are expected if cancer were the only cause of death in the cohort.

Characterizing changes in cancer survival over time: The JPSurv [(Joinpoint Survival Model)](#) software (1,2) has been developed to analyze trends in survival with respect to year of diagnosis. The software finds the location and number of joinpoints (years of diagnosis at which survival trends have changed) that best fit the data. The estimates in this report use annual relative survival data with up to 5 years of follow-up for cancer patients diagnosed at each calendar year from 2000 through 2018. To summarize the trends in each segment between joinpoints, we use the average absolute change in survival (AAC_S). The AAC_S represents the average percentage points difference of cancer survival for people diagnosed in one calendar year compared to the prior year. For example, a 5-year survival increase from 50% to 60% for people diagnosed in 1980 versus 1990, represents a total increase of 10 percentage points in 10 years and an AAC_S of 1 percentage (survival) points for people diagnosed in a year compared to the previous between 1980 and 1990. The AAC_S depends on the follow-up survival time.

The joinpoint survival model (3) is an extension of the proportional hazard model for survival where the effect of calendar year at diagnosis is linear on the log hazard of cancer death scale. The joinpoint survival model allows for different linear trends between joinpoints, i.e., calendar years where trends in the hazard of cancer death changes. However, caution should be used when interpreting survival trends for cancer sites for which screening have been widely disseminated (4). See the following articles for more details.

1. The JPSurv software: [https://analysistools.cancer.gov/jpsurv/](https://analysistools.cancer.gov/jpsurv/)

2. Mariotto AB, Zhang F, Buckman DW, et al. Characterizing Trends in Cancer Patients' Survival Using the JPSurv Software. Mariotto et al. Cancer Epidemiol Biomarkers Prev. 30 (11): 2001–2009. https://doi.org/10.1158/1055-9965.EPI-21-0423

3. Yu BB, Huang L, Tiwari RC, Feuer EJ, Johnson KA. Modelling population-based cancer survival trends by using join point models for grouped survival data. Yu et al. Journal of the Royal Statistical Society Series a-Statistics in Society. 2009;172:405-25.

4. Cho H, Mariotto AB, Schwartz LM, Luo J, Woloshin S. When do changes in cancer survival mean progress? The insight from population incidence and mortality. J Natl Cancer Inst Monogr. 2014 Nov;2014(49):187-97. doi: 10.1093/jncimonographs/lgu014. PMID: 25417232; PMCID: PMC4841163.

## Data Source

SEER Program, National Cancer Institute, 1975–2016 with follow-up through 2021.

## 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.

## Trends and Most Recent Estimates
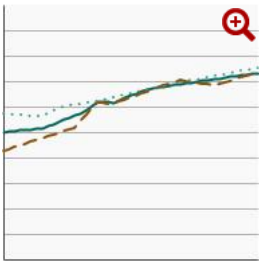
### All Cancer Sites Combined

Expand Section +    Collapse Section -

#### By Sex

**5-year relative survival for all cancer sites combined by sex, 1975-2021**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2016) | |
| --- | --- | --- | --- |
| | | Percent surviving | 95% Confidence Interval |
| | Both Sexes | 71.7 | 71.4 - 72.1 |
| | Male | 70.1 | 69.6 - 70.6 |
| | Female | 73.4 | 73.0 - 73.9 |

By Race/Ethnicity

Top 4 Cancer Sites

## Additional Information

**Last Reviewed: August 2024**

While this report is updated on an annual basis, not all data is available every year. See more information on the Data Sources page.

**Suggested citation:**
Cancer Trends Progress Report
National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

# Cancer Survivors and Smoking

## On This Page:

In 2022, 11.4% of cancer survivors aged 18 and older currently smoked cigarettes.
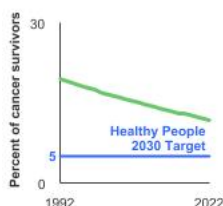


See Graph Details

## Background

As illustrated in the present section, many cancer survivors continue to smoke after their cancer diagnosis. This increases their risk for chronic health conditions, second primary cancers related to smoking, and premature death. 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 the length and quality of life after diagnosis. 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 who had smoked at least 100 cigarettes in their lifetime and who, at the time of the interview, reported smoking every day or some days were considered to be currently smoking.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2022.

Refer to the Data Sources page for more information about data collection years 2019+.

## 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 currently smoke cigarettes.
- Healthy People 2030 Targets are developed and based on the general population and do not account for differences in the age distribution of cancer survivors compared to the general population. Cancer survivors are typically older than those in the general population who have not had cancer.

[Healthy People 2030](#) is a set of goals set forth by the Department of Health and Human Services.
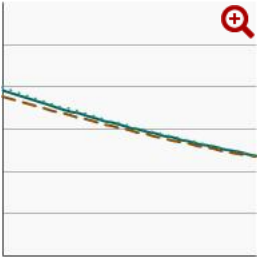**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

# Trends and Most Recent Estimates

Expand All +   Collapse All -

— **By Sex**

**Percentage of cancer survivors aged 18 years and older who reported current cigarette use by sex, 1992-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes 〜 | 11.4 | 9.9 - 13.0 |
| | Male 〜 | 10.5 | 8.4 - 13.1 |
| | Female 〜 | 11.8 | 9.8 - 14.0 |

+ **By Age**

+ **By Time Since Cancer Diagnosis**

+ **Compared to Remaining U.S. Population**

# Additional Information

**Last Reviewed: March 2024**
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National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

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Cancer Survivors and Physical Activity

## On This Page:

Background
Measure
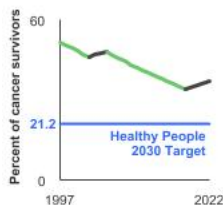Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2022, 36.7% 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 a cancer diagnosis 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 mellitus, 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.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1997–2020.

Refer to the Data Sources page for more information about data collection years 2019+.

## 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 Targets are developed and based on the general population and do not account for differences in the age distribution of cancer survivors compared to the general population. Cancer survivors are typically older than those in the general population who have not had cancer.

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.

# 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, 1997-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes | 36.7 | 34.6 - 38.9 |
| | Male | 34.5 | 31.4 - 37.7 |
| | Female | 38.3 | 35.6 - 41.1 |

+ **By Age**

+ **By Time Since Cancer Diagnosis**

+ **Compared to Remaining U.S. Population**

+ Meet Federal Guidelines

# Additional Information

**Last Reviewed: March 2024**
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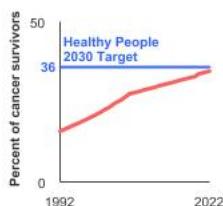
Cancer Survivors and Weight

## On This Page:

Background
Measure
Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2022, 35.9% of cancer survivors aged 20 years and older had obesity.



See Graph Details

# Background

Adopting or maintaining a healthy lifestyle after a cancer diagnosis has the potential to reduce both cancer- and non-cancer-related morbidity and mortality. 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 cancer survivors with obesity 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). 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 above as having obesity.

# Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2022.

Refer to the Data Sources page for more information about data collection years 2019+.

# 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 Targets are developed and based on the general population and do not account for differences in the age distribution of cancer survivors compared to the general population. Cancer survivors are typically older than those in the general population who have not had cancer.

Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.
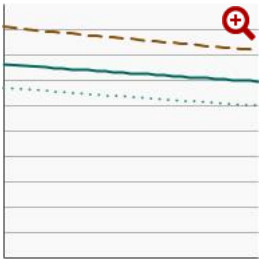**Note:** Goals are indicated as blue line on Detailed Trend Graphs.

# Trends and Most Recent Estimates

— **Overweight**

— **By Sex**

**Percentage of cancer survivors aged 20 years and older who were overweight by sex, 1992-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes 〜 | 34.4 | 32.3 - 36.6 |
| | Male 〜 | 42.3 | 38.9 - 45.7 |
| | Female 〜 | 28.4 | 25.8 - 31.2 |

+ **By Time Since Cancer Diagnosis**

+ **Compared to Remaining U.S. Population**

+ **Obesity**

# Additional Information

**Last Reviewed: March 2024**
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## Cancer Survivors and UV Exposure

### On This Page:

In 2020, 79.2% of adult cancer survivors said they usually or always protect themselves from the sun by practicing at least one of three sun protection behaviors.
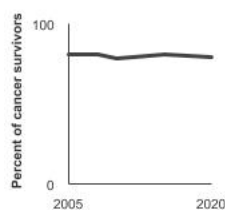


See Graph Details

## Background

A cancer survivorship care plan should include guidelines for healthy living, including sun safety and avoidance of indoor and outdoor tanning since some chemotherapies and radiologic treatment can increase sensitivity to ultraviolet (UV) radiation. In addition to those with a history of a primary skin cancer, many cancer survivors with primary cancers at other sites, and especially survivors of childhood cancers, are also at increased risk for secondary skin cancers. Reducing unprotected exposure to the sun, especially exposures resulting in sunburn, and avoiding artificial UV light from indoor tanning devices can lower the risk of skin cancer. Engaging in sun-protective behaviors, such as seeking shade, using protective clothing and sunscreen when outside, or scheduling outside activities before 10am or after 4pm (when UV index is lower) can reduce one's exposure to UV radiation and sunburn. Previous sun burning at any age is a strong predictor of future skin cancer and especially melanoma, the deadliest form of skin cancer.

## Measure

Rates reported for 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).

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

The percentage of cancer survivors aged 18 years and older who have used an indoor tanning device one or more times during the past 12 months.

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

## 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, 2005–2020.

Refer to the Data Sources page for more information about data collection years 2019+.

# Healthy People 2030 Target

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

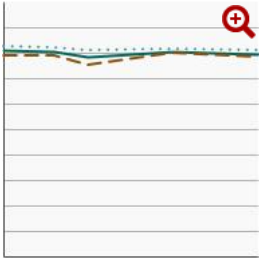Healthy People 2030 is a set of goals set forth by the Department of Health and Human Services.

# Trends and Most Recent Estimates

## — Sun Protection

Expand Section +   Collapse Section -

### — By Sex

**Percentage of cancer survivors aged 18 years and older who always or most of the time protect themselves from the sun by sex, 2005-2020**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2020) | |
|---|---|---|---|
| | | Percent of cancer survivors | 95% Confidence Interval |
|  | Both Sexes 〰 | 79.2 | 77.3 - 81.1 |
| | Male 〰 | 78.2 | 75.3 - 80.9 |
| | Female 〰 | 80.8 | 78.2 - 83.2 |

+ By Age

+ By Time Since Cancer Diagnosis

## + Indoor Tanning

## + Sunburn

# Related Cancers

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

- Melanoma of the Skin

# Additional Information

**Last Reviewed: March 2024**
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[Home](#)

# 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](#)

**Last Reviewed: March 2024**
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Mortality

## On This Page:
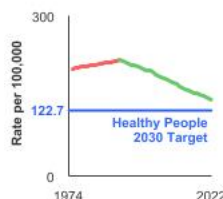
[Background](#)
[Measure](#)
[Healthy People 2030 Target](#)
[Data Source](#)
[Trends and Most Recent Estimates](#)
[Additional Information](#)

In 2022, the death rate for all cancers combined was 142.3 per 100,000 people per year.



[See Graph Details](#)

## 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 2022 cancers of the female breast, prostate, lung, colorectal, and pancreas accounted for over one-half (51 percent) of all cancer deaths in the United States. Lung cancer alone claimed 22 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.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, 1975–2022.

## 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.
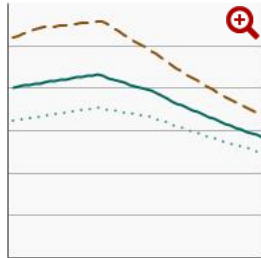
## Trends and Most Recent Estimates

## All Cancer Sites Combined

Expand Section +   Collapse Section -

### By Sex

**U.S. death rates for all cancers by sex, 1975-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Rate per 100,000 | 95% Confidence Interval |
|  | Both Sexes | 142.3 | 141.9 - 142.7 |
| | Male | 167.2 | 166.7 - 167.8 |
| | Female | 124.2 | 123.7 - 124.6 |

+ By Race/Ethnicity

+ Top 4 Cancer Sites

+ Recent Trends for Common Cancer Sites

# Additional Information

**Last Reviewed: August 2024**

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Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2024, https://progressreport.cancer.gov.

Years of Life Lost

## On This Page:

Background
Measure
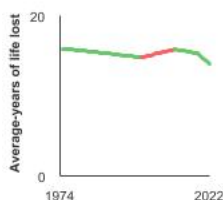Healthy People 2030 Target
Data Source
Trends and Most Recent Estimates
Additional Information

In 2022, the average years of life lost due to cancer was 14.2.



See Graph Details

## 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.

The decline in average years of life lost to cancer from 2020-2022 reflects a change in life expectancy. These estimates were based on the 2020 life tables which show an average of two years lower life expectancy compared to previous life tables.

## 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.

## Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, 1975-2022.
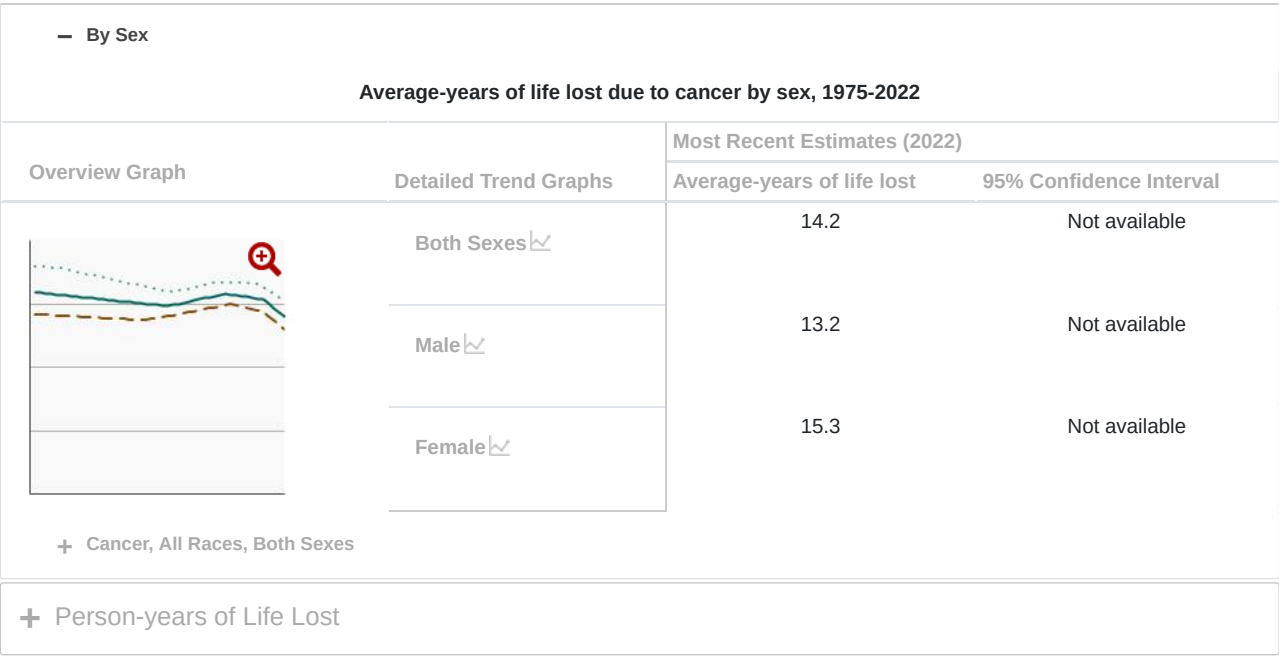
## Healthy People 2030 Target

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.

## Trends and Most Recent Estimates

— Average Years of Life Lost

Expand Section +   Collapse Section -

**Average-years of life lost due to cancer by sex, 1975-2022**

| Overview Graph | Detailed Trend Graphs | Most Recent Estimates (2022) | |
| --- | --- | --- | --- |
| | | Average-years of life lost | 95% Confidence Interval |
|  | Both Sexes | 14.2 | Not available |
| | Male | 13.2 | Not available |
| | Female | 15.3 | Not available |

+ Cancer, All Races, Both Sexes

+ Person-years of Life Lost

# Additional Information

**Last Reviewed: August 2024**

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